

FEATURES

Fixing the water system

The right pricing and proper collection of revenue are essential for an effective water supply

DUNCAN HAY

WHEN we achieved democracy in South Africa some wise souls in the government recognised that you can't run a country without lots of money. So they went to work to ensure there was an efficient tax-collection system. Whether the overall intention was to loot what was collected or allocate it in the public good is debatable but, either way, one has to have the money.

SARS became, arguably, the most important and efficient section of the government and, despite the recent machiavellian machinations of Tom Moyane and his minions, it still enjoys a relatively high profile. Without effective revenue collection and allocation, South Africa's aspirations as a developmental state would be severely constrained.

The availability of money in its myriad forms is obviously critical to feed a well-functioning economy but I would argue that the availability of water is as important. Without reliable access to water we and our economy will falter. The Institute of Risk Management South Africa has recently rated water supply as our second biggest risk, behind corruption, but ahead of the economic down-turn and unemployment.

So, in the same way as SARS ensures a flow of revenue so must we ensure a flow of water. While we citizens can do our bit to contribute, we don't build dams, transfer systems, water purification works, waste-water treatment works and various freshwater, sewage and stormwater reticulation systems; and we don't collect revenue. We pay our taxes and we pay for our water so the government can do these jobs.

But it is well-known that our water system is in intensive care, not far from death's door.

The Department of Water and Sanitation is buckling and bankrupt; some water utilities cannot deliver services and



many of our municipalities are our biggest wasters and polluters.

It is not only in Sleepy Hollow that our rivers and streams serve as open sewers; it is everywhere. This is not something new; the decline has been evident for at least 15 years.

What should we be doing to turn things around, to ensure that water is a foundation for a vibrant economy rather than a growing risk to a faltering economy?

The foundation for a turnaround requires four things: an appreciation and acknowledgement on the part of everyone that a crisis exists; a recognition that we cannot solve the problems alone; a

commitment to act, not just talk; and a fundamental appreciation of the value of water.

To quote the department, there is a "lack of understanding of the strategic value of water [and the] importance of water security".

Leading on from this, in appreciating its value, we need to get the prices right. It is complete madness that raw water from a river costs 1,64 cents per cubic metre — that is 0,00164 cents a litre!

At that price, we won't cover the cost of collecting the revenue, let alone secure a reasonable return for investment in catchment protection and management. But getting the pricing right is irrelevant if we don't collect the revenue from sales. Most of our municipalities are unable to collect what is due to them so they don't have the income to invest in infrastructure development and maintenance, and in conservation measures.

Thirty percent of South Africa's population can afford to pay for water but for various reasons do not. If they did, it would provide an additional R26 billion annually to re-invest.

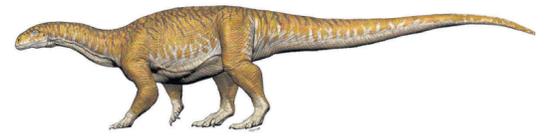
Once we have a revenue stream, we can get busy fixing the leaks in both our freshwater and sewer systems. And when the leaks are fixed we will have to buy less water so our financial standing will improve further.

If Cape Town can reduce its non-revenue water to 15%, so can Durban (currently at 37%) and so can Pietermaritzburg (currently at about 40%).

And when the municipalities have fixed their leaks we will need to invest less in new costly infrastructure and can invest more in maintaining our natural systems that ensure reliable supply.

We will get out of our currently deranged downwards spiral and into an upwards virtuous trajectory of collective prosperity. It is possible and it is absolutely essential.

Duncan Hay is the executive director of the Institute of Natural Resources and an associate research fellow at UKZN.



Ingentia prima was a forerunner of the largest land animals of all time.

Fossils of early giant dinosaur discovered in Argentina

SCIENTISTS have unearthed in north-western Argentina fossils of the earliest-known giant dinosaur — a four-legged plant-eater with a medium-length neck and long tail that was a forerunner of the largest land animals of all time.

Researchers said the dinosaur — named *Ingentia prima*, meaning "the first giant" — was up to 10 metres long and weighed about 10 tons, living about 210 million years ago during the Triassic Period.

Ingentia was an early member of a dinosaur group called sauropods that later included Earth's biggest terrestrial creatures, including the Patagonian behemoths *Argentinosaurus*, *Dreadnoughtus* and *Patagotitan*.

"We see in *Ingentia prima* the origin of gigantism, the first steps so that, more than 100 million years later, sauropods of up to 70 tons could come into existence like those that lived in Patagonia," said paleontologist Cecilia Apaldetti of the Universidad Nacional de San Juan in Argentina, lead author of the study published in the journal *Nature Ecology & Evolution*.

Unlike later sauropods, *Ingentia*'s legs were not pillar-like. Its neck also was shorter than later sauropods, which possessed among the longest necks relative to body length of any animals ever.

Dinosaurs first appeared earlier in the Triassic Period, roughly 230 million years ago. The first ones were modestly sized — a far cry from the immense dinosaurs of the subsequent Jurassic and Cretaceous Periods. Scientists had previously believed the first giant dinosaurs appeared roughly 180 million years ago.

Apaldetti called *Ingentia* not only the largest dinosaur but the biggest land animal of any kind up to that point in time. It was at least twice as large as the other plant-eaters that

"Apaldetti called *Ingentia* not only the largest dinosaur but the biggest land animal of any kind up to that point in time."

shared the warm, savannah environment it inhabited.

The biggest predators there were not dinosaurs, but large land-reptiles relatives of crocodiles, said the researchers.

"Gigantism is an evolutionary survival strategy, especially for herbivorous animals, because size is a form of defence against predators," Apaldetti said.

The scientists identified important traits related to gigantism in *Ingentia*.

It possessed a bird-like respiratory system, related to the development of air sacs inside the body that gave it large reserves of oxygenated air and kept it cool despite its large size.

While later giant dinosaurs grew in an accelerated yet continuous manner, an examination of its bones showed that *Ingentia* grew seasonally rather than continuously, but at an even higher rate.

Ingentia, known from two partial skeletons, was discovered in Argentina's San Juan Province.

— Reuters.

MOST PEOPLE THINK THE WORLD IS MORE DANGEROUS

MOST people think the world is more dangerous today than it was two years ago as concerns rise over politically-motivated violence and weapons of mass destruction, according to a survey released recently.

Six out of 10 respondents to the survey, commissioned by the Global Challenges Foundation, said the dangers had increased, with conflict and nuclear or chemical weapons seen as more pressing risks than

population growth or climate change.

The results come amid growing tensions between the United States and fellow members over defence spending, which some fear could damage morale and play into the hands of Russia.

"It's clear that our current systems of global co-operation are no longer making people feel safe," said Mats Andersson, vice chairperson of the Global Challenges

Foundation.

Andersson said turbulence between Nato powers and Russia, ongoing conflict in Syria, Yemen and Ukraine and nuclear tensions with North Korea and Iran were making people feel unsafe.

The survey findings are based on responses from more than 10 000 people in 10 countries surveyed by polling firm ComRes in April this year.

— Thomson Reuters Foundation.

Why not add a touch of colour to your winter garden?

IT will be cold and dry in some regions and cold and (hopefully) wet in others, but winter can never be boring if we dip into our treasure chest of saucy succulents and splendid shrubs, which are dressed in their best right now. So, let's plant lots more!

MELT THE ICE WITH THESE HOT SELLERS

Winter-flowering aloes like the trusty Krantz aloe (*Aloe arborescens*) grow from sea level to the highest mountain tops and sets winter gardens alight with its bright orange-red flowers. Birds and bees adore the nectar-rich blooms too.

If you want to choose a very dramatic plant for a large container, choose the sculptural and very striking tree aloe (*Aloidendron barberae*). This aloe is a perfect focal plant for the garden as well but needs space to grow as it can reach a height of 15 m. Expect pink flowers in winter.

There are plentiful and pretty new aloe hybrids of all sizes to choose from as well.

Enhance your aloe collection with other types of succulents like crassulas, kalanchoes and sedums, which are equally pretty, even if not in flower. Their foliage colours intensify and, with their strong structural forms, it is hard to ignore them in a winter garden.

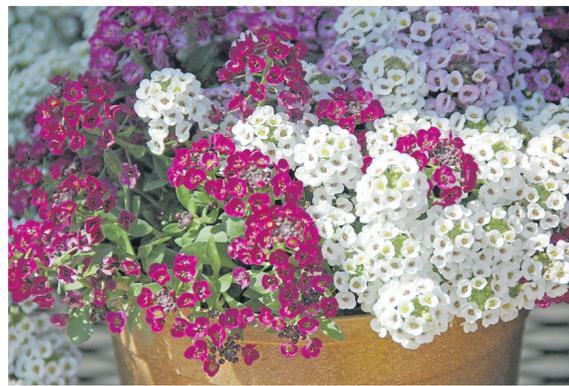
FINE PLANTING IS FYNBOS!

Heritage plants like proteas, pincushions, blushing brides, and cone bushes are common stock in garden centres nowadays, so do plant some of your own.

In a natural habitat, the members of the Proteaceae family grow in poor, well-draining soil with a low pH. The plants prefer hot, dry summers and cold, wet winters, but many will grow well in summer rainfall areas too.

Bad drainage is a recipe for disaster, although some species and cultivars are more tolerant of heavy soil than others. Prepare the soil well by mixing in well-decomposed compost, which is low in phosphates. Slightly raised beds, or mounding of heavy soil, will improve drainage and so will adding a little gypsum to break up the clay when preparing a planting place.

Some outlets stock a specialised protea soil mix which can be used if there is any doubt about the garden soil's suitability. You can also grow all of these plants in large containers. Beautiful pincushion hybrids (*Leucospermum*) in yellow, orange and post box red, are highly recommended. They will give you cut flowers for Africa in late winter and spring. Protect with frost cloth if you are in an area which is af-



Sweet alyssum grow and flower much lusher in the cool seasons.

fectured by this.

GREAT BALLS OF FIRE

Heavenly bamboos are available in many shapes and sizes, but if you need a foliage plant that can really create fiery winter colour, pick *Nandina "Pygmaea"* which is a dwarf plant growing to about 50 cm tall and wide.

These plants are very cold-hardy and look fantastic if planted in bold groups as ground covers, as border plants in full sun or light shade, or in pots. They are absolutely problem-free to cultivate.

BEDDING BESTIE

Sweet alyssum (*Lobularia maritima*) is possibly the most loved garden annual. Although one can plant them throughout the year, they grow and flower much lusher in the cool seasons. They create much joy in the winter garden when combined with other cool season annuals like pansies, petunias and lobelias.

All the alyssum varieties grow fast and have a compact size of 10 cm to 15 cm high and 20 cm wide. They are perfect for bordering, (especially around roses), as filler plants in containers, window boxes and hanging baskets, and even between paving blocks. Alyssums like full sun to flower really well.

ROSE CARE FOR JULY

In most areas, rose pruning is done in the second half of July, until the end of August.

Gardeners who approach this task with trepidation can relax as rose pruning is basically the removal of dead wood and weak and old twiggy stems in order to attain a neat and pleasing shape, to open up space for

proper service and refitting of new blades.

Spend the time enhancing the shape of your lawn by correcting awkward shapes and fixing damaged edges. You might want to build a neat brick edge to frame a formal lawn, or to think about adding another form of edging between the lawn and flower beds.

CREATE NEW PATHS

This is the best time to access the "bones" or structure of your garden in terms of pathways and access to different areas.

Widen pathways that are being taken over by the encroaching garden by adding more pavers. Add a "secret" pathway into very deep beds — this also assists tremendously with maintenance of the garden. Add pavers and a bench as a special feature.

BIRD BUSINESS

Attracting birds to the garden has become a big hobby even in the heart of big cities.

Top bird-attracting trees, which supply either nectar or fruit (or both), to plant now include Notsung (*Halleria lucida*), Natal wild banana (*Strelitzia nicotiana*), thorn trees, wild peach (*Kiggelaria africana*) and coral tree species (*Erythrina*).

COASTAL GARDENING

(Western Cape, Eastern Cape, and KwaZulu-Natal)

Winter care for compost heaps includes adding activators for compost, to break it down quicker. An interesting thing to note is that many of these activators for compost can also be used to break down contents of French drains to liquids.

If you didn't prune deciduous fruit trees like blueberries and grape vines in June, these must be pruned in July — spray the dormant plants afterwards with lime sulphur.

Remove any green growth on variegated plants like coprosmas, or the whole plant will revert to green.

Plant up your hanging baskets with a bright selection of ivy-leaved geraniums (*Pelargonium peltatum*). Use three to five plants to fill up a large basket for an instant effect.

Feed all winter-flowering annuals every two weeks with a foliar fertiliser.

— Life is a Garden.

Life is a Garden is the marketing division of The South African Nursery Association (Sana). SANA is a member-driven, non-profit organisation which strives to promote gardening as a hobby in South Africa.

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