WATER NEWS 2 DAY

2020/21 1ST EDITION

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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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WATER NEWS 2DAY

FOREWORD
BY THE CEO

The mandate of the Inkomati-Usuthu Catchment Management Agency (IUCMA) entails the protection, use, development, conservation, management, and control of water resources within the water management area (WMA). We are therefore delighted to report that the IUCMA has once again achieved an unqualified audit for the 2019/20 financial year, despite experiencing various challenges.

In the light of the Covid-19 pandemic, and in response to an urgent request for closer cooperation from the Provincial Joint Operations Committee (JOC) and the National Command Council to water sector-related entities, the IUCMA has heeded the call and donated 40 water storage to various municipalities to alleviate the water need during this time. Additionally, 6 boreholes were drilled and equipped for communities of the Jerusalem and Mashadza areas in the City of Mbombela. We trust that this would assist these impoverished communities during the pandemic.

A key challenge facing the IUCMA is the implication of the Schedule 3 delegation, the need for redress and equitable access to water resources. Sections 32 and 33 of the National Water Act (Act 36 of 1998) delegate the IUCMA to validate and verify the extent and lawfulness of an existing water use. In this regard, the IUCMA has embarked on a validation and verification project of existing water uses. This process is still continuing and IUCMA staff are available and ready to assist water users who are experiencing any challenges in this regard.

The UCMA is committed to providing equitable access to all water resources by means of Water Allocation Reform (WAR). This is realised by providing financial assistance to poor farmers, compulsory licensing, and the processing of licences and/or authorisations to support HDIs.

Mining is an important activity in South Africa, but the various processes involved in mining wreaks havoc on the natural environment. Sand mining is the extraction of sand through a river bed or instream for use in the construction industry and is regulated by section 21 of the NWA. In addition, the Department of Water and Sanitation (DWS) has developed the following guidelines: Sand Mine Guideline for South Africa for water use authorisation of Sand Mining/ Gravel Extraction, and Best Practice Guideline for Water Resource Protection in South African Mining Industry A1, and Small Scale Mining (Standard Format).

Water resources in the WMA is strategically important for international obligations and inter-basin transfers for power generation. The IUCMA is tasked with managing, controlling, protecting and monitoring water resources in its WMA. In this regard, the Annual Water Quality Status Report for the 2019/20 financial year indicates that the water quality is in a relatively good state within the WMA.

I am particularly inspired that the IUCMA hosted a webinar in August to celebrate Women's Month with the sole objective to empowering women within the WMA.

In order to increase their understanding of water resource management, learners are cautioned about the significance of wetlands and the impact of climate change in South Africa. Lastly, we provide relevant information to learners who intend exploring a career in water resource management.

Dr Jennifer Molwantwa
Acting CEO

IUCMA GETS CLEAN AUDIT FOR 2019/20

"Unqualified audit opinions since inception 2006-2020 and still going strong"

Editor's NOTE

Dear valued stakeholders

Currently the country is bracing itself for a second wave of the Covid-19 pandemic and we urge all our stakeholders to heed the call of Government i.e. to be more vigilant than before, and play an active part to curb the spread of the coronavirus.

In light of the above and as a result of serious water shortage in identified areas, the Inkomati-Usuthu Catchment Management Agency (IUCMA) reached out to destitute communities and donated 40 water storage tanks to four municipalities in Mbombela, and 6 boreholes and 6 water storage tanks to communities around the Jerusalem and Mshadza areas. A detailed discussion can be found on Page 8 through 10 of the publication.

The IUCMA has been delegated by the Minister of Human Settlements, Water and Sanitation to perform water use verification and as such the IUCMA endeavours to redress our past and provide equitable access to water uses. Water users are therefore consulted in order to verify the determined validation outcomes. A detailed discussion can be found on Page 12 through 14 of the publication.

We are delighted to report that most of the dams under the Inkomati-Usuthu WMA, for example, the Injaka, Da Gama, Driekoppies, Jericho dams are at full capacity. More details can be found on Page 16 through 17.

The IUCMA has embarked on Water Allocation Reform (WAR) in its attempt to eradicate poverty and to promote economic growth. A short-term and long-term plan has been devised in this regard. A detailed discussion can be found on Page 18 of the publication.

The IUCMA notes that a high demand for safe, clean water and sanitation has a greater impact on women and girl children. Hence it hosted a webinar in honour of Women's Month where pertinent issues in this regard were discussed with women.

Illegal river mining presents a huge challenge in the WMA. The Department of Water and Sanitation (DWS) has developed various guidelines for water use authorisation of sand mining/gravel extraction. A detailed discussion can be found on Page 22 through 23 of the publication.

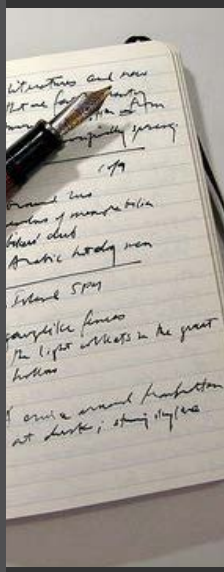
The Annual Water Quality Status Report for the Inkomati-Usuthu WMA 2019/20 financial year can be found on Page 24 through 28 of the publication.

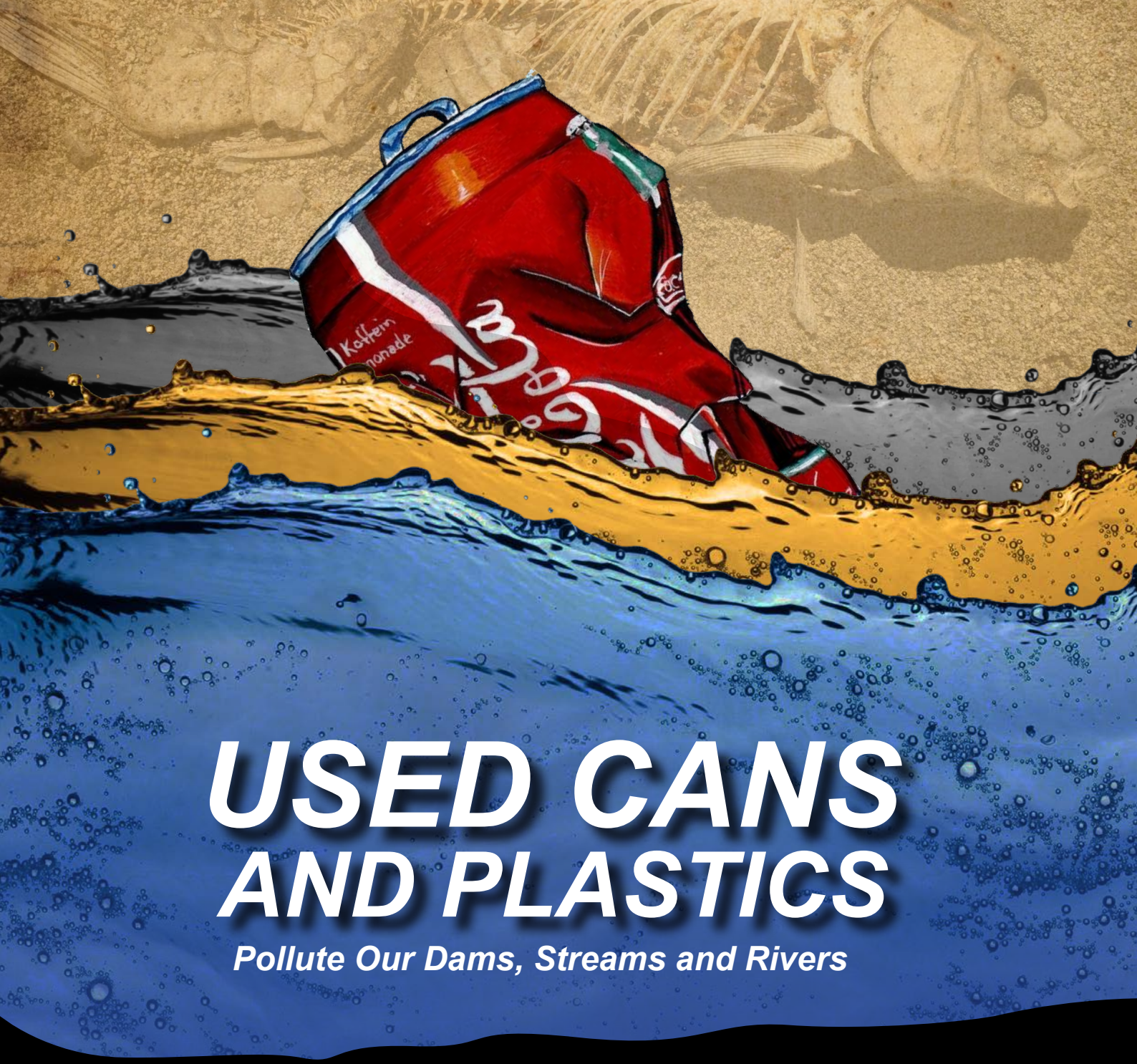
Furthermore, learners are enlightened about our water resources and wetlands on Page 30 and Page 32 through 33. Any learner contemplating a career in water resource management can find all relevant information on Page 34 through 37.

The IUCMA urges our stakeholders and the general public to respect our resources by protecting it.

Sylvia Machimana

QR CODE FOR THE IUCMA WEBSITE





USED CANS AND PLASTICS

Pollute Our Dams, Streams and Rivers

Take action agaisnt pollution and be involved in cleaning campaigns

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

Inkomati-Usuthu CMA, your partner in water management

INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

WATER IS LIFE

THE INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY DONATES 40 WATER TANKS TO COMMUNITIES TO CURB THE SPREAD OF CORONAVIRUS

Mpumalanga Premier Hon. Refilwe Mtshweni-Tsipane, IUCMA Governing Board Deputy Chairperson Mr Sam Mthembu, IUCMA CEO Dr Thomas Gyedu-Ababio and the Deputy Minister of Human Settlements, Water and Sanitation Hon. David Mahlobo handing over a borehole in Jerusalem.

The Inkomati-Usuthu Catchment Management Agency (IUCMA) initiated a 40-tank catchment-wide project under its Corporate Social Investment (CSI) programme as a response to the shortage of water during the COVID-19 pandemic. The Provincial Joint Operations Committee (JOC) and the National Command Council requested all water sector-related government departments, water entities and interested private businesses to contribute towards a nationwide drive to provide water to destitute communities. There is a need in communities for reliable clean water supply to enable them to heed the call to frequently wash hands to curb the spread of the deadly novel coronavirus.

The IUCMA, has therefore together with local municipalities, through the Provincial JOC, identified hotspots in the water management area to assist in providing small-scale water supply facilities to communities during this trying time. It should be borne in mind that the IUCMA is not responsible for providing drinking water to communities, but due to the coronavirus pandemic, the IUCMA, as a responsible corporate citizen and a public entity, is responding to the call by assisting municipalities within its area of operation with water storage tanks. Since portable water provision is not within the legal mandate of the IUCMA, all tanks have officially been handed over to the respective municipalities for operations and maintenance. This also includes the filling of tanks with water so that communities can gain access to clean water. Provision of drinking water falls within the mandate of all municipalities since they are water service providers.

Tanks have been evenly distributed in the WMA according to the needs as identified. All 40 tanks have been installed and are fully operational in the following municipalities:

- Bushbuckridge Local Municipality (10)
- Nkomazi Local Municipality (10)
- Chief Albert Luthuli Local Municipality (10)
- Mkhondo Local Municipality (10)

In addition to the above 40 tanks, the IUCMA has also drilled and equipped 6 boreholes under its CSI programme for use by communities around the Jerusalem and Mshadza areas in the City of Mbombela. The IUCMA also supplied 6 water shortage tanks with a capacity of 10 000 liters for the 6 boreholes.

Official handover started early in April when Mr David Mahlobo, the Deputy Minister of the Department of Water and Sanitation visited the province. At the time most of the projects were still ongoing. Together with Premier Refilwe Mtsweni-Tsipane and Ehlanzeni District Executive Mayor Ms Jester Sidell, Deputy Minister Mahlobo handed over a borehole equipped with 6 standpipes that would service just over 85 households in Jerusalem, City of Mbombela. Executive Mayor Sibusiso Mathonsi received a borehole on behalf of the City of Mbombela. The Deputy Ministers entourage went on to hand over a water tank at MP Stream village in Bushbuckridge. They were received by the Executive Mayor of Bushbuckridge Local Municipality Ms Sylvia Nxumalo. In attendance were also the MEC for Economic Development and Finance Mr Pat Ngomane, the MEC for COGTA Mr Mandla Msibi, and the Provincial Director-General Ms Sindisiwe Xulu.

During the official handover of the water tanks in Nkomazi Local Municipality, Councillor Sphiwe Mashele, the Speaker of the Municipal Council said, "I am happy that we have managed to build a sound working relationship with the IUCMA; we come from far together and this gesture today tells me that we are still going another mile together". She added, "We are pleased the IUCMA has never forgotten us and we thank them very much for the water tanks. Our communities will be relieved a great deal during this difficult time of the coronavirus." She also expressed her concern about the fact that the Nkomazi region has been named after the coronavirus in the province. She attributed this to the porous borders of South Africa as the municipality is flanked by both Mozambique to the east and Swaziland to the south. The Speaker was accompanied by two other political representatives from the municipality, Mr S Mabuza, Member of the Mayoral Committee responsible for the finance portfolio, and the Chief Whip of Council Ms EZ Ngcane. Adv Bernard Shabangu, manager in the office of the Executive Mayor and member of the IUCMA Governing Board expressed his excitement to see the municipality and IUCMA working together. "I would like to see more of this. It is important for government and its entities to support each other. There is no competition, the idea is to complement each other", he said. He further emphasised the importance of cooperative governance and commended the IUCMA for taking a firm stand and for bringing it to fruition.

For more information kindly contact Sylvia Machimana at 078 451 0164 / sylviam@iucma.co.za

Issued by the Inkomati-Usuthu Catchment Management Agency

Mr Sam Mthembu, IUCMA Deputy Chairperson addressing the participants during the handover in Nkomazi Local Municipality.

Drilling of a borehole in Mshandza.

Newly installed water tank at Iswepe in Mkhondo Local Municipality.

For more pictures view page 10

Dr Thomas, Bushbuckridge LM Mayor Cllr. Sylvia Nxumalo and the Deputy Minister Hon. Mahlobo handing over a water tank in Bushbuckridge Local Municipality.

Masks being worn by all at the water collection point in Nkomazi Local Municipality during a handover.

Dr Tendai Sawunyama, IUCMA Project Manager looking very pleased as the projrects are being concluded.

Inspections in one of the boreholes in Mshadza before handingover.

Dr Thomas, Deputy Chairperson Mr Mthembu and the IUCMA Governing Board Member Adv. Bernard Shabangu officially handing over the tank to the Speaker of Nkomazi Local Municipality Cllr. Sphiwe Mashele.

Municipal Manager, MMC, IUCMA Governing Board Member Mr PA Tshabangu and the IUCMA CEO Dr Thomas Gyedu-Ababio during the handover in Chief Albert Luthuli Local Municipality.

Installation being completed at Kildare in Bushbuckrdge Local Municipality.

Mkhondo Local Municipality Municipal Manager & Technical director, IUCMA CEO and the Governing Board Member during the handover at Mkhondo Local Municipality.

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.

CONTINUATION OF INKOMATI CATCHMENT WATER USE VERIFICATION

The Inkomati-Usuthu Catchment Management Agency (IUCMA) has delegated responsibility for water resources management by the Minister of Human Settlement, Water and Sanitation in the Inkomati and Usuthu Water Management Area. One of the delegations, is the validation and verification of the extent and lawfulness of an existing water use under section 35, as prescribed by sections 32 and 33 of the National Water Act, (Act 36 of 1998, [henceforth referred the Act]). The validation and verification process for existing water use shall be limited to water use(s) that have been in existence prior the promulgation of the Act and were exercised lawfully under any law which was in force immediately two years before the date of commencement of the Act.

The determination of lawfulness and extent of existing water use(s) will be done in terms of sections 32 and 33 of the Act which can be found on www.dws.gov.za, which read as;

ss32. (1) An existing lawful water use means a water use –

(a) which has taken place at any time during a period of two years immediately before the date of commencement of this Act; or

(b) which has been declared an existing lawful water use under section 33, and which –

(i) was authorised by or under any law which was in force immediately before the date of commencement of this Act;

(ii) is identified as a stream flow reduction activity in section 36(1); or

(iii) is identified as a controlled activity in section 37(1).

(2) In the case of -

(a) a stream flow reduction activity declared under section 36(1); or

(b) a controlled activity declared under section 38, existing lawful water use means a water use which has taken place at any time during a period of two years immediately before the date of the declaration.

ss33. (1) A person may apply to a responsible authority to have a water use which is not one contemplated in section 32(1)*(b)*(i), (ii) or (iii), declared to be an existing lawful water use.

(2) A responsible authority may, on its own initiative, declare a water use which is not one contemplated in section 32(1)*(b)*(i), (ii) or (iii), to be an existing lawful water use.

(3) A responsible authority may only make a declaration under subsections (1) and (2) if it is satisfied that the water use -

(a) took place more than two years before the date of commencement of this Act and was discontinued for good reason; or

(b) had not yet taken place at any time before the date of commencement of this Act but -(i) would have been lawful had it so taken place; and

(ii) steps towards effecting the use had been taken in good faith before the date of commencement of this Act.

(4) Section 41 applies to an application in terms of this section as if the application had been made in terms of that section.

To ensure redress and equitable access to water resources, the IUCMA has to confirm the lawfulness and extent of existing water uses. Additionally, the IUCMA has to determine how much water is available in the system to allocate as part of the water allocation plan to previously disadvantaged persons and future water requirements including environmental flows and domestic water use for areas that were previously deprived of this right. Since 2014 till 2019, the IUCMA undertook the project with a Professional Service Provider (PSP) to process validation and verification of existing water uses. Unfortunately, some water users did not adequately respond to the letters sent due to various challenges. Hence the IUCMA once again requests water users to participate in the project to continue the verification of the unverified properties. This project is imperative as the IUCMA will be undertaking the process of compulsory licensing soon. The ongoing verification is confined to the following water uses:

a) Section 21(a) which is taking water from any water resource, resource being a dam; a river, a wetland or groundwater via a boreholes;

b) Section 21(b) which is the storing of water by a dam, a weir or any facility within the regulated area of a watercourse;

c) Section 21(d) which is the engaging in a stream flow reduction activity contemplated in section 36 of the Act.

The IUCMA has validated and determined the existing water use(s). This process entails consultation/ engaging water users to verify the determined validation outcomes. Water users are welcome to dispute the outcomes by furnishing factual proof in the form of ***old water use permits, Water Court Orders, property specific aerial photos, legible remotely sensed images, etc***. The images and photos should not be older than year 1999. Additionally, any water users that are outside Irrigation District but intend for ss33(2) verification, need to furnish factual proof that meets the terms of ss33(3) (a) (b)(i) and (ii).

Information continues on page 14

During this process of water use verification consultations, IUCMA employees will physically visit water users on their respective properties on pre-arranged dates via the respective existing local water use management structures or contacts. Water users are therefore requested to avail themselves/ representatives to engage and verify the validated water uses outcome with the IUCMA employees. The visits will occur on sub-catchments basis, i.e **Upper Kwena; Elands River, White River; etc, starting upstream of each catchment and on tributary sub-catchments like Stads River.** At this consultation meetings the IUCMA personnel will make available and present the water user with the validated water uses outcome for examination and concurrence by the water user. Where there is no concurrence the process described on the latter paragraph ought to be observed, for furnishing factual proof.

Water users are advised to please note the following, that in terms of,

1. ss 151(1)(a) of the Act, no person may use water otherwise than as permitted under this Act;
2. ss 151 (1)(f) of the Act no person may fail or refuse to give data or information, or give false or misleading data or information when required to give information under this Act;
3. ss 151 (1)(g) of the Act no person may fail to register an existing lawful water use when required by a responsible authority to do so;

Due to COVID-19 restrictions, a maximum of five (5) IUCMA personnel, when necessary would physical visit respective property(s) or identified venue. Enquiries can be directed to Ms. Felicia Nemathaga (nemathagaf@iucma.co.za/ 0827660035), Ms. Vutlhari Matsane (matsanev@iucma.co.za/ 0622345050) and Mr. Sampie Shabangu (shabangus@iucma.co.za/ 0629079061), Ms. Gugu Motha (mothag@iucma.co.za/ 0784590349) alternatively call the office at telephone number 013 753 9000.

NB: Water users are welcome to send any water use validation and verification enquiries to the above contacts for assistance. Furthermore, all water users that have verified their existing water use(s) can ignore this notice.

WATER USE **VERIFICATION** IS ONE FORM OF PERMISSIBLE **WATER USE AUTHORISATION** UNDER SS22(1)(a)(ii)

www.iucma.co.za

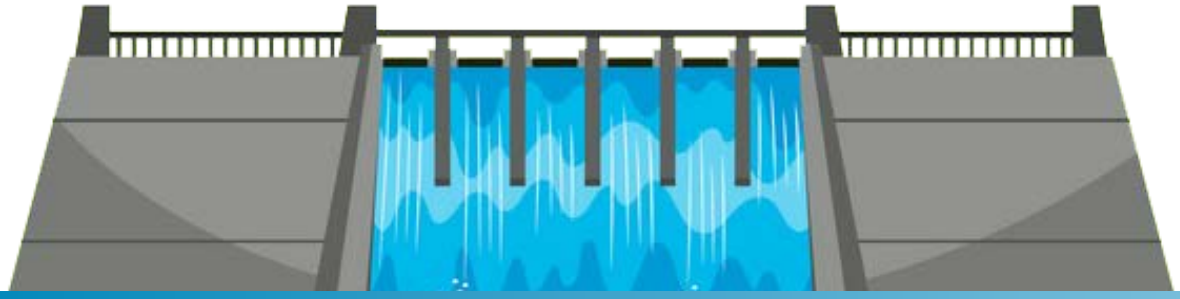
By Mr Sampie Shabangu from Water Use Authorization

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

INKOMATI-USUTHU
CATCHMENTMANAGEMENTAGENCY



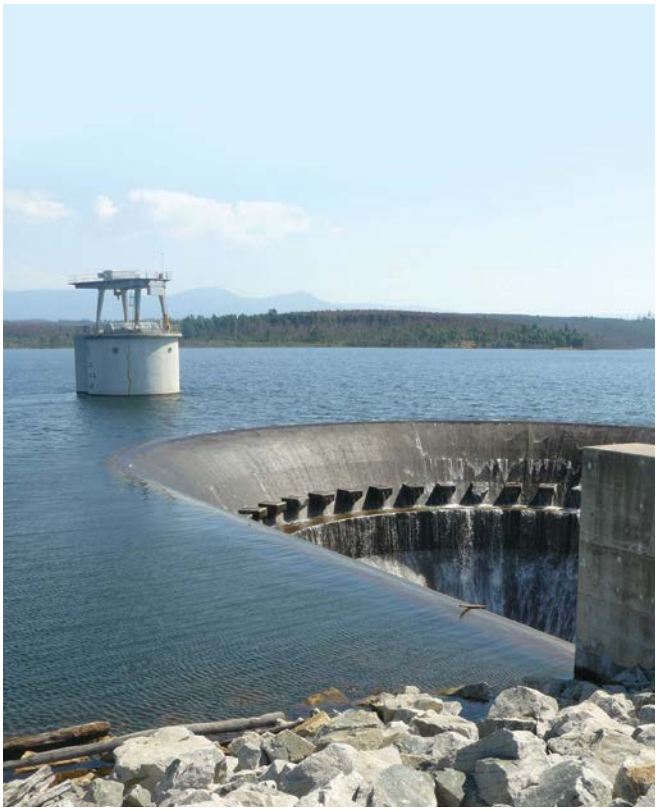
SOME OF THE **DAMS** UNDER INKOMATI-USUTHU WATER MANAGEMENT AREA

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

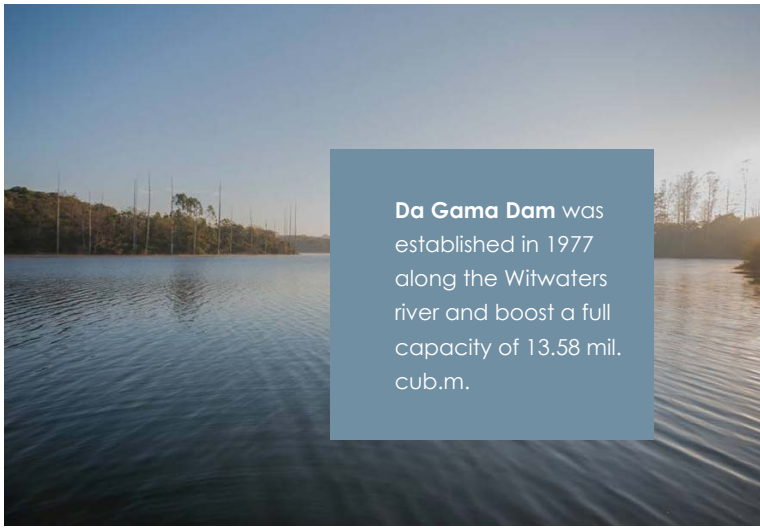
The **Driekoppies Dam** along the Lomati river boost a full capacity of 251 Mm^3 and was opened in 1998.

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

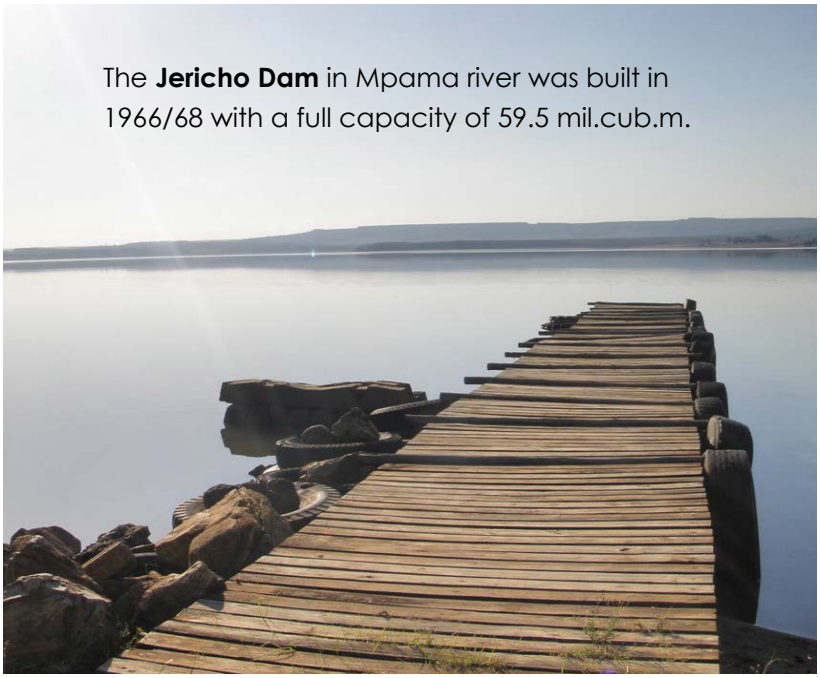
The **Vygeboom Dam** built in 1969 along the Komati river boost a full capacity of 78 mil.cub.m.



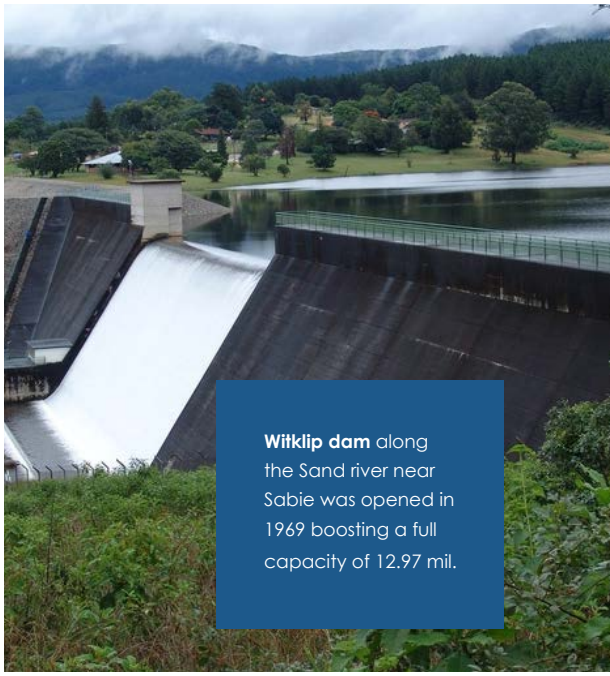
Injaka Dam along the Marite river boost a full capacity of 124 mil. cub.m.



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



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



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

Water
ALLOCATION REFORM
WHAT YOU NEED TO KNOW

Water, like all other resources in this country is historically allocated unequally. Thus the National Water Act, Act No. 38 of 1998 (the NWA) and subsequently the National Water Resources Strategy (NWRS) in line with the constitutional imperative provides for the correction of such imbalances.

The South African Constitution states that there is a commitment from the nation to reform in order to bring about equitable access to all South Africa's natural resources, including water resources. Water Allocation Reform (WAR) is deduced from the NWA as a measure to redress past imbalances with its intention to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in an effective and efficient manner. The state is not impeded to effect water reform by taking legislative and other steps in order to redress the results of past racial discrimination, so as to achieve socio-economic equity.

As one of the measures aimed at addressing inequities in access to water for productive purposes, equitable access to water, or to the benefits derived from using water, the Department of Water and Sanitation (DWS) through the relevant Catchment Management Agencies (CMA) has embarked on Water Allocation Reform (WAR) which is critical in eradicating poverty and promoting economic growth. WAR is the Inkomati-Usuthu Catchment Management Agency's key programme for redressing these inequities. The programme aims to:

- Meet the basic human needs of present and future generations;
- Promote equitable access to water, redressing past imbalances based on gender and race;
- Promote the efficient, susutainable and beneficial use of water in the public interest;
- Meet international obligations, etc;
- Take steps to meet the water needs of HDIs and the poor and
- Ensure participation by these groups in water resource management.

The IUCMA has deduced a short and long term plan to be used towards achieving WAR. which encompasses a number of actions including the provision of financial assistance to resource poor farmers, Compulsory Licensing to support the equitable (re)allocation of water in any catchment, and the processing of Licenses and/or General authorizations to support the uptake of water by historically disadvantaged individuals.

REPORT WATER POLLUTION *INCIDENTS*

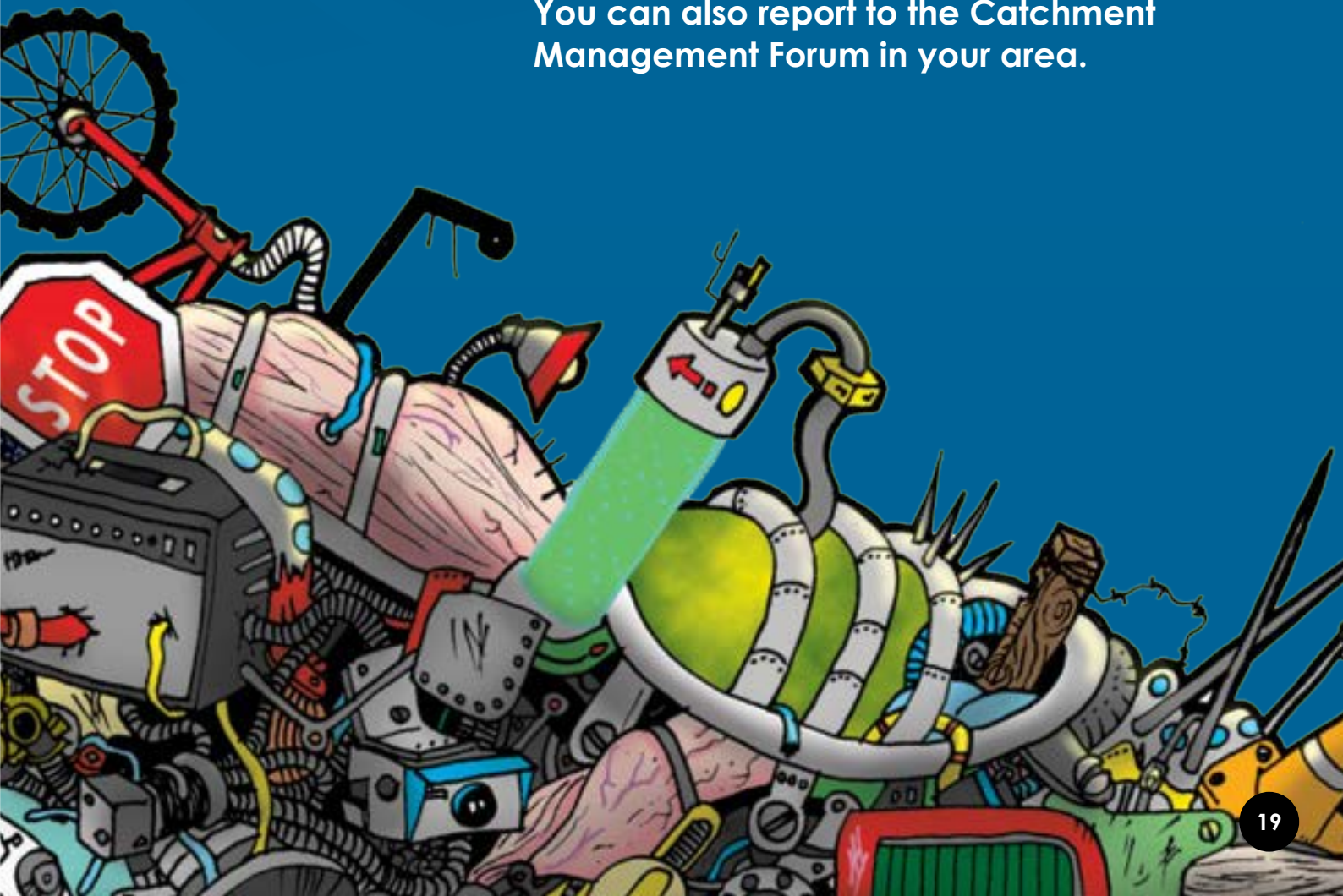
The IUCMA is aware that pollution incidents occur occasinally in the the catchment. Therefore, for any water pollution incidents like sewage leakages and others, please report at **water@iucma.co.za**

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.



"WOMEN IN WATER"

Thanking all stakeholders who participated in the Webinar

The world is 10 years away from the achievement of the SDG 6 (Ensure availability and sustainable management of water and sanitation for all by 2030), yet the impact of climate change (droughts that are more frequent and prolonged), inefficient use of water and poor infrastructure already indicates that the SDG will not be achieved. This is more so the case for third world and developing economies, and within them the hardest hit being rural areas. It remains true that the availability of water is a key enabler for the provision of safe water, sanitation, hygiene, and sustainable livelihoods.

In light of this looming challenge, the COVID-19 Pandemic hit the globe and overnight created a high demand on safe clean water and sanitation for all people. This demand has a higher impact on women and girl children as they are caregivers, home makers and require water for hygiene and other uses.

INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

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

To report please call IUCMA @ 013 753 9000

RIVER SAND MINING

WHAT YOU NEED TO KNOW

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 have been classified into four types (Hill and Kleymhans 1999: McDivitt et.al.,1990)

- **Dry-pit mining:** mining of pits on dry ephemeral streambed and exposed sand bars with conventional shovel, trucks, bulldozers, scrappers 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 floodplains or river terraces:** this refers to the mining of a pit that has been isolated from 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.

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 local make of the river, such as livestock falling and being trapped to death on the pools. It can also increase turbidity of water, thereby making domestic water use impossible. The deep pools maty 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 Requirement for Sand Mining in terms of the National Water Act, 36 of 1998 (NWA)

- In terms of (S 21) of the NWA, in-stream mining of sand is a water use activity and requires authorisation/license 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) makes 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 too

- 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 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) both hard copy and soft copy.**

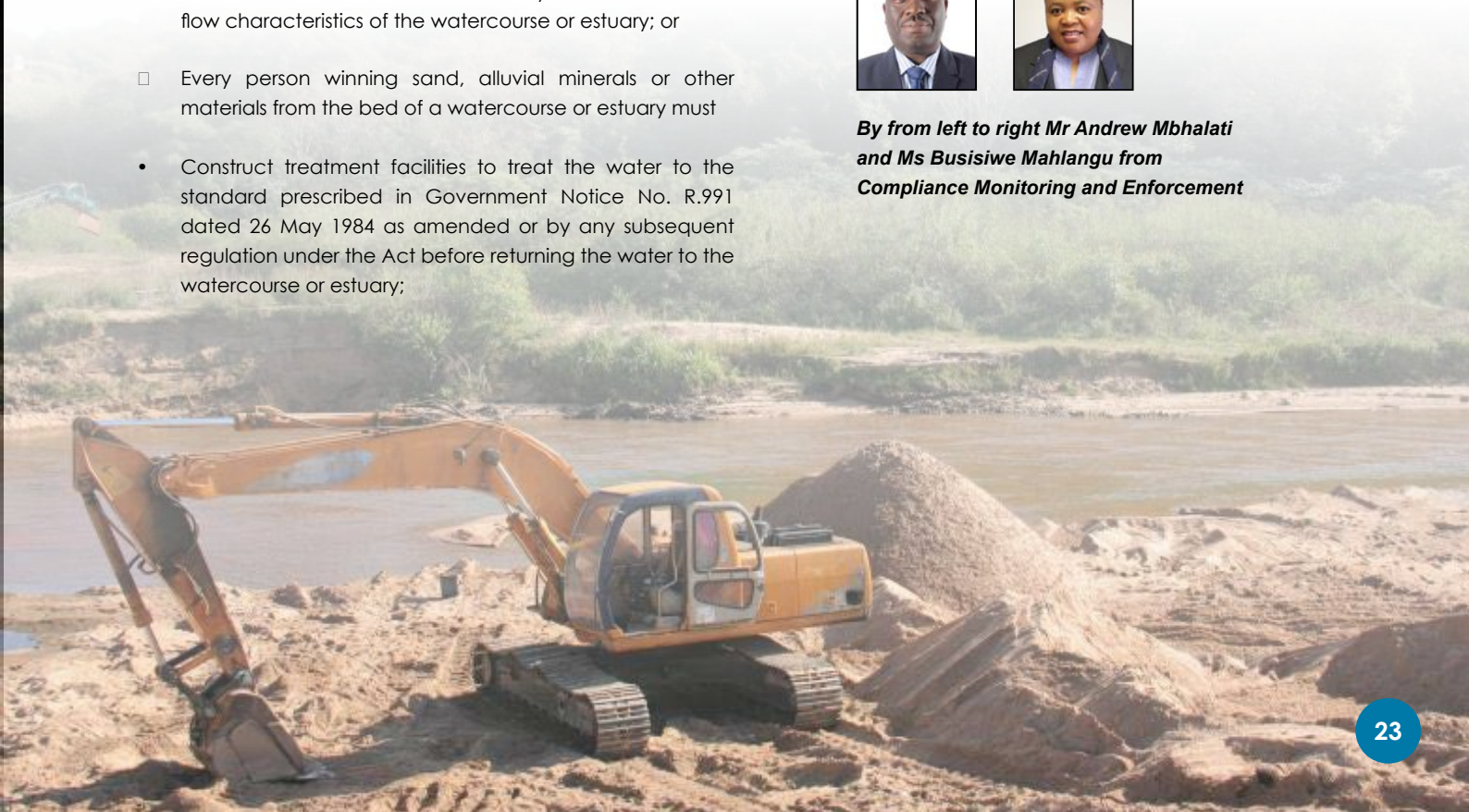
- **Alleged illegal sand mining can be reported to the IUCMA at**

013 753 9000 or water@iucma.co.za

Issued by the Inkomati-Usuthu CMA-Contact:
IUCMA: Control Environmental Officer,
Ms Busisiwe Mahlangu on 013 753 9000 or
mahlangub@iucma.co.za.

For latest river flow and dam levels visit:
http://riverops.inkomaticma.co.za /
http://iucma.co.za

By from left to right Mr Andrew Mbhalati and Ms Busisiwe Mahlangu from Compliance Monitoring and Enforcement



ANNUAL WATER QUALITY STATUS REPORT

FOR THE INKOMATI-USUTHU WMA

2019/20 FINANCIAL YEAR

Chapter 3 of the NWA prescribes the protection of water resources through resource-directed measures including the determination of the management classification, Resource Quality Objectives and the Reserve of significant water resources. These are measures which together are intended to ensure the protection of the water resource as well as measures to regulate and control the impacts of land-based activities by ensuring pollution prevention and remedying the effects of pollution. It is further required that the protection of water resources is balanced with the need to use water as a factor of production to enable socio-economic growth and development.

The challenges affecting water quality in the Inkomati-Usuthu WMA have always been mainly due to industrial and mining activities and the poor state of water services authorities' sewage infrastructure. Pollution of the resource is caused due to contamination of sewage (e.g. from overflows, spills and leakages or by discharge of untreated/partially treated sewage into the resource); and decanting of mining effluents or leachate into the water resources as well as solid waste especially nappies.

The microbial pollution remains a human health risk, especially to the vulnerable rural communities that at times must use the river water for domestic, religious, cultural and recreational purposes. Deteriorating water quality on certain Ecological Water Requirements sites especially microbiological quality has largely been attributed to inadequate compliance, monitoring and enforcement, weak co-operative governance, absence of regulation and delays in the implementation of the Waste Discharge Charge System.

The surface water quality in the Inkomati-Usuthu WMA complied with the Resource Quality Objectives (RQOs), South African Target Water Quality Guideline limits (SATWQG) and International Water Quality Guideline limits (IWQG) for most of the monitored points and this showed that the water quality within the WMA is in a relatively good state.

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 as WMA 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.

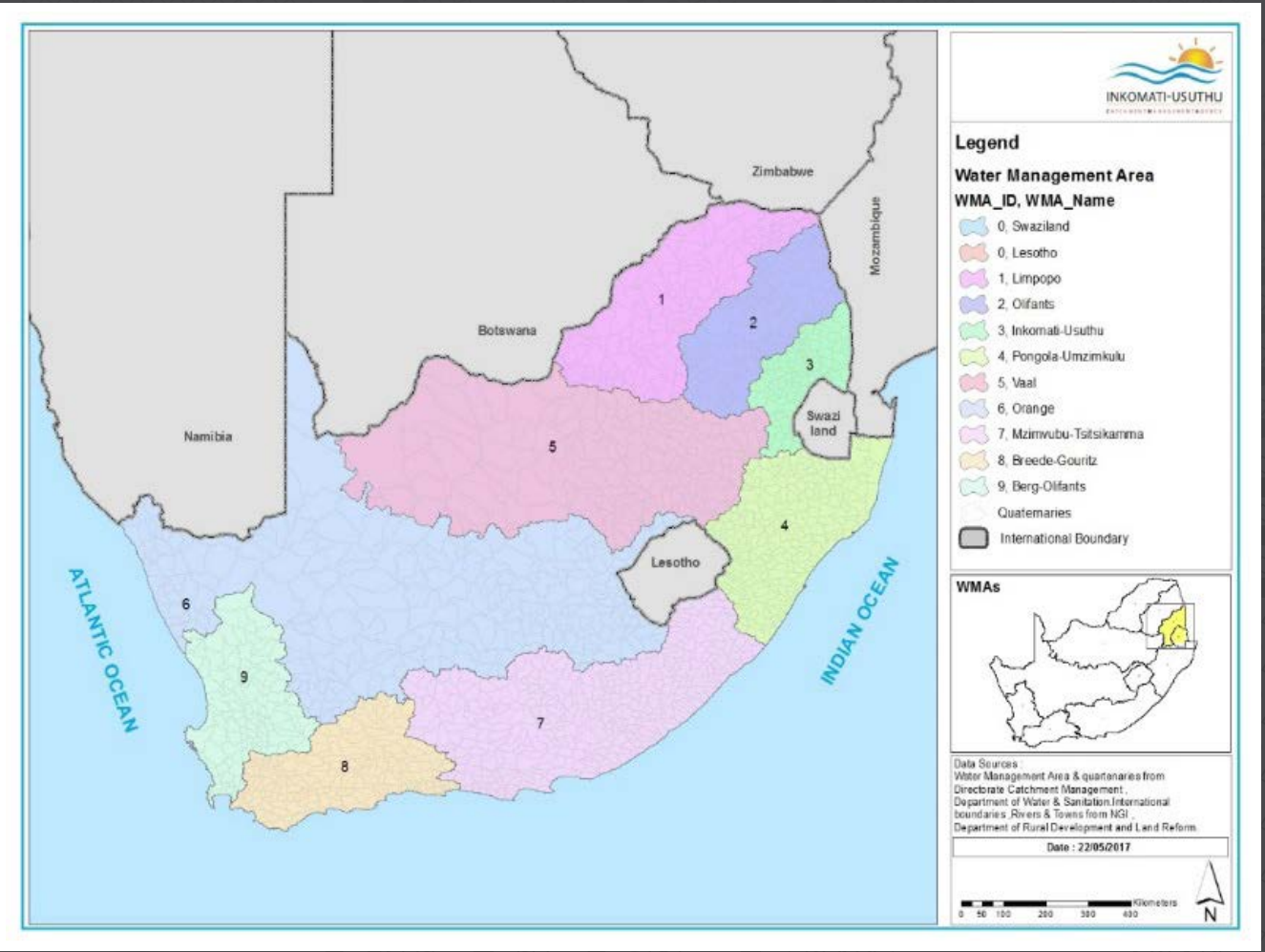


Figure 1: Map of South Africa indicating the nine WMA.

Information continues on page 26, 27 and 28

National Water Act, Act 36 of 1998 (NWA) of South Africa Chapter 14: Requires the Minister to establish national monitoring systems for the collection of appropriate data and information that is adequate and responsive to the present and future challenges of efficient management of the country'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 chemical, physical, and biological characteristics of water (DWS, 1996).

Surface water quality within Inkomati-Usuthu WMA is measured by means of 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 was collected over a period of 12 Months (January 2019- December 2019) within the WMA.

The water quality status of parameters is compared with the Resource Quality Objectives published in a 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 Republic of Mozambique, Republic of South Africa (RSA) and the Kingdom of eSwatini. The water quality status for compliance is represented by colour Green and for non-compliance is represented by colour Red throughout the report unless indicated otherwise.

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.

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. 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 Pongola River to form the Maputo River which discharges into the Indian Ocean South of Maputo and is called Maputo basin.

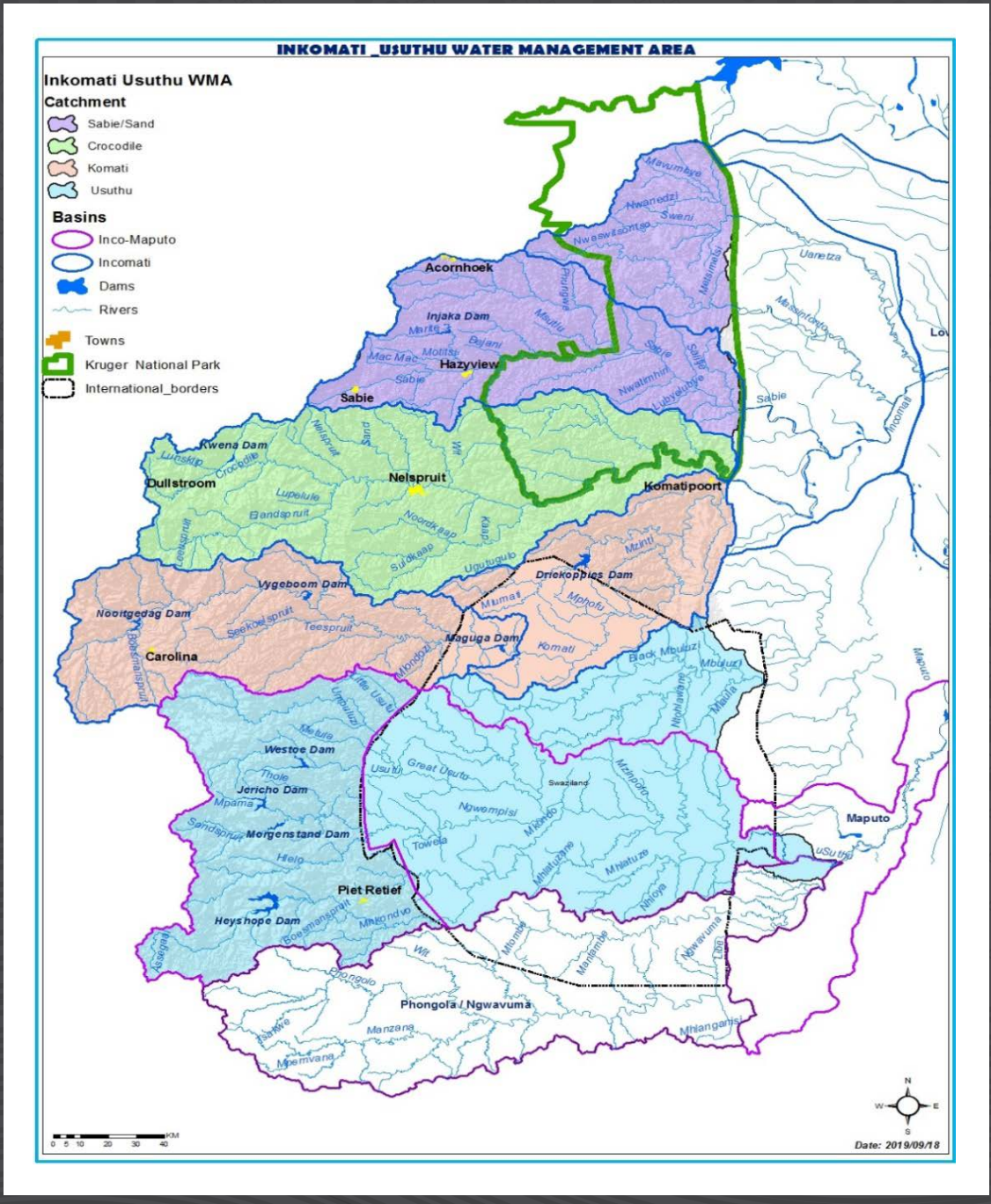


Figure 2: Inkomati-Usuthu Water Management Area

Materials and Methods

The water quality sample bottles were marked with the site code, date and time of collection using a permenant marker. Additives were only introduced in the microbial sample collecting bottles as they were pre-sterilized. 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 sterilized, 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 systems was used to display and interpret the average of 12 months water quality data 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 water quality chemical sample at tributary of Seekoeispruit in the Komati Catchment

By (from left to right) Mr Marcus Selepe and Ms Caroline Tlowana from IUCMA's Resource Quality Monitoring

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

Illegal Dumping 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

INKOMATI-USUTHU
CATCHMENTMANAGEMENTAGENCY

What are Water Resources ?

Water resources are defined as the sources by which we can get the water for our different types of uses and also those sources that gives the huge benefit to the life of the humans is referred to as the water resources.

The water that is used in the production of different types of useful products, like electricity, is also included in the water resources. Basically the function of the water resources is that to overcome the desires or the requirement of the water for the agricultural, industrial, social or household purposes.

TYPES OF WATER RESOURCES:

The water resources are divided into different categories because of their composition and also on the basis of their uses for the benefit of the humanity. Some important types of water resources that are used to provide the useful sources of water are as follows

SURFACE WATER RESOURCES:

Surface water resource is that type of water resource in which the water present in the rivers or in the streams plays an important role in maintaining different types of technologies and also used to upgrade the productivity. Basically this type of water is used in many useful purposes such as for the industrial use, for agricultural use and for the generation of different types of energy i.e. hydro electrical energy. Surface water is very important because 98% is used in the industry for manufacturing of different products.

UNDERGROUND WATER RESOURCES:

It is that type of water resource that is comprised of the different types of water resources that are fresh in nature, found under the surface of the earth. Because of its high use fulness people use groundwater to increase the growth rate of plants.

The ground water makes the soil moist and increases its productivity. Another common type of underground water is an aquifer. This is a porous rock that can allow water to pass through it, and it can usually hold water for a long time.

WETLANDS:

A wetland is a land area that is saturated with water, either permanently or seasonally, such that it takes on characteristics that distinguish it as a distinct ecosystem. The primary factor that distinguishes wetlands is the characteristic vegetation that is adapted to its unique soil conditions. Wetlands are made up primarily of hydric soil, which supports aquatic plants.

DAMS:

A dam is a barrier that impounds water or underground streams. Dams generally serve the primary purpose of retaining water, while other structures such as floodgates or levees (also known as dikes) are used to manage or prevent water flow into specific land regions. Hydropower and pumped-storage hydroelectricity are often used in conjunction with dams to generate electricity. A dam can increase the available water that can be utilised from the resource by capturing excess flows in the wet season for use during the dry season. Operating rules of dams manage the use of water from them effectively, which maximize the yield and water use.

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INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

LEARNER'S CORNER

Know more about wetlands

WHAT IS A WETLAND?

A wetland is defined in the National Water Act (Act 36 of 1998) as the land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Why wetlands are valued ?

Wetlands are recognised as being valuable ecosystems which provide water, food and raw materials, services such as flood attenuation and water purification, and intangible values such as cultural and religious value. In some areas, they can be particularly important for peoples' livelihoods. Despite this, and legislation to protect them, they are increasingly threatened, with more than half the world's wetlands having been lost already. Wetlands are degraded beyond the socially optimal extent due to market failure (where markets do not reflect true values or costs) and government failure (perverse incentives, lack of well-defined property rights leading to open access and ignorance of decision makers as to the value of wetlands). Economic valuation helps to compare the real costs and benefits of ecosystem use and degradation and allows more balanced decision-making regarding the protection and restoration versus degradation of wetlands. This facilitates optimal decision-making which maximises societal well-being.

What does climate change mean for our wetlands in South Africa?

Globally, wetland ecosystems provide many regulatory services such as water purification and flood attenuation. In Africa, wetlands are very important to many people by providing provisioning services such as fodder for grazing, and water for domestic and agricultural use. In the face of climate change, some of these services are becoming increasingly important, as is the growing need to appreciate how society, wetlands and climate are closely connected in direct and indirect ways. While wetlands may be victims of human-induced climate change, at the same time they also provide a way of lessening the change itself and helping us to adapt to climate change.

Human induced climate change is a reality and threatens to alter temperatures and rainfall patterns across the globe significantly by the end of the 21st century. Warming is predicted to be larger in Africa than the global annual mean, with drier subtropical regions (i.e. South Africa) warming more than the moister tropics. Rainfall in Southern Africa is likely to become generally more variable. A decrease in rainfall is predicted for much of the winter rainfall region (Western and Northern Cape and parts of the Eastern Cape) and western margins of the country with greater rainfall predicted on the eastern margins.

Above all else, wetlands are sensitive to the amount and seasonality of water they receive, and rely on a positive water balance, for at least part of the year, for their existence. Climate is one of the most important external drivers which determine the quantity and timing of streamflow in wetlands. Even subtle shifts in climate may alter not only the quantity of water made available to wetlands, but also the timing of the water input. Because ecological processes in wetlands are largely regulated by the quantity and timing of flows, major climate change-driven changes in water flows are likely to lead to change in wetland structure and functioning and therefore the goods and services they provide to people.

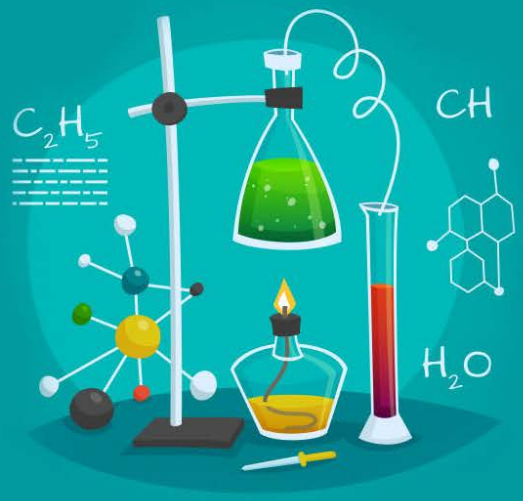
Dams, water abstraction, drainage, alien species and pollution are all degrading our wetlands, reducing their resilience (their ability to recover from disturbance or shocks). Many of our wetlands in South Africa are seasonal or temporary in character, flooding only during the wet season or for a short period when there is temporary abundance of water in the landscape. These "drier" wetlands may be more vulnerable to changes in water timing and reductions in quantity than those wetlands that have a more secure and abundant source of water. Many of South Africa's wetlands have a connection with an aquifer (ground water) that provides water during periods of no rainfall. It is expected that changes in temperature and rainfall will alter recharge rates to groundwater stores reducing the discharge of water from these into wetlands. These types of wetland are likely to be vulnerable to climate change. Wetlands without water (or considerably less water) may become dry lands, losing many of their ecological attributes that make them valuable to people.

Globally, wetlands are a huge store of carbon, and although occupying only 4-5 % of the earth's land area, they hold approximately 20 % of the land's carbon. The saturated conditions characteristic of wetlands promote soil organic matter accumulation by slowing down organic matter decomposition. Soil with particularly high levels of organic matter is referred to as peat. In most cases, peatlands have been accumulating carbon over thousands of years, with South Africa having some of the oldest peatlands in the world. However, if the peatland is dried out, a lot of this carbon can be lost in a few years. Thus, peatlands need to be conserved and rehabilitated to prevent the loss of a potentially very large pool of carbon into the atmosphere. It has also been suggested that wetlands should be created to help mitigate the carbon being emitted from the burning of fossil fuels. However, here it is important to note that wetlands emit methane, which potentially offsets a lot of the wetland's positive contribution as a carbon sink. Thus, wetland creation is not a panacea for balancing the carbon being emitted from the burning of fossil fuels, which have accumulated over eons.

By Mr Sizile Mnisi from Communication and Intergovernmental Relations

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

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Website: www.ru.ac.za
Email: registration@ru.ac.za

WSU
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Email: postmaster@wsu.ac.za

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Email: Studentadmin@ufs.ac.za

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Email: info@dut.ac.za

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Website: www.unizulu.ac.za
Email: enquiries@ukzn.ac.za

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Email: ssc@up.ac.za

Tel: 016 950 9214/5
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Email: mylife@uj.ac.za

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Email: admissions@uwc.ac.za

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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

RIVER OPERATIONS WEB PORTAL

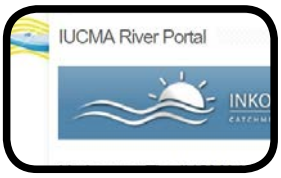
The Inkomati-Usuthu Catchment Management Agency is committed to bring you all the information you need to enable you to use water wisely and considerably. The IUCMA has established a web portal for River Operations that brings you the daily flows of the water in the Catchment. To gain access to this 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 **home page of the IUCMA website. click Hydrology water quality status then click the river operations web portal link**

STEP 1

STEP 2



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Learner's Corner: Know more about wetlands

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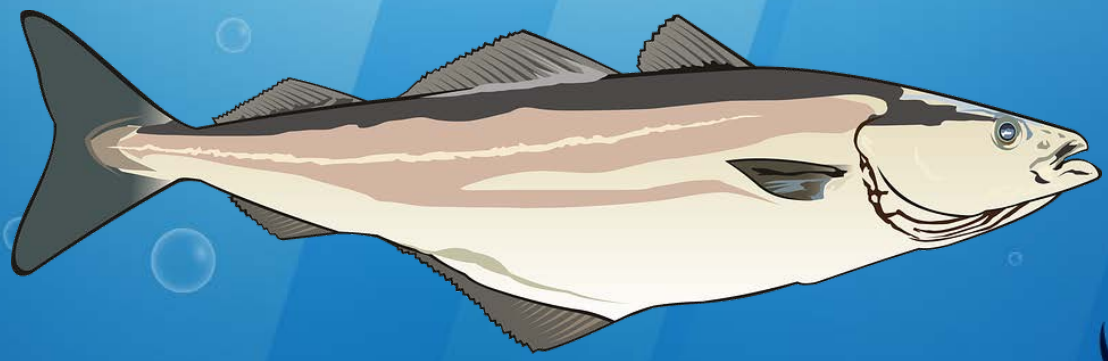

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Mbombela, 1200

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