

Continuation of Reconciliation Strategy : Phase 2 Strategy Steering Committee

Direct Re-Use of Sewage Effluent to Potable Water

Judge water **not** by its history , but by its quality

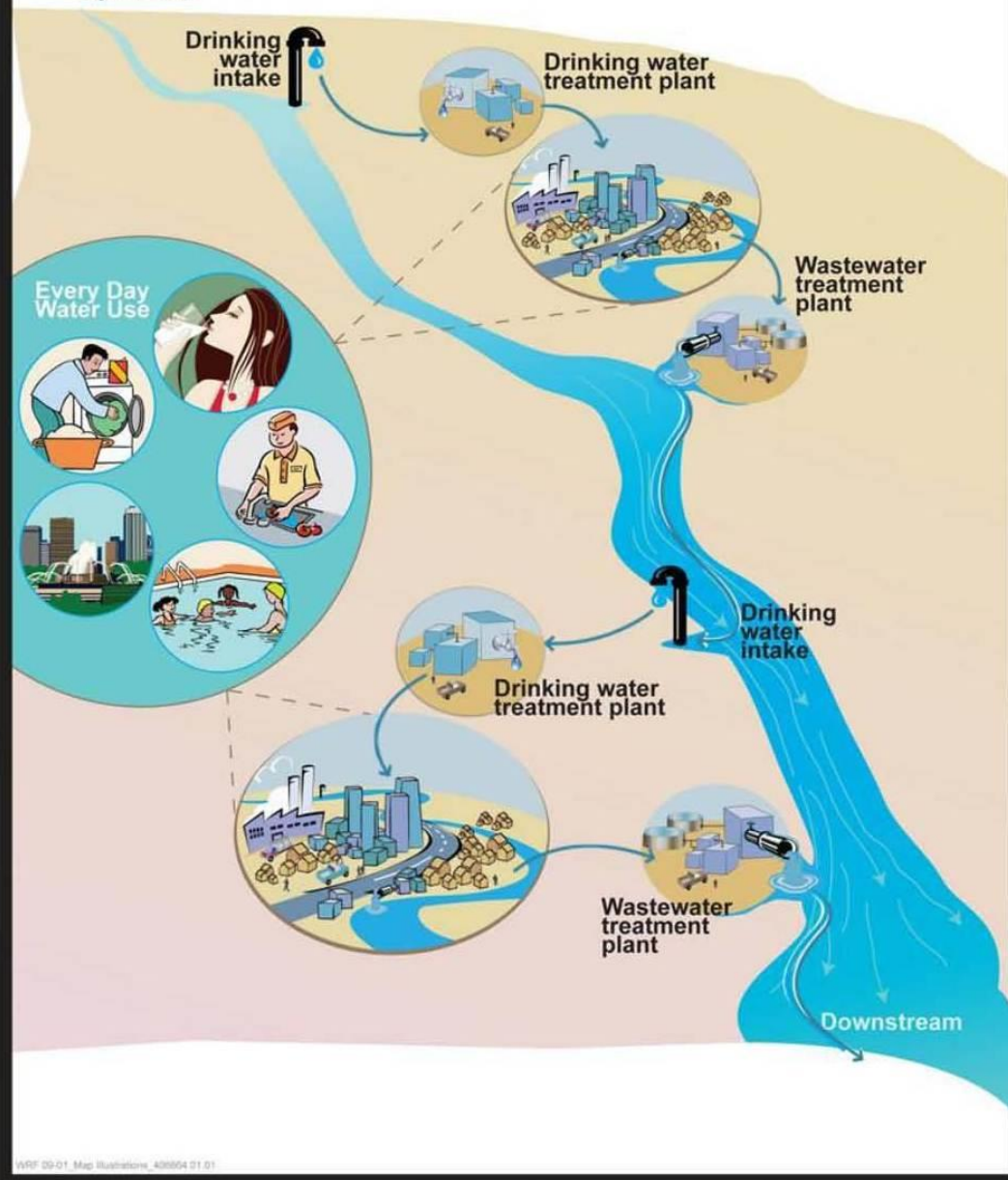
eThekwini Study

- eThekwini initiated a study in **early 2009** to assess the technical and economic feasibility of the reclamation of treated effluent for augmentation of water supply.
- **Technical Feasibility:**
 - Existing infrastructure assessment;
 - Complexity of treatment technology;
 - Water distribution infrastructure;
 - Electrical infrastructure;
 - Ease of operation; and
 - Flexibility of implementation i.t.o growth of demand
- **High level Environmental and Social Screening:**
 - Social impacts and issues; and
 - Environmental impacts and issues
- **Project costs:**
 - Life cycle costs; and
 - Flexibility of implementation i.t.o cash flow.No indirect re-use options were identified

No indirect re-use options were identified

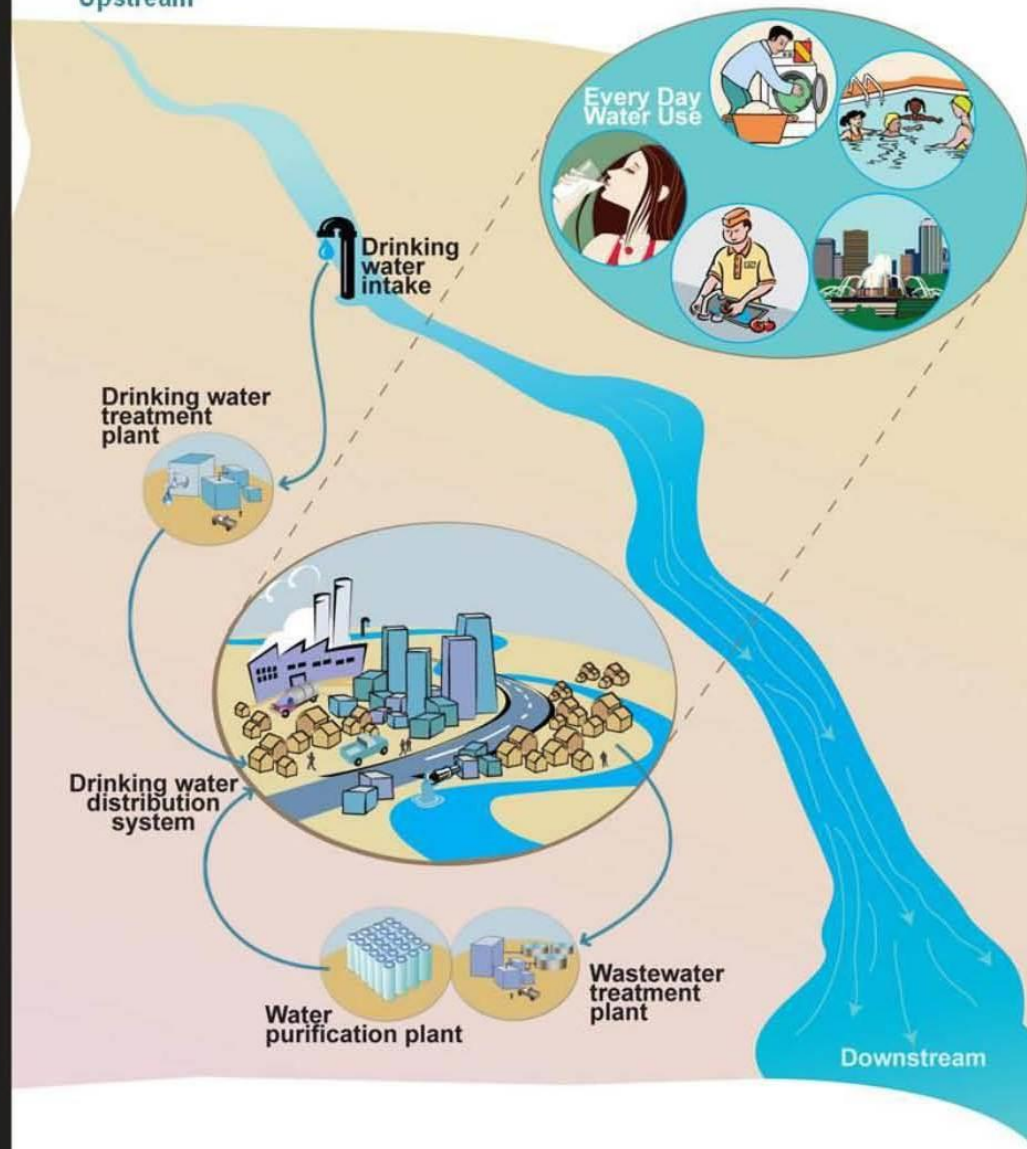
SCENARIO 1

Upstream



SCENARIO 4

Upstream



Direct Re-Use Proposal

- Treated sewage effluent from the KwaMashu and Northern WWTW's, is reclaimed and treated to potable standard.
- The potable water from both potable water reclamation plants is discharged into the existing trunk main of the northern aquaduct
- 80% of waste water to be recycled
- Total potable water volume 115 Ml/day (42 million cu.m per year)
- Some 30 % of capacity of Northern aquaduct

eThekwini Study

- Only Windhoek (1968) and Beaufort West (2011) have Direct Re-Use schemes
- Pipelines from the Potable Water Plants to Northern Aquaduct are only trigger for a Basic Environmental Assessment
- **Critical Risks**
 - Equity - northern aquaduct supplies a large area
 - Financing
 - Failure management - public private partnership envisaged
 - discussions with National Treasury
 - Transaction Advisor TOR prepared
 - Public acceptance
- **Water Use License Application** required as nature of discharge from the Wastewater Works will be altered due to recycling of 80% - applications currently with DWA

Response to Basic Assessment .

Comments , Issues of Concern and Suggestions

| • Categories | Total Comments | Individuals |
|-----------------------|--------------------|------------------------|
| • Support | 5 | |
| • Alternative methods | 44 | 30 |
| • Health Implications | 17 | 13 |
| • Politics | 2 | |
| • Human Rights | 2 | |
| • Social Aspects | 50 | 41 |
| • Business | 8 | |
| • Tourism | 5 | |
| • Safety | 12 | |
| • Religion | August 2012 | “5000” petition |

2007

**Religious, Philosophical and Environmentalist
Perspectives on Potable Wastewater Reuse in
Durban, South Africa**

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Key Findings/Recommendations

No evidence was found to support the proposition that adherents to Islam reject potable reuse on religious grounds. No other groups were found to have religious or conscience-based restrictions on the consumption of recycled water.

Justice and equity concerns appear to be high in Durban.

Costs must be born by those who benefit.

Environmental concerns appear to be high.

Strong concerns exist around technological competence and operation and maintenance over time.

People appear to be more comfortable with unplanned reuse than planned reuse.

People, in general, have not formed comprehensive opinions or entrenched positions.

"After a detailed study, in consultation with scientists and engineers, the Council of Leading Islamic Scholars (CLIS) in Saudi Arabia concluded a special *Fatwa* in 1978 that treated wastewater can theoretically be used for even *wudu* and drinking, provided that it presents no health risks (CLIS 1978). On the basis of the 1978 *Fatwa*...ablution water at the two holy mosques in Mecca and Medina is recycled for toilet Flushing" (Faruqui 1998).

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**THE PRODUCTION OF MICROBIOLOGICALLY
SAFE
EFFLUENTS FOR WASTEWATER REUSE IN THE
MIDDLE EAST
AND NORTH AFRICA**

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Abstract.

“Currently, South Africa disposes of unthinkable amounts of waste containing fresh water.

South Africa is a water-stressed country

The benefits of recycling wastewater are many.

However, sewage recycling is a somewhat controversial subject in public discourse, often eliciting a response known as the ‘ick factor.’

Logically, most of our drinking water is recycled – considering water is extracted from the same rivers that treated (and sometimes untreated) effluent is discharged into.

Drinking recycled water is a fact of life. The only difference between the status quo and eThekweni’s proposal to recycle wastewater is that, instead of abstracting waste-containing river water, existing wastewater streams will be treated.

Water is the limiting factor when we consider basic human needs, urban expansion, service delivery, development, economic upliftment and ultimately job creation and job sustainability.

We simply cannot afford to continue flushing our water resources down the loo.”

~ Wildlife and Environmental Society of South Africa,

in *Ulwandle* spring 2012, a joint publication of the

KZN Department of Agriculture and Environmental Affairs

and the **Oceanographic Research Institute**

Muslims: No to recycled water

It is against our religion, say municipal plan protesters

ALYSSIA BIRJALAL

LOCAL Muslims have joined the chorus of voices opposing the municipality's plans to recycle sewage water into tap water.

More than 4 000 worshippers took part in a protest on Sunday during Eid-ul-Fitr at Eid Gah at Moha-mediya Musjid (mosque) in Sparks Road.

Protesting with banners and placards, they said the plan would not only be detrimental to public health, but would offend their beliefs.

"This is just the start of the protest. There are other mosques in and around Durban that will protest, because it is against our religion," said Yunis Shaik, a member of the Concerned Citizens Campaign.

"We have a right to pure, clean, quality water, so the municipality should try to improve the quality rather than plan to recycle sewage water. We don't want second-class water.

"It is a sin to enter a place of worship without washing at the entrance. We will not bath in dirty water; nor will we pray that way.

"It will infringe our religious beliefs," said Shaik.

Shaik and other members of

the group collected 5 000 signatures in a petition against the plan.

The petition was sent to Golder Associates, a civil, geo-technical and environmental consulting service that is helping the municipality with consultation.

"The process of reviewing the municipality's plans is well under way. I have collected another 5 000 signatures and this will be hand-delivered within two weeks.

"People are now aware of how recycled water will affect their lives and the sickly," said Shaik.

During the bayan (sermon) on Sunday, other worshippers who were a part of the protest said the idea of drinking water recycled from sewage was absurd.

"We chose to protest on Eid-ul-Fitr to show how serious we as a community are. This idea is absurd and will have a huge impact on my life. As a Muslim, I will not stand for this," said Azaad Rehim.

On Friday, Shabnam Palesa Mohamed's Stand Up Foundation joined hands with the Concerned Citizens Campaign.

"Water is undeniably a universal human right. And by standing up as South Africans, we will challenge the municipi-



Protesters at the Moha-mediya Musjid. They claim recycling water is against their religion.

ality, the province and the minister of health to stop violating citizens' rights to pure and free water.

"There will be no shortage of water if the municipality can commit to do the following immediately: stop wasting water; fix all leaks in the system; stop inflating the price of

water from source; and think innovatively.

"That would ensure free water to at least 60 percent of our population.

"And by pure we mean free of toxins, including recycled sewage, metals, fluoride and endocrine-disrupting compounds with which we are

being poisoned, sickened, deformed and gender-mutated daily," said Mohamed.

She said both organisations would embark on campaigns to stop all plans.

"We will mobilise awareness and involvement campaigns with individuals and organisations in face-to-face

meetings and via e-mail, smart-phones and social media.

"We will carry on with our petition, organise independent investigations by school pupils, university students and water quality specialists and consult the public on a Constitutional Court class action," she said.

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A big No to toilet-to-tap water plan

Tony Carnie

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MORE than 5 000 Durban residents have given the thumbs-down to the city's controversial toilet-to-tap water recycling proposal.

Most of the objections, which in-

and other contamination in a process similar to that used in Windhoek, Namibia, where residents have been drinking a blend of recycled water for 44 years without any reports of waterborne diseases or negative health effects.

Nevertheless, thousands of residents who signed a petition or

"All it needs is human error and the whole of Durban could be wiped out by diseases like cholera," she said.

Responding to some of the concerns, Golder Associates said that apart from Windhoek, which began a similar scheme in 1968, the Karoo town of Beaufort West had intro-

Hassim Jogee
(left, back)
Yunus Shaik
(right, back)
Shabnam
Mohamed, right
and Larissa
Naicker
are among the
thousands of
Durban
residents who
have given the
thumbs-down
to a plan to
recycle sewage
effluent to tap
water quality.

PICTURE:
MARILYN
BERNARD



13 500 RESIDENTS SIGN PETITION

Increasing opposition to city's water recycle plan

Tony Carnie

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WITH two weeks to go before the deadline expires for public comment, at least 13 500 Durban residents have signed a petition turning their noses up at the city's controversial "toilet to tap" water recycling plan.

Earlier this month, another 8 000 signatures and more than 400 e-mails were received by Golder Associates, the consultancy firm acting on behalf of the municipality's water and waste department.

This is in addition to the more than 5 000 signatures submitted to the city a few weeks ago by Yunus Shaik of the Concerned Citizens Campaign and other residents who have mounted a petition against Durban residents being forced to swallow "second-class water".

The proposal involves recycling and purifying water from two sewage works north of Durban to provide about 10 percent of the city's overall water needs.

However, about 36 percent of the city's water supply is either leaking from broken pipes, stolen or not paid for and the Concerned Citizens Campaign argues that eThekweni should resolve this problem first before imposing the recycled sewage option on residents.

Two decades ago only 14 percent of the water supplied to the old Durban municipality was classified as lost or not paid for, but this figure shot up to about 40 percent lost or not paid for with the incorporation of several surrounding areas within the boundaries of the eThekweni metro council in the early nineties.

Nevertheless, Golder and As-

sociates has recommended the sewage water recycling option as the most "efficient and cost-effective" solution to the mounting water shortage in the rapidly-growing northern section of the city.

The plan involves purifying the waste effluent from the Kwa-Mashu and Northern waste water treatment works using several technologies such as ultra-filtration membranes, advanced oxidation and reverse osmosis.

About 30 percent of the purified effluent water would then be added to 70 percent conventional water to produce a blended supply which would be pumped to homes in Durban North, Kwa-Mashu, Umhlanga, Phoenix, Newlands West, Umgeni Park, Glenashley and other residential areas north of the city.

Deadline

When the first deadline for public comment expired in March only a handful of people had responded, prompting Overport resident Yunus Shaik to start his own petition opposing the plan.

Shaik, a former sales rep, said he was "astonished" that residents had not kicked up more of a fuss, and within the space of a few months he gathered more than 5 000 signatures opposing the plan.

"By all means recycle water and use it in industry, commerce or irrigation – but surely no God-fearing person would want to drink this water," he argued.

Last week Shaik handed over another 8 000 signature to Golder Associates. He told The Mercury yesterday he had collected a further 3 000 signatures since then.

Shaik said that although many signatures had been gath-

ered at social functions, at mosques and via friends and family, the signatories came from all race groups.

His Concerned Citizens Group had linked up with the Stand-Up Foundation, which included attorney Shabnam Mohamed, former media consultant Tom Dennen and Larissa Naicker, granddaughter of anti-apartheid activist Monty Naicker.

Umgeni Water is examining the feasibility of building a sea water desalination plant north of Durban, while an environmental impact study will start to investigate a new dam on the uMkhomazi River next year.

According to the Department of Water Affairs, the final decision on whether or not to re-use recycled sewage effluent will only be made once the results of all the other feasibility studies are available, including desalination and new dam options.

The only other residential community in South Africa which relies on recycled sewage is Beaufort West in the Karoo. This scheme became operational in January last year.

The Namibian capital, Windhoek, has also relied on a blend of recycled waste water and conventional water since 1969.

According to Golder Associates, Israel also re-uses 75 percent of its waste water – but mainly for farm irrigation rather than drinking.

● Anyone who wishes to comment or get further details on the plan can contact Mfundo Ndlovu of Golder Associates at telephone 031 717 2790 or e-mail mndlovu@golder.co.za

The Concerned Citizens Group can be reached via Yunus Shaik on 078 666 9754 or Hassim Jogee 031 207 8298 or e-mail famaze@mweb.co.za



Why do we turn crooks into celebrities, asks Mosibudi Mangena Page 9



Another trucker fights for his life

Satawa." Yesterday the G-Force driver, who declined to be named, said the latest victim was "not looking good."

She said the 63-year-old truck driver had been admitted to the hospital on Monday afternoon.

Aside from burns to his face, left hand, he had a hypoxic brain injury as a result of a lack of oxygen.

She said a petrol bomb had also been thrown at him.

Mansberg Community Police Forum spokesman Scott Brown said the driver was aware of a fire injury that occurred on Monday.

On the Facebook community page "Traffic fines, cameras & updates in Western Cape", a message was posted about a truck that was

WINDING ROAD: A child walks along a stretch of the Durban Road from Nkandla to Kranskop. The KZN Transport Department insists the tarred roads were planned long before the upgrade of the presidential village. *Picture: SIBUSISO NDOLO*

the president's home was tarred.

Mchunu said in 2007, two years before Zuma became president, then-president Thabo Mbeki had identified areas around Nkandla and in Zululand as among those that needed urgent development.

But these are not the only developments in and around Nkandla since Zuma took over.

There was the spectacular Mamba One Stop Development Centre, built to the tune of

To Page 4

Mammoth
will have to
sweeten deal
for little guys

JORJANNEBERG/The
Competition Appeal Court ruled
yesterday that Mammoth should
contribute up to £200 million to a
supplier development fund over five years.

Mammoth initially volunteered to set up a £100m fund in response
to claims that its deal with Sainsbury's retail giant Walmart would hurt local suppliers.

Walmart bought its 39 percent stake in Mammoth, a deal which was approved by competition authorities subject to conditions, including the establishment of the supplier fund.

In March, the court ordered the establishment of a panel of experts representing the SA Commercial, Catering and Allied Producers Union, the ministers of economic development, trade and industry and agriculture, forestry and fisheries and the farming press.

These experts had to look into the best means by which big, small and medium suppliers could participate in Walmart's global and domestic value chain.

"The clarity provided by the mechanisms outlined for the supplier development programme has a positive endorsement of the initiative," Mammoth said.

Mammoth CEO Gary Pettison said: "We look forward to working with the link's advisory board to achieve an impactful supplier development programme." - Supa

See Business Report

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*T&Cs AND STANDARD INFO NOTES APPLY

Status Quo

- 3 reports have been prepared and submitted to Exco during 2013 motivating
 - public meeting
 - appointment of Transaction Advisor to commence preparations of documentation for PPP
 - Transaction Advisor to re-open public participation and examine local religious objections
 - Recycling also identified as one of a number of mitigations measures for disposal of effluent from the WWTWks which currently discharge to river and estuary

Deferred each time to the various Party Caucus groups.

Unlikely to be considered prior to 2016 Local elections