

Supplement to the

Mail & Guardian
AFRICA'S BEST READ

Climate Change Leaders



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

2014

MORE CLIMATE CHANGE MEANS --- LESS WATER

The earth's temperature is increasing. Unless we play our part, this will have serious consequences on our water systems which is not good for a continent already in short supply of fresh water.

To see how you can save the future, visit:

www.environment.gov.za & www.climateaction.org.za



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



Wind of change

Climate change is a critical issue facing not just South Africa or Africa but the entire world. The actions that we take, or fail to take, today will have repercussions not just in our lifetime but in the lifetime of every human being that follows us.

The climate change debate has shifted the discussion about protecting our environment and rehabilitating damaged ecosystems from something that was important to a small group of concerned environmentalists to an issue of global importance discussed at high-level government summits.

The Mail & Guardian has a proud tradition of tackling environmental issues, from acid mine drainage to covering international climate change negotiations and this, the first edition of Climate Change Leaders, continues that tradition.

The objective of this new flagship publication is to recognise South Africans from across the spectrum of

society who are working to make a difference in the field of climate change.

The people profiled here include government officials, professionals in business, entrepreneurs who started small businesses and non-governmental organisations, as well as ordinary folk who give of their private time to further a cause they believe in.

They were drawn from public nominations as well as from input given by

/// The debate has shifted from something that was important to a small group of concerned environmentalists to an issue of global importance ///

the Mail & Guardian's editorial team. Individuals were included in the final list based on their ability to make a difference, with a focus on giving a voice to people who may not be well known or regularly heard.

The individuals profiled in these pages are not the only ones who are making a difference – but they are the ones we have found inspirational. We are sure we have missed important people, not through lack of trying, but because so many people who make a real difference in communities, work in hard to reach areas and do not have a high profile. Our hope is that future issues will contain more of these “silent heroes”.

In the meantime, the example set by the individuals featured here will stimulate awareness around the need to work together to ensure that we minimise the effects of climate change locally as well as further afield. – Ben Kelly

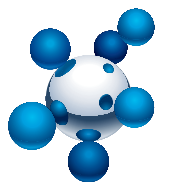
Credits

Editor Ben Kelly
News editor Ansie Vicente
Copy subeditor Aneesa Fazel
Proofreaders Miriam Jorna, Lynne Larsen
Layout and design Shahn Irwin
Editorial panel Fiona Macleod, Sipho Kings, Ben Kelly, Ansie Vicente
Sales Mike Ntsasa
 MikeN@mg.co.za and Mikhail Olifant MikhailO@mg.co.za
Photography Johann Barnard, Joel Thungren, Madeleen Cronje, Delwyn Verasamy, Oupa Nkosi, Paul Botes, Dispatch newspaper, Ryan Jarrett, Rebecca Haynes and supplied by nominees

The supplement was made possible by the Mail & Guardian's advertisers. Individuals were nominated by the public and selected by an editorial panel. Content was sourced independently by the M&G's supplements editorial team. Pages 18, 19 and 24 of this supplement were paid for, and their contents and photographs supplied and signed off, by the department of environmental affairs

TBWA\HUNT\ASCARIS 313650

sasol
reaching new frontiers



fixing leaks to help
the community save
15% more water

Sasol believes in water sense, which is why we're committed to improving our own water use intensity and helping communities to reduce their water consumption by as much as 15% by 2015 through our water leakage reduction programme. One such programme with the Emfuleni Municipality will reduce water losses by the equivalent usage of 40 000 households and save the community over R62 million per year. Let's do it together, because together, we are better.

For more information go to www.sasol.com/watersense

Education and training



Lewis Pugh swims in a melting glacier at Mount Everest. Photo: Michael Walker

Lewis Pugh

Highlighting the effects of climate change

Lewis Pugh has to be the coolest environmentalist around. That's literally speaking, since he's the man who swam one kilometre at the North Pole in water of minus 1.7°C to illustrate climate change. The point being you should not be able to swim at the North Pole because it should be frozen over. Pugh is an ocean advocate who made his first long-distance swim from Robben Island to Cape Town when he was 17 years old. He has completed a long distance swim in every ocean and swam across a glacial lake on Mount Everest to draw attention to melting glaciers in the Himalayas.

His gruelling efforts to highlight the damage that humans are inflicting on the planet have seen him named a Young Global Leader by the World Economic Forum and appointed Patron of the Oceans by the United Nations Environment Programme. A legal background fuels his passion. He studied law at Cape Town and Cambridge universities then practised maritime law in London. In 2003 he quit to follow his dream of protecting the oceans. Pugh is a compelling public speaker on climate change and on changing your own life using the lessons he has learned by achieving his dreams to show others how to

fulfill their own dreams. It's physically remarkable that he achieved a 19-minute North Pole swim when his coach declared that any normal person would die of hypothermia within minutes. A test swim two days before the main event was the most frightening experience of his life. Our bodies are mostly made of water, which expands when it freezes, and the cells in his fingers literally froze, expanded and burst. "It was like someone had taken a sledgehammer to my hands. When something like that happens you begin to doubt yourself," he says. "But I meet many heads of state, business leaders, political

leaders and religious leaders and I'm asking them to be very courageous and make the environment a key priority, even though that might make them unpopular with shareholders or voters. "So I went in with such a determined attitude. You have to be 100% committed and have self-belief." Pugh has turned his experiences into two books, *Achieving The Impossible* and *21 Yaks and a Speedo*. Next year he will begin a three-year journey across three oceans and 18 seas to campaign for the creation of more Marine Protected Areas to enforce environmental protection. – Lesley Stones



Fiona Khan

Teaching children about a sustainable future

A passion for the world, a voracious hunger for knowledge and determination to help others is what drives teacher, writer and environmentalist Fiona Khan to constantly seek ways in which she can mentor and coach environmentally aware learners. "As a writer and educator, I see every day and everything on this earth as a gift. I want the earth to be a place our progeny can be proud to live on," says Khan. As a child growing up just two minutes away from the beach in the coastal town of Isipingo Beach near Durban, Khan would spend hours playing among the mangroves and stilt roots, seaweed and plankton, fishing for crabs and fish in the lagoon, watching dolphins in the ocean and learning about the environment. "Animals and the environment became my closest companions, they brought me endless joy and an insatiable thirst for knowledge," she says.

Today she is a project leader for eco-schools at Strelitzia Secondary School, driving various projects to educate learners about climate change. From growing indigenous plants to teaching children about our natural heritage and vegetable gardens, self-sustainability, and initiating awareness of HIV and Aids, diabetes, breast cancer and drugs, She works tirelessly at finding ways to teach learners about the environment we live in, take from and don't give enough back to. As a direct result of Khan's many initiatives, Strelitzia Secondary School achieved second place in the Climate Change Leadership awards for linking recycling, tree planting, food gardening and water conservation programmes to climate change, and actively introducing climate change programmes in school and in the community. She steered a recycling drive for the school and through networking, achieved the school's incorporation into the Imagine Durban pilot project, the Durban Solid Waste pilot project and the Imagine Durban Ambassadors pilot programme, invigorating environmental awareness and an enthusiasm for environmental awareness among learners. – Linda Doke



Lewis Pugh finishes his North Pole swim. Photo: Jason Roberts

Education and training

Khethi Ngwenya

Providing information to schools

Young businessman Khethi Ngwenya would make a great advisor to companies focusing on schools for their social responsibility investments.

As the founder of SchoolMedia, Ngwenya knows what schools need the most, partly because at 22 he's not been out of the classroom long himself.

SchoolMedia now employs four staff to deliver career and life-enhancing information to learners, including details about career opportunities, health and staying away from crime.

It also spreads messages about protecting the environment and gets pupils involved in gardening and clean-up campaigns.

Ngwenya first saw the need to distribute this information when he became chief executive of The Young Entrepreneurs of Soweto, which encourages youngsters to pursue business ventures.

Assisting learners

Ngwenya had to provide all its members with such material, and saw how it could help them to succeed.

"I thought if I put advertisements in school corridors, the learners would see them when they walked to the classrooms. I want something that informs them and makes them think, rather than thinking about working in a mine,"

he says. SchoolMedia now supplies wall displays and murals bearing advertising and information to schools across the country.

Getting the first few schools to sign up was tough, but a breakthrough came when he was introduced to the National Association of School Governing Bodies (NASGB).

The NASGB granted SchoolMedia the right to advertise on its premises, and in return takes 20% of the advertising revenue to improve its schools.

The next challenge was getting advertisers to sponsor important messages, since most companies just want to sell a product.

Gradually the advertisers are growing, and now include Adidas, Rosebank College, Orlando Pirates and Rotary Club.

Touring the schools exposed Ngwenya to some appalling conditions and motivated him to initiate going green campaigns as a side-line.

"I was going to schools that didn't have sports fields or trees and they looked like deserts," he says. Yet companies would rather pump money into projects such as creating computer labs, when what is really needed are working toilets and some greenery, Ngwenya says.

He persuaded Johannesburg City Parks and some corporate sponsors to fund 4 500 trees, and

recruited pupils to plant them in schools in Orange Grove, Soweto and Alexandra.

SchoolMedia also encourages learners to help the Tlhago Primary Agricultural Cooperative, which plants rooftop gardens in Johannesburg city centre.

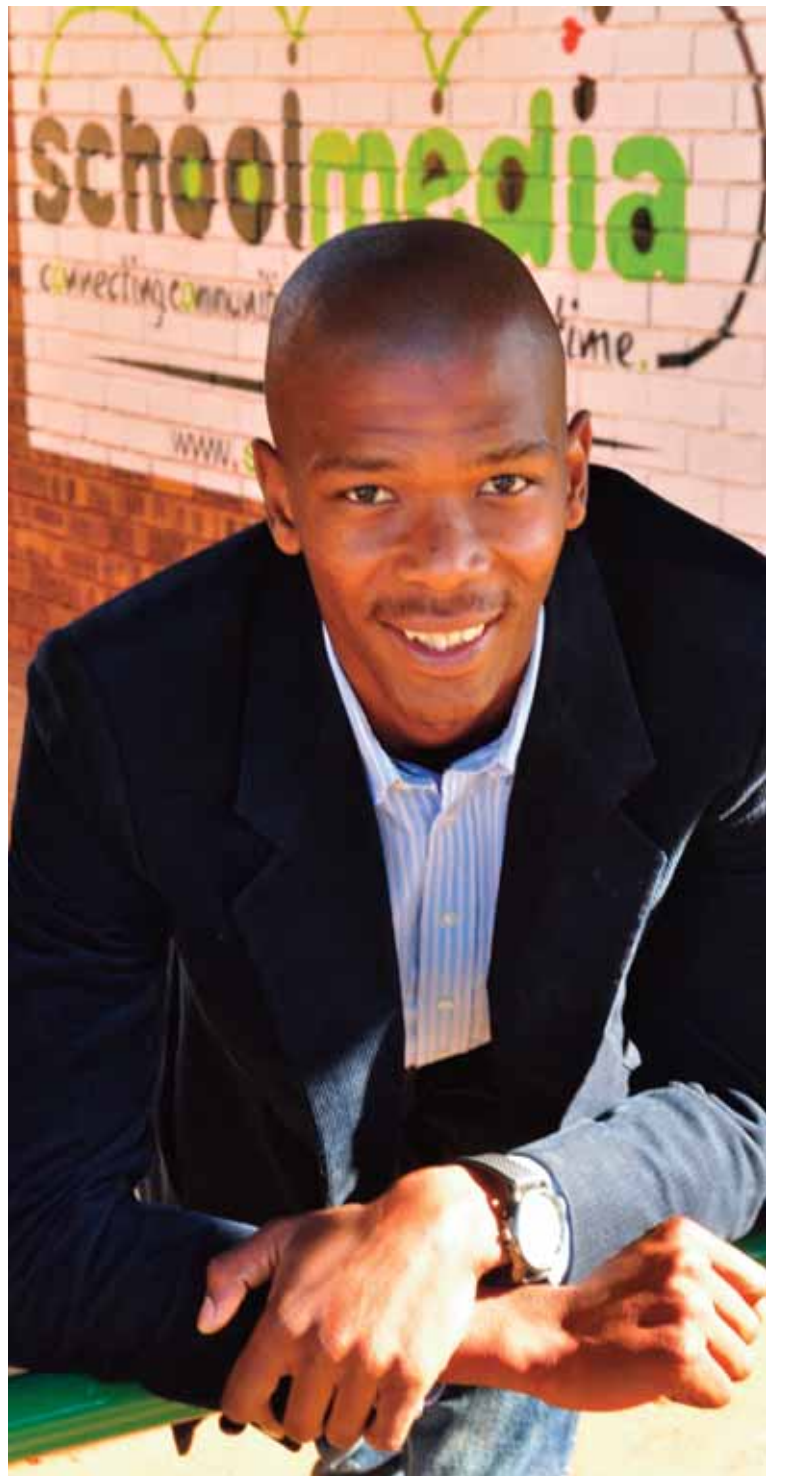
"The vegetable gardens are part of sustainable living," he says. SchoolMedia also runs holiday programmes where young volunteers work on gardening projects and clean-up operations.

Sponsorship

At the moment SchoolMedia is trying to get companies to sponsor benches so pupils can sit under the trees they have planted, and to sponsor wall clocks. Those simple items won't earn companies the kudos they get from doing something more lavish such as sponsoring laptops, but Ngwenya says these items are sorely needed.

"Companies want to place their products in schools, but the schools aren't ready for their technologies yet," he says.

"When we bought wall clocks for some schools they used them immediately in their exam rooms. There is a serious need for basic items, and it's an opportunity for corporates to get involved because there is so much need in our schools." – Lesley Stones



John Nzira

Pioneering permaculture

Founder of Ukuvuna Urban Farming, John Nzira is a pioneer in permaculture and was instrumental in bringing it to South Africa in the early 1990s.

Nzira grew up in the rural areas of southern Africa and is one of 18 children due to his father having two wives.

Describing his childhood, Nzira says: "My parents sourced food from the forest, such as mushrooms, insects, fish, fruits and wild vegetables. We also had fields entirely rain-fed, where we grew our own food.

"Our farming was based on natural systems, using zero agricultural chemicals because there were no shops or agents for them."

Nzira's passion was instilled by his father, who educated his children about growing food using natural farming methods. Nzira has been growing his own food since he was 16 years old.

"We did not know about artificial fertiliser and dangerous pesticides. For example, we sprinkled wood ash on aphids to discourage them from eating our vegetables.

"Rather than killing pests, we learned eco-friendly ways of controlling them. Growing vegetables

is a system to work in harmony with nature. I love the natural system. I study and practise it. It is in my blood."

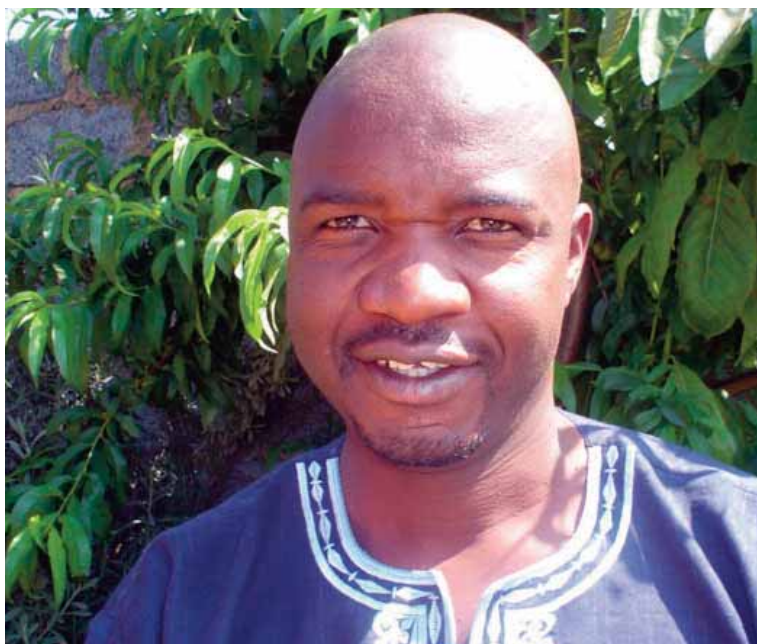
When Nzira settled in Gauteng in the 1990s, he found the taste of store-bought food unnatural.

He was concerned about not knowing how the food was grown and how much environmental damage resulted from farming this food, also believing it is stressed by harsh climatic conditions during farming and transportation.

His primary concern was the safety of the food. This resulted in the birth of Ukuvuna in 2005 with the aim of teaching others natural ways of growing food.

The farm is based in Midrand, Gauteng, which Nzira describes as the "most highly-urbanised province of South Africa where despite impressive economic growth rates and GDP contribution, the levels of poverty, land degradation and inequality are increasing".

Not just interested in farming basics, Nzira studied agro-ecology, permaculture, environmental education and community development and accumulated two decades of experience working for the government and NGOs in Africa.



He received international sponsorship for training in environmental education and ecological agriculture in Canada, the US and Israel and received national and international awards.

"The impact of climate change means we need to find new ways to ensure our planet's future. Permaculture can address these issues," says Nzira.

"I would like to work with others to create the most comprehen-

sive permaculture training institute in South Africa.

"Replicating this institute's training countrywide would ensure the spread of sustainable methods of food security, increase awareness and provide solutions to protect water sources and use water responsibly, plus preserve biological diversity.

"In the process of sharing skills, I find synergy between indigenous knowledge systems and modern

Growing vegetables is a system to work in harmony with nature. I love the natural system, I study and practise it. It is in my blood

sustainable technologies."

Nzira is married and has four children. He is also a born teacher. He has shared knowledge on sustainable living projects in Zimbabwe, Swaziland, Mozambique, Malawi, Lesotho and Zambia.

He lays claim to planting more than a million trees and working with 208 schools and 1 260 households in 55 communities throughout southern Africa. – Rebecca Haynes

Education and training



Oliver Ruppel

The complexity of climate change

Professor Oliver Ruppel's career is dedicated to human rights, environmental management law and climate change.

Ruppel plays a significant role locally and internationally as an expert in climate change law and governance.

As a professor of law and director of the Development and Rule of Law Programme (DROP) at the Water Institute at Stellenbosch University, Ruppel lectures at various academic institutions worldwide, and is a fellow of the Ciucci Centre for Law and Social Development.

He also serves as coordinating lead author for the chapter on Africa in the United Nations Intergovernmental Panel on Climate Change (IPCC).

Before taking up his professorship, he held one of the 14 chairs in the Academic Programme of the World Trade Organisation in Geneva.

His education reads as an academic inventory, and his work is a combination of legal and policy analysis that examines selected aspects of the framework of international law and governance in the field of natural resources and aquatic, oceanic, atmospheric and energy related justice.

Through his works, he strives to synthesise global knowledge relevant to the legal empowerment agenda, which he promotes at national, regional and global level to assist the development of emerging economies, and serve as a networking platform for cross-fertilisation of global and local experiences.

Ruppel says his dedication to help minimise and manage climate change was the realisation that climate change is not waiting on the sluggish timetables of politicians and diplomats.

"The 'diagnosis' of the problems on planet earth seems rather clear: constantly growing human and industrial activities have caused dramatically increased emissions of greenhouse gases, which in turn cause the global climate to change rapidly and irreversibly," he says.

The therapy is much less clear, and is what most inspires Ruppel.

"The challenge is coupled with the all-encompassing complexity of climate change, like making complicated decisions when facts, time scales and values collide, managing priorities when we don't know which to prioritise, knowing when to play decisions safe and when to take major risks, and, ultimately, figuring out what is most important in life.

"This challenge is also related to the degree of uncertainty and the novelty that surrounds climate change in a process that involves ever-changing circumstances that cannot be fully controlled," he says.

In no area of law should the common interests of mankind be clearer than when addressing climate change

Ruppel sees himself as an advocate for a strong South Africa and Africa. He believes that the continent's relatively low contribution to the world's total greenhouse gas emissions is one of the most vulnerable regions to climate change, particularly owing to poverty.

"In no area of law should the common interests of mankind be clearer than when addressing climate change. The impact of human activities has resulted in severe consequences for present and future generations." – Linda Dove

Anthony Turton

Save water and avoid conflict

Professor Anthony Turton is a man who understands the importance of water to the livelihood of everyone and how resource scarcity naturally fuels conflict.

It is for this reason that he actively participates globally on environmental issues to gain a better understanding of the topic and works tirelessly in the mining sector to solve the acid mine drainage (AMD) dilemma the country is facing.

Son of a hunter and fisherman, Turton was introduced to the Okavango and Kalahari at a very early age.

Later, as a grown man, he went into farming and learnt about the importance of water to the creation of livelihoods during the great drought of the 1980s.

Today he is a master of hydropolitics with a passion to inform and educate people about the authoritative allocation of values with respect to water.

Turton is the author of *Hydropolitics in the Developing World: A Southern African Perspective*, a book that lays the foundation for a new positive approach to the topic of hydropolitics that is based on co-operation designed specifically to avoid the conflict of scarce water supplies manifesting elsewhere.

His book is an African contribution to the global literature based on African cultural values of engage-



ment rather than confrontation over shared resources such as water.

In partnership with David Gleason, Turton created the South African Water, Energy and Food (Sawef) forum with an objective to mainstream the notion of The World Economic Forum's water-energy-food (WEF) Nexus into the public, private and corporate discourses, in the spirit of Codesa where we collectively negotiated a better future.

An amateur historian, he loves poetry and finds the most moving pieces are those that come from times of great conflict.

One of his specific interests is in the Boer War, and he has collected many poems from events such as the Siege of Ladysmith.

He has in his collection two

brass shell cases from a cannon mounted on Thornhill Koppie, given to him by George Thornhill, the grandson of the owner of that farm during the siege.

Turton has written poetry and short stories of his own from the battlefield of what we now call the "Armed Struggle".

These are available online and are both part of the book *Shaking Hands with Billy*, a literary offering that captures the history of a special operations unit that assisted in ending the war in Mozambique and creating the political climate for Codesa.

It is through his direct personal exposure to the violence of warfare that he so deeply committed to the avoidance of conflict through enlightened engagement. – Stacey Vee

Harald Winkler

Helping government tackle climate change

Professor Harald Winkler racks up a lot of carbon miles trying to do the research that equips governments to tackle climate change.

As the director of the Energy Research Centre at the University of Cape Town he spends most of his time at the picturesque university.

Having risen through its ranks he now heads a unit that is doing critical research in energy and climate change in a country where energy is the biggest discussion point for developers and environmentalists.

He constantly needs to be challenged and travels the world to learn what other people are doing, and because he is a world leader on climate change issues, he also gives them guidance.

This sees him going to all the climate change conferences of importance. The work has not gone unnoticed by government, and he often joins the South African delegation when it heads off to the Congress of the Parties' meetings every year.

At this year's event in Poland he was there for the first week, when most countries are not in attendance, to immerse himself in the issues being discussed.



On the global scale he has, since 2004, been a lead author on the Intergovernmental Panel on Climate Change's working group on mitigation.

This saw him bring the South African experience in lowering carbon emissions to the global discussion.

His work and understanding is being put to use at a national and regional level to help the country meet its pledge of lowering its carbon emissions by 42% by 2025.

The Long-Term Mitigation Scenarios, which are behind this pledge, were based on his research. He has published two books and 39 articles

in peer-reviewed journals, and sits on the panel of three international journals.

But his journey began with something different – a BA in sociology and African politics at Wits that culminated in an MA religious studies at his current university.

He then went to California's Berkeley to get his MSc in energy and resources before again returning to Cape Town for his PhD much later in life.

He is rated as an "internationally acclaimed researcher" by the National Research Foundation. – Sipho Kings

Education and training

Kelebogile Mathole

Ozone and climate change

Kelebogile Mathole has taken her dedication to preserving the planet into the stratosphere

Kelebogile Mathole has spent her life finding ways in which she can protect the Earth through science.

Since completing her BSc. honours degree in meteorology she has worked at the South African Weather Service (SAWS) and is one of a few students given financial support by a programme known as the Applied Centre for Climate and Earth Systems Science (ACCESS). Access is officially part of the department

Mathole's passion for protecting the environment has made her determined to make a difference

of science and technology and the National Research Foundation Center of Excellence, and it is a collaborative effort that exists among several research institutions across South Africa and includes the likes of SAWS and the South African National Biodiversity Institute, and is hosted by the Council for Scientific and Industrial Research.

"I have always had a passion for atmospheric research in general, particularly with regards to the middle atmosphere also known as the stratosphere," says Mathole. "Thanks to the financial assistance I am receiving from Access I can study towards my MSc degree at the University of Pretoria and also work towards my goal of attaining a PhD once I have finished my MSc at the end of 2014."

Mathole's research focuses on issues such as the impact of short-term variations in GHGs and stratospheric ozone concentration and is currently working on how stratospheric ozone variations and associated processes (temperature and wind variability) can be used as a way to predict summer rainfall.

"In a recent paper we showed

that if lower stratospheric ozone is not properly prescribed or represented in a seasonal climate model, then the winds for South African rainfall are misplaced," says Mathole.

"We hope to correct this problem by representing ozone properly as a first step and then using the winds and temperatures as predictors of South African summer rainfall, which can play a role in improving seasonal rainfall forecasts and thus help society to plan and manage the impact of the changing climate more effectively."

Mathole's passion for protecting the environment, along with her intellectual understanding of the impact that GHGs and people are having on the climate, has made her determined to make a difference.

"I believe that combating climate change is part of my responsibility as a young South African scientist," says Mathole.

"I feel obliged to make the community and the world at large aware of the latest useful research findings related to climate change and to encourage people to acknowledge its existence so they can take action." – Tamsin Oxford



Patience Shibambu

ACCESS to climate change

Patience Shibambu has transformed her commitment to protecting the planet into a career

Climate change is a real issue and for Patience Shibambu this forms the core of her career and her life.

She is among a select group of post-graduate research students working in a programme known as the Applied Centre for Climate and Earth Systems Science (ACCESS), which is officially part of the department of science and technology and the National Research Foundation Center of Excellence.

Access is a collaborative effort that exists among several research institutions across South Africa and includes the South African Weather Services and the South African National Biodiversity Institute.

It is hosted by the Council for Scientific and Industrial Research.

"Since high school I've found the weather fascinating and I like to understand and discover phenomena in nature," says Patience Shibambu. "Thanks to the financial assistance I am receiving from Access I can complete my honours degree in meteorology at the University of Pretoria and start with my PhD studies afterwards."



Shibambu plans to use this opportunity with Access to make a significant contribution to weather forecasting in South Africa and to help people better understand, interpret and use the forecasts to ensure that the disasters associated with weather can be better prevented or mitigated.

The purpose of Access is to harness the fragmented and widely dis-

tributed skills and expertise in Earth systems sciences to develop a national approach to research on Earth systems.

The latter includes water, land cover, biodiversity, biogeochemistry, ocean dynamics, ecosystem dependent livelihoods and systems modelling.

"I am currently developing a heat wave forecast system as part

of my MSc work that will forewarn the public of expected heat waves up to two weeks ahead," says Shibambu.

"With effective communication to the public and other relevant stakeholders, my forecasts should prevent, or even alleviate, the impacts of heat waves on human health."

For Shibambu it is essential

I am currently developing a heat wave forecast system as part of my MSc work

that there is more public awareness around weather and climate change to ensure that the world is educated about the issues and encouraged to engage in activities that can reduce greenhouse gas emissions, conserve energy and avoid water pollution.

"Like any scientist I find fulfillment in discovering new things, finding solutions to complex issues and developing systems that are useful to the public," concludes Shibambu.

"It's this goal that keeps me going and the fact that I am fortunate enough to surround myself with people who have superb knowledge and scientific understanding." – Tamsin Oxford

Ayanda Tsitsa

A random idea saving millions of lives

For most 18-year-olds, their interests span no further than their friends, their school activities and their gadgets.

More often consumers than contributors, the vast majority of teenagers are still figuring out what they would like to do with their lives.

Ayanda Tsitsa is the exception to the rule. Born and raised in the rural town of Mooiplaas in Mpumalanga, the grade 12 (2013) pupil at Byletts Combined School took note of the circumstances in and around his town and when the school launched a competition which asked pupils to identify problems related to water in their schools and community and come up with innovations to solve the problems, Tsitsa saw his chance to shine.

Can you tell us about your invention?

Being a rural town, the residents of Mooiplaas do not have running water in their homes and have to make do with communal taps in and around the area where hoards of people gather to collect water for their daily usage.

These spots usually result in a lot of dripping water, which ultimately goes to waste and over time turns into a breeding ground for waterborne diseases.

My invention consists of a rewinding tap, a paddle, underground filter tank and a reservoir.

The filter and the reservoir address the issue of dripping water by recollecting, purifying and leading the water to a catchment fitted underground. The re-collected water can then be available to reuse when watering gardens and for other domestic purposes.

What are the benefits of this kind of invention?

This innovation will reduce dripping water wastage, promote water efficiency and minimise the risk of waterborne diseases generated in water pools created around taps.

It feels really great that a random idea about an overlooked situation could now possibly save what could be millions of lives, more so for people living in rural areas because this is a situation that has continually compromised their health for years.

How was the project received?

I took third place in the Eskom Science Expo Competition and the South African Institute of Civil Engineering competition. I was also picked as a finalist and fortunate enough to attend the 2013 Stockholm Junior Water Prize event held in September 2013.

This was organised by the ministry of water affairs and sponsored by the Water Research Council, University of KwaZulu-Natal and the Cape Peninsula University of Technology.

What was it like being in Stockholm?

This is an annual international competition, which brings together young budding scientists from around the world who have created new solutions to the earth's growing water problems.

I was blown away by the level of unity shown, considering that we were all from totally different parts of the world and didn't know each other at all.

But from the onset we were able to openly interact like siblings. The country's hospitality was ab-

An environmentally conscious nation could help cut half of its national budget



solutely perfect, something a non-travelling South African would never be able to imagine.

What career path would you like to pursue after school?

I am hoping to go to university and study towards a BSc in civil engineering because I would like to be a civil engineer; but I won't let being stereotyped frustrate me.

If being an engineer doesn't work out I'll take up a degree in microbiology. Ultimately I would like my career to not be too far from the project.

Are there any plans for your invention to be implemented in your community?

I am currently looking at that this summer holiday, with guidance from a couple of stakeholders from different water-based companies.

We are working hard to have the idea's first accredited prototype working in an Eastern Cape village by the end of next year.

I am very excited at the prospect that my project will actually become a reality and impact lives in a positive manner.

Have you always been interested in environmental issues?

Always. To such an extent that I regret not being part of COP17 held in Durban 2011 because I would have loved to be able to engage with other like-minded people.

It is my hope in the future that I become fully involved in youth environmental programmes even after high school.

Why do you think it's important for people to care about the environment?

I think it's important for us to be passionate about it for the betterment of our future and our planet as a whole, because whatever environmentally related contribution we make today will surely be a determinant of how we will be expected to live in future.

Nevertheless, from an economic point of view an environmentally conscious nation could help cut half of its national budget, allocating those funds for more organic activities. – Stacey Vee

It's important for us to be passionate about it for the betterment of our future

Public sector

Riaz Jogiat

From recovery to prevention

The uMgungundlovu District Municipality in central KwaZulu-Natal is running the country's largest and most integrated adaptation programme.

At the heart of this is Riaz Jogiat, its environment manager.

The journey began a couple of years ago when the area was identified as one of three climate change hotspots in South Africa.

Using the best science on climate change a prediction of shifts over the next 30 years was drawn up, as well as a climate response strategy based on this.

The basis of the work starts small with critical interventions in every part of the local environment.

To better handle a changing climate – which will be most felt in changing amounts of rainfall in this area – the ecology is being made more resilient.

Surrounding wetlands are being rehabilitated because they slow flood waters and clean the local rivers so locals can drink from them.

Small-scale farmers are being assisted to make their crops more resilient with different types of plant, so when rainfall becomes more unpredictable they do not lose whole crops. A partnership with the Dutch government is teaching locals how to use organic waste for

things like compost.

This will be turned into natural gas, creating jobs from what used to be a burden. A full-scale recycling programme is doing the same thing, and by 2020 the plan is to have 60% of all waste diverted from landfills to recycling projects.

This creates an industry and reduces greenhouse gases. All of this work sparked the interest of the United Nations Global Adaptation Fund, which agreed to fund the municipality's climate change projects to the tune of R80-million.

It runs for the next five years with the main goal of building early warning systems for all environmental hazards, from fire to flooding. The objective is to shift their disaster management unit to a disaster risk reduction unit.

This will save lives and lessen the economic impact of climate change related disasters. Jogiat is motivated by the need to lift people out of the pervasive poverty of the area. To do this their environment has to be improved.

He also wants his three young children to inherit a world where humans live in harmony with the planet, under the mantra "The earth does not belong to us, we have simply borrowed it from our children." – *Sipho Kings*

Linda Phalatse

Actioning atmospheric change

Championing methods to address the world's most vexing environmental problems

Passionate about climate change since the age of 14, Linda Phalatse believes climate change issues are still not easily understood by the global community, despite what she describes as "overwhelming international scientific consensus".

"I am driven by the commitment I have made to taking on the climate crisis and solving the greatest threat humanity has ever faced," says Phalatse.

"I have made a personal choice to tackle climate change as a local government official, by advancing an ever-expanding suite of measures including policies, programmes and partnerships spanning a wide range of initiatives.

"These range from reducing our emissions locally and nationally, to developing transformational low-carbon technologies, to improving observation systems that will help us better understand and address the possible impacts of climate change. These efforts emphasise

the importance of results-driven action both locally and internationally."

Co-author of several national and international climate change papers and reports and currently writing a children's book on climate change, Phalatse also served as president of the Gender and Climate Change Coalition in Africa for seven years. She is a founding member of the Young Minds in Environment network for South African youth and currently serves as a C40 Cities steering committee member, as representative for the City of Johannesburg. She has held her position as head of climate change and resilience with the City since 2007.

"If I were to be a minister in South Africa for a day, I would choose the education portfolio, so that I could fulfill my dream of influencing the curriculum by incorporating climate change as a special and critical subject from elementary school."

Phalatse has travelled to 45 cities in the world and aims to reach 60 cities by the time she turns 40. She also has discovered her other talents in creative arts and crafts.

When she was a student, her

geography teacher, recognising her passion for science, would ask her to explain the most complicated dynamics of science in the atmosphere. This was one of the factors that led to her studying a post-graduate degree in atmospheric science at the University of Cape Town, with climate change and statistics as majors.

"The biggest thing to remember about making green choices in life is that small actions can make a significant impact in reducing greenhouse gas emissions and saving money," she says.

"I have created learning opportunities for my colleagues to understand the connections between climate change and our office spaces.

"These include the effective use of lighting, heating, cooling, computers, printers, copiers, business travel and commuting. It is about understanding ways in which an office, even if it is small, contributes to climate change.

"The gradual warming in global temperature looms as one of the world's most vexing environmental and economic problems. By acting now, we can all help minimise the impact this is ultimately going to have." – *Rebecca Haynes*

Anthea Stephens

The little wonders of nature

Anthea Stephens fell in love with the environment while sitting for a few hours on a rock in the bush.

This was during a school outing, where her group spent five days hiking and sitting under the stars next to a fire every evening.

The peace she felt made her realise how important parcels of wilderness are in exposing people to the soul-stirring wonder of nature.

With these they can re-establish their link to the environment and appreciate why it needs to be protected.

Her surroundings also started her expedition in learning how nature had to be protected because it provides clean water, food, medicine, places to relax and clean air. All for free. She has taken every opportunity since then to get out in nature.

Working partnership

And now she runs the Grasslands Programme at the South African National Biodiversity Institute (Sanbi).

It is one of the implementing arms of the department of environmental affairs, and works to keep the country's biodiversity thriving.

Her specific programme is one of the most successful in the coun-

Large victories have been won with swathes of land declared as protected areas

try because it has created a rare working partnership between government, non-governmental organisations and the private sector.

This has brought the need to conserve biodiversity to the fore. The main focus of the programme is to protect the Grasslands Biome, one of the most critically endangered habitats in the country because urban sprawl and mines are constantly taking bites out of it. In Mpumalanga and Northern KwaZulu-Natal, where the programme faces the biggest threats from mining, large victories have been won with swathes of land declared as protected areas.

The programme falls under the



United Nations Development Programme, thanks to a R80-million grant from the Global Environment Facility that got it started.

Its key objective is to conserve grasslands and help communities become more resilient to changes in the climate and their immediate weather.

Her work is a constant battle to

convince people of the importance of the environment and how it can provide for free what would cost money downstream.

A working wetland will clean water and regulate its flow – a broken one will mean water has to be cleaned in water plants, and floods will destroy communities that live too close to rivers.

The programme is also starting to change the way the environment as a whole is managed locally. Instead of a command and control approach where central government runs things, now local communities work with business and government to resuscitate and protect their surroundings. – *Sipho Kings*

Public Sector



Debra Roberts

The city's role in addressing climate change

Dr Debra Roberts founded and heads up the environmental planning and climate protection department of eThekweni municipality in Durban.

She has championed the importance of addressing climate change adaptation in Africa's cities.

"The majority of people live in the world's cities. So if you talk about communities today, they live in cities. And cities are some of the most vulnerable areas when it comes to climate change.

Unfortunately, biodiversity is not something people associate with cities

"They therefore represent a natural place to draw together community-based climate change adaptation issues," she says.

Roberts believes that the majority of the climate change debate has emerged in the environmental sector, but people need to be aware that these matters are not restricted to rural communities but are very relevant to cities.

"Cities in the modern world need to pull together people, economies and the environment in the same place to deal with a number of challenges. Unfortunately, biodiversity is not something people associate with cities. Yet, biodiversity in cities is one of Africa's strengths."

She is also renowned for leading

pioneering local level work that has made Durban a world leader in the field of climate change adaptation.

This includes the initiation and development of the Durban Municipal Climate Protection Programme. It also includes the development of the largest ecosystem-based adaptation reforestation projects in any city in South Africa – the 600ha Buffelsdraai, 250ha Inanda Mountain and 200ha Paradise Valley Community Reforestation projects.

These projects help restore biodiversity and related ecosystem services critical to cost-effective climate change adaptation; sequester carbon; create employment opportunities, and provide poor and unemployed people with improved food security, educational and capacity building opportunities through growing trees for the projects.

Roberts also plays a significant role on an international level where she initiated Durban's successful bid to host COP17-CMP7 in 2011.

During this time she used the opportunity to raise the international profile of the city's pioneering adaptation work and to ensure the hosting of an international local government convention focused on climate change adaptation.

"In many ways, Durban is leading the pack, which has resulted in several local governments in other parts of the world adopting more transformation-led initiatives around climate change.

"We are always looking for new ways of organising people and arranging economies. 'Communities have an integral role to play in rebuilding ecosystems to have food and energy for the future.' – Iwan Pienaar

Khavhagali Vhalinavho

Getting policy right

When you talk to Khavhagali Vhalinavho, director of the climate change unit at the department of environmental affairs, his passion for increasing awareness about climate change in the public and private sectors is clear.

With fields of expertise ranging from ecology, biodiversity, ecosystems and climate change, he is at the forefront of the science-policy interface, climate change adaptation, and economics of biodiversity and ecosystem services.

He has also conducted research on plant biodiversity and conservation management.

"I am a goal-oriented person. Each morning when I wake up, I focus on the bigger picture of how climate change relates to everything that could have an impact on people. It is clear that we need to focus on integrating the issues arising out of this into everything we do," he says.

As such, Vhalinavho believes there are already good signs of how policies, science and research are working well together to inform this change.

"We now need to make sure



people understand this and incorporate climate change awareness into their daily lives. From my side, I will continue to drive policy that assists with this."

He believes that there is an increased awareness and people are starting to change their perspectives around the environment. This is especially true in the business sector.

"Decision-makers are actively driving initiatives because climate change has a significant impact on their budgets in terms of supply and

demand.

"Just look at how reduced rainfall has impacted agricultural yields in recent months. Also, the hail storms we have been having in Gauteng are another example of how climate change has the potential to damage homes and result in loss of life."

South Africa, he says, is playing a leading role in driving climate change awareness on the continent.

"In terms of the research done through the department of environmental affairs and institutions such as the Council for Scientific and Industrial Research, vulnerability assessments have been conducted on how climate change impacts all aspects of society.

"We now need to drive this on a human settlement level and show how vulnerable people are by getting regional and sub-regional groups involved. This means that when we position ourselves internationally, we are showing the role South Africa is taking on the continent. "What remains now is to get the many different NGOs of the country involved and empowering them to adapt their programmes for climate change." – Iwan Pienaar

Shanna Nienaber

Hope for water-starved communities

The frequency of protests that involve demands for decent living conditions, including clean water, illustrate the state of infrastructure in underdeveloped communities, and the bigger need for proper resource management and planning.

The research, development and innovation aspects linked to environmental challenges and related service delivery consume Shanna Nienaber's working hours in her role as a deputy director with the department of science and technology's environmental services and technologies directorate, which primarily focuses on water and waste innovation.

She is quite far removed from the realities of service delivery on the ground, but even more communities are likely to suffer without her bigger picture understanding of the challenges.

"South Africa sits with the challenge of trying to improve access to safe drinking water and appropriate sanitation services, and although there have been vast improvements since 1994 we still have a long way to go to ensure sustainability of the supply.

"This means we have to ensure

not only that there is a toilet or tap, but that it is able to run most days of the year," she says.

She is currently the vice-chair of the Southern African Young Water Professionals (YWP) and chair of its Gauteng chapter.

She took on this volunteer work to gain a better understanding of industry professionals who mostly have qualifications directly related to water and climate issues.

"There is so much hope for me in working with a crowd of people who are passionate about being part of the sector and committed to doing what we can as our careers develop," she says.

The YWP's main mission is to develop younger professionals in the industry – at a technical, professional and personal level.

Activities include conferences and workshops to share knowledge and experience, particularly with the more established sector professionals, as well as creating greater public awareness and understanding of the water challenges South Africa faces.

"We need to be very careful to nurture good relationships between young people and more experienced people because mentorship is ab-



solutely critical for young water professionals in terms of being able to make a sustainable contribution in the future.

"It's about blending the energy, ideas and new ways of doing things that young people bring with the experience and insight that more experienced professional have."

The voices of dissatisfied community members in underserved areas are unlikely to dissipate soon, but with young professionals such as Nienaber taking a longer term view on the challenges, they will hopefully not be a feature of the future. – Johann Barnard

Business

Rohitesh Dhawan

Intersecting skills with needs

Climate change is an issue of justice

In his present role as KPMG's associate director and global head of climate change and sustainability for the mining sector, Rohitesh Dhawan has delivered a number of outside projects, also co-ordinating the group's climate change and sustainability efforts. He assists mining professionals across the world to win new work and deliver projects, and is involved in multiple causes, from animal rights to adult education.

Dhawan, who has a master's in environment change and management from Oxford University, and a BSc (Hons) in economics from Rhodes University, has authored numerous thought leadership articles and is regularly called on by the media to provide his opinions on climate change and sustainability.

He has also undergone personal changes and says: "I used to be fairly obese and now I can't get enough of general fitness."

"Being a cricket player is an ambition I harboured for many years, besides which I have taken up many sports, including hiking – I climbed Mount Kilimanjaro and ran in my first marathon in November."

"The causes I have dedicated my efforts towards have been because I want to change the circumstances of those that appear to be



in a helpless situation or trapped in some way," explains Dhawan.

"This is what has also attracted me to the issue of climate change."

"It is one of justice, where the most vulnerable people feel its strongest impacts and where those responsible for the problem must be held accountable to deliver a more sustainable future."

"I look at the skills I have and what the need is. Where they intersect demonstrates where I can add the most value so that's where I put my attention."

"Only one percent of us have the opportunities I have had, such as furthering my education. This one percent has a responsibility to change lives."

"It is beyond personal enrichment, it is about what it means and

Fighting helplessness using my skills and resources is what drives me to dedicate my efforts to causes

its purpose. If not me, who, and if not now, when, is my motto."

According to his colleague at KPMG, Shireen Naidoo: "I have never met a more passionate young individual in the space he works in, than Rohitesh."

Dhawan has been invited to join the Young Africa Leadership Initiative (Yali) as a fellow for the inaugural 2013-14 class of 20 young professionals from various sectors of society between the ages of 26 and 34.

It was through Yali that Dhawan was given an opportunity to meet US President Barack Obama when he was in South Africa, to discuss the challenge of African leadership. – Rebecca Haynes



Chris Haw

Meeting milestones in solar power

Money-saving power that offsets carbon-heavy electricity

Quite where Dr Chris Haw manages to fit in his family, avid passion for kite-boarding, surfing and being lead singer for the Swingsetters is remarkable.

Haw is co-founder and director with Aurora Power Solutions, a solar photovoltaic project development company and independent power producer, managing director of Sola Future, offering solar energy and demand management solutions to private consumers, a director at Energy Amplified, an energy sector investment platform and co-founder and current spokesperson for the South African Photovoltaic Industry Association (Sapiva), representing 118 member companies.

Realising potential

Solar photovoltaics generate electricity by converting solar radiation into direct current using semiconductors.

Solar is now, after hydro and wind power, the third most important renewable energy source in terms of globally installed capacity and second only to wind as the cheapest form of new energy in the world.

"I am driven by unlocking challenging opportunities that have a positive impact on the world and its environment," explains Haw.

"My self-fulfillment comes from the ability to look back and say I realised my potential."

This ex-rugby player and dhow captain, doctor of philosophy in biomedical engineering from the University of Oxford, and undergraduate in electrical engineering, mechatronics at the University of Cape Town, says: "I saw the opportunities in 2008 when the lights went out."

"Solar power can make a consumer independent and less reliant on Eskom, however, storage technology has a way to go before it is affordable."

Until then solar works well as a complementary source of power that saves money and offsets carbon-heavy electricity."

Cutting costs

Affordability of installing solar power has long been a problem.

"Solar requires a high upfront capital cost because you pre-pay all the electricity that it will generate for 20 years," says Haw.

"To help consumers overcome this, we provide financing solutions to assist them to make use of the systems."

Through Sapiva, Haw also says they have been supporting government in setting up a competitive bidding programme, aimed at bringing solar costs down with each round of bidding.

"We have created a platform where government and industry can communicate and develop confident relationships that actually result in real projects," he emphasises.

"The Renewable Energy Independent Power Producer Procurement programme has now procured more than 1400MW of solar energy."

"This requires more than R30-billion of private investment and each round, the prices of energy are getting lower."

This climate change leader believes his actions are having the most impact "in the building of South Africa's first solar power stations, which were set to generate electricity last December". – Rebecca Haynes

Valerie Geen

Leading the tribe towards climate change

Creating a legacy through leadership and education

A born leader by her own admission, Valerie Geen, who at one stage wanted to be a singer, is also an avid poet, storyteller and "born teacher, never mind what I do".

"I have always been a leader, even as a child," explains Geen.

"Give me anything to lead, I will lead it – if it will make the world a better place and bring justice to everyone. I am a starter and finisher and when I am passionate about something, I'm unstoppable."

"I am driven by the need to leave a legacy that reaches and changes many people's lives for the better and I do this through leadership and education."

Over her 13 years of working for the National Business Initiative (NBI), a non-profit organisation, Geen has been instrumental in initiating the Carbon Disclosure Project (CDP) for South Africa, which she did about eight years ago.

Focus on climate change

The CDP is now benefiting many companies which have taken the step towards actively going green as a business strategy.

"When I started the CDP proj-

ect in South Africa I was inspired by a book I was reading at the time called *Tribes*, by Seth Godin," she says.

"It describes a tribe as any group of people, large or small, connected to one another, a leader and an idea."

"A tribe with a leader can change the world and with climate change being a real threat, we can use the power of a tribe to create positive change."

A business climate change leader, Geen led the work for the NBI to become the local host of the United Nations Global Compact in 2007.

As head of the NBI's climate and energy unit she spearheaded the NBI's pitch for hosting the Business Pavilion at COP 17 in Durban in 2011.

More recently she headed the awarding of an approximate R135-million private sector energy efficiency project to assist more than 3500 South African companies become energy efficient and reduce their carbon emissions.

"It is incumbent on all of us to take up leadership on climate change. There cannot just be a top-down approach," stresses Geen.

"We need to change our behaviour as individuals and help other in-



dividuals understand that through changing their behaviour as well, they will also improve their quality of life."

Geen says she has done "a bit here and a bit there", these bits being achieving post-graduate qualifications in leadership and management, a BA majoring in English and history, and post-graduate diplomas in leadership and project management.

She also has a degree in social science with a psychology and social work major and initially trained and worked as a social worker. – Rebecca Haynes

saving energy

so we can all live better

Offering our customers great value so that they can save money and live better has always been very important to Makro. We also believe that we have a responsibility towards preserving the environment so that we can all live better. Since 2010 we have invested significantly in technologies and processes that allow our stores to consume less energy, both during construction and operation thereafter, with the aim of saving energy to reduce the demand we place on shared infrastructure, lowering our running costs, and improving the in-store environment and customer shopping experience.

We are delighted that our efforts in these areas scooped Makro a prestigious “eta” award for its energy efficient new generation stores at Eskom’s 2013 “eta” Awards Ceremony.

Eskom has for the past 23 years rewarded excellence in the field of energy efficiency. The purpose of the “eta” awards is to acknowledge exceptional effort in the most efficient use of energy by individuals, students, companies and other institutions.

The independent judges lauded Makro in the commercial category for its sound energy efficiency principles, particularly on energy saving in the areas of **lighting, refrigeration, air conditioning, building envelope and heating.**

Over the last few years, we have implemented a variety of energy management systems and technologies into our stores, including **“switching the lights off”, heat reclamation facilities, thermal storage systems, condensate water harvesting, LED lighting, daylight harvesting cells and energy efficient refrigeration plants.** As a result we have been able to **decrease our usage by as much as 36%, and achieve energy savings of 219 000kWh’s.**

At Makro, we work together to save you money so you can live better; and we also work hard to save energy, so we can ALL live better. Be sure to visit our stores, where you will find everything you need for your home, business, school or office...under one, very energy efficient roof!



Everything you could ever want. And more. For less.

Get your own Makro card today! Simply apply on-line @ www.makro.co.za, call 0860 300 999, sms “m&g” to 31144 or visit your nearest Makro store.



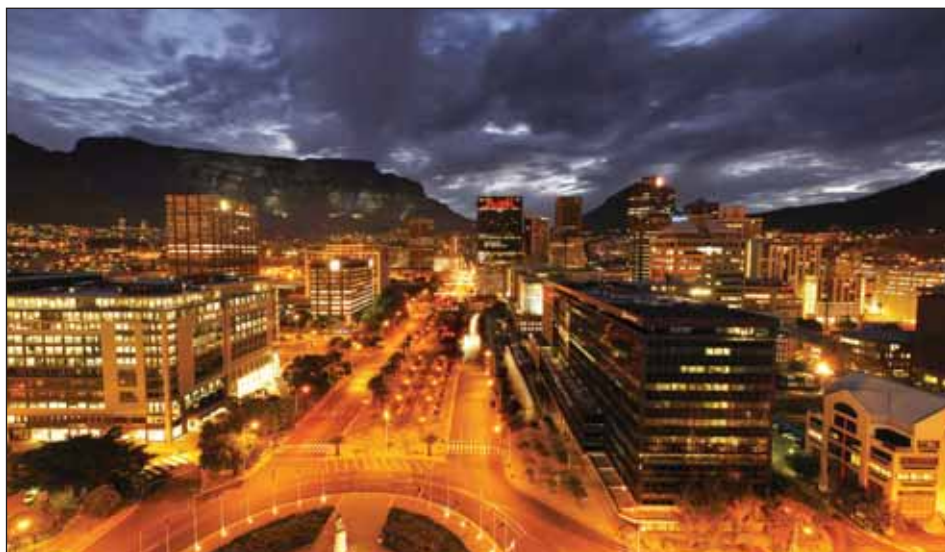
@Makro_SA



MakroSA

Advertisement

The changing face of the energy efficiency sector



By Annamarie Murray, Eskom *eta* Awards Coordinator

In 1985 Eskom launched the *eta* Awards. Our aim was simple - to establish a culture of energy efficiency in South Africa by rewarding and acknowledging people doing good work around saving energy.

Back then electricity was cheap and plentiful and most South Africans weren't terribly concerned about their consumption. Office blocks used to leave their lights blazing all night, at home many people left lights on in unoccupied rooms and we certainly didn't consider turning off our geysers at peak periods let alone fitting energy efficient pool pumps and light bulbs.

But a lot has changed and now South Africans are starting to think more about reducing their consumption. In fact the green trend is really starting to take hold. With rising energy costs and a strained national grid there

are several good reasons for people to change their behaviour.

Whereas 25 years ago it was visionaries and true greenies who were interested in energy efficiency, today the Eskom *eta* Awards appeal to everyone. In response to this growing interest we have expanded the categories to cater to the growing number of industrial applications, community initiatives, young people and even households who are taking charge of their energy consumption.

Energy savers lead the way

In fact in recent years we have seen a growing number of entries from households, with many using minimal amounts of electricity while some households are functioning completely off the electricity grid.

Last year's winner of the Energy Savings in Households category - Don Boroughs - lives with his family in an extremely energy efficient home in Victory Park, Johannesburg.

Over a period of 16 years, Don has managed to reduce the electricity consumption in the house he lives in by 75%. His savings of about R20 000 per year were a result of installing a solar geyser, a geyser timer and several other lighting and heating solutions.

Another trend that we are seeing is large corporates or commercial operations building energy efficiency into the way they do business.

Since 2010, six Makro stores across the country have been greening their stores with the aim of saving energy, reducing running costs, improving the in-store environment and customer shopping experience and becoming more sustainable.

The group has initiated a staff behaviour change campaign coupled with energy management systems including lighting control switches, energy efficient lighting, heat reclaiming facilities, thermal storage systems as well as independent electricity check meters. As a result they have been able to decrease their demand by 36% with a monthly saving of 219 000kWh.

Another encouraging trend is the growing commitment from a range of businesses to support energy efficiency initiatives. A major contributor to this shifting attitude was the establishment of the Energy Efficiency Leadership Network (EELN) under the auspices of the National Business Initiative.

The EELN was named joint winner in the Energy Efficiency Awareness category of the prestigious Eskom *eta* Awards in 2013 in recognition of their contribution to awareness raising and promotion of energy efficiency best practice amongst big business in South Africa. The premise is a simple one - by providing industrial and commercial businesses with services to help them identify and implement energy saving measures.

We have also seen a growing uptake of

energy efficiency technology and principles on a national government and municipal level. In 2012 the City of Cape Town won an Eskom *eta* Award for their retrofitting project which saw streetlights and traffic lights across the City fitted with energy efficient bulbs. Then again in 2013 the City entered for their impressive communication campaign that aims to guide residents and commercial users on a journey to energy efficiency optimisation. As a major consumer of electricity this is extremely encouraging and we hope to see more government and municipal departments following suit.

Twenty nine years after being established the *eta* Awards are thriving. They are considered some of the most prestigious in the country and with big name brands like Makro, Woolworths, FNB, AngloGold Ashanti, Vodacom and The City of Cape Town vying for the top spot across the eight categories we believe that South Africans are on the right track in terms of energy efficiency.

Entries to the 2014 Eskom *eta* Awards will open in April 2014. So if you have an ingenious, energy saving idea or innovation, visit www.eta-awards.co.za for more information.



Zaheer Khan

Economically sensible solar

Cheaper alternatives to coal possible

His four children were key contributors to Zaheer Khan's shift in thinking about reliance on fossil fuels for energy and led to his concern about preserving the earth for future generations.

After securing his BScEng from the University of Natal in the field of electronics, he received a Transnet bursary and worked there for four years before joining Eskom.

He worked for Eskom for 16 years, more than a decade of which was spent heading its strategic electricity planning unit.

"I suppose I 'defected' and started African Sky Energy to ease my conscience and because I thought solar photovoltaic (PV) power was a far more sustainable and financially sensible option for commercial customers.

"With prices having halved over the past few years, many South Africans are simply unaware of just how viable it has become and its application now is an economically sensible decision," says Khan.

Khan was also involved in the



research and implementation of solar PV installations at some of Eskom's own power stations and offices, with the energy used actually generated by using solar energy.

The time he spent researching the energy needs of South Africa led to his believing that there is a huge need for South Africa to seek alternatives to the very heavily coal-

The desire to provide for energy independence in a clean way should be a no-brainer

based energy strategy at present.

He also says that even though electricity has a bad reputation due to the negatives of coal-fired generation plants, it still is better than homes where dung and wood fires are used for basic essentials – the latter causing a host of health and other problems for house occupants.

Coal-based energy provision is one of the leading contributors to South Africa's greenhouse gas emissions and, while changing domestic electricity useage patterns

through behaviour change has been one strategy supported through the 49-million and similar campaigns, it is actually the larger commercial and industrial users of electricity where the bigger reductions to greenhouse gas emissions can be made.

Khan believes solar power will revolutionise electricity consumption in much the same way as cell phones changed the face of wire-based telephony grids.

This is why, he explains, he started African Sky "maybe a little ahead of time, but to both establish credibility and make the most of opportunities as they arrive in South Africa".

This adventurer – who has scaled one of the world's seven summits, Russia's Mount Elbrus, has a habit of throwing himself off bridges attached to a bungee, and bailing out of a plane is next – believes climate change is about attitude change.

"Since the black-outs in 2008, South Africans have not been particularly happy with our national electricity provider. The desire to provide for energy independence in a clean way should be a no-brainer," he concludes. – Rebecca Haynes

Alec Joubert

Driving climate change in businesses

Dr Alec Joubert is working inside industries to change the way companies look at climate change and their impact on it.

Rather than trying to force change from the outside, he uses his skills to show companies how adopting to climate change and changing their business-as-usual is good for the environment, and for their profitability.

As a principal consultant at global firm Camco Clean Energy, he is part of a company that is advising many local companies on how to lessen their burden when South Africa's carbon tax starts in 2015.

This sees him talking to boards and trying to totally shift their traditional way of seeing business as existing on the basis of exploiting the environment.

Consideration

Instead, he shows how the environment needs to be considered as a risk and an asset, and must be looked after like any other risk a company faces.

This not only allows them to reduce risk and possible costs, but also change the way they do business to adapt to the future and take advantage of the opportunities a green economy could give.

He started his career in climate change research because he had always been worried about, and interested in, the climate and environment.

This gradually led him to the corporate world, where the biggest difference had to be made. And where the biggest difference could be made by working with the language that the world uses.

Impact

His biggest project to date is with the department of environmental affairs, where his team has catalogued the carbon emissions and general environmental impacts of the biggest sectors in the local economy.

This carbon inventory will allow the department to see who is emitting what and create plans for each sector to mitigate their impacts.

At the moment this country-wide information is not available so any national plans, such as the proposed carbon tax, are working on sparse information.

Green future

Critically, his work looks at both adaptation to the changes wrought by climate change, and mitigation which seeks to lower these changes by doing something now.

This combination is rarely used. While his work makes him worried



about the economy's attachment to fossil fuels, he sees a great opportunity for South Africa to become a world leader in green technology

and knowledge if it changes now.

If this happens then the country could have an equitable and sustainable future. – Siphso Kings

People are reluctant to plan ahead and unwilling to delay instant gratification urges

– Tony Lopes pg27

Business



Yoganathan "Stan" Pillay

Reducing emission footprints

Big business' response to climate change

Big business is stepping up to the plate on climate change and with people like Yoganathan "Stan" Pillay in place, making a powerful contribution to turning around the exploitation of our planet's natural resources.

This is good news for us as big business contributes the most to global warming and negative environmental changes.

According to KPMG's Rohitesh Dhawan: "In his role at Anglo American, Stan has overseen the implementation of mitigation strategies and actions that are at the forefront of big business' response to climate change.

"His engagement on policy issues has been balanced and measured, and he has had a positive impact through various industry and sector forums."

Pillay's role is to establish strategic policies, technological standards

and targets and assist companies to achieve their objectives, with emphasis on energy efficiency. The company has also implemented a vital programme, Eco2Man, focused on energy and carbon dioxide management.

"I must ensure our operations deliver energy and carbon efficiency," explains Pillay. "I need to set targets and measure progress, identify and implement opportunities.

"It is essential that we meet and adapt challenges and that guidance documents apply. We have done much to look at and address our high-priority sites towards reducing our emissions footprint."

Driving Pillay is the fact that climate change is a relatively new area of interest and international business processes are evolving.

"The opportunity to influence and embed these processes and systems into other businesses and make a difference is a great one. It is also exciting having the ability to drive programmes in my own industry."

Pillay says that individual roles by consumers absolutely require behavioural changes to have effect.

"Energy is almost invisible to the individual, whether electrical or diesel. You don't see it working. You fill up or you pay your electricity bill. I'd like to see people have a greater appreciation for and make them more aware of the natural fuels that make their daily lives more comfortable and convenient – make carbon issues more visible."

When Pillay is not influencing change at work, he enjoys canoeing "now and again" and playing cricket.

"I watch more than I play at the moment," he laughs, "and I do my exciting things over the holidays." – Rebecca Haynes

Masimo Magerman

Creating shared value through investments

Masimo Magerman, founder and managing director of Mergence Investment Managers, subscribes to the concept of creating shared value.

He is passionate about making a difference in South Africa and believes that Mergence provides him with the vehicle to do so.

He has been called a frontrunner for impact investing, a form of social responsible investment (SRI) that considers both financial return and social good in the investment process.

Impact investors seek to create change by only investing in companies where the primary intention is to generate a measurable social and environmental impact along with a financial return.

The dual focus on creating impact and generating a sound financial return over the long term is important to promote sustainability and self-sufficiency in target investments.

"Within the South African landscape where our society is concerned about education, unemployment and housing, among



others, we have created vehicles that pension funds can use to inject money into the social inequalities of our country, thereby creating shared value," he says.

Magerman says that internationally, companies are taking more of a responsibility around social and environmental impact.

"Many corporates in the US and European Union appear to be subscribing to new green values, driven in part by a change of mindset within society.

"In South Africa, I think we still

have some way to go. Many corporates pay lip service to sustainability reporting and levels of disclosure generally remain low.

"The SRI Index on the JSE is admirable in its intent of recognising those companies that regard environmental, social and corporate governance as an integral part of their strategy, but there are only 72 companies on this index.

"Where does that leave the rest of the corporate landscape?"

He feels that increased awareness of responsible investing will help matters and there is a need to showcase good news stories where impact investing has made a difference.

"A greater level of shareholder activism would also make a difference, so that corporates know they are being monitored by shareholders.

"Capital needs to flow freely, so I am not an advocate of prescribed asset allocation, but there truly needs to be a paradigm shift. The mindset in South Africa needs to change to one of creating shared value." – Iwan Pienaar

Divnar Padayachee

Painting the town green

Divnar Padayachee has spent his life working towards sustainable energy solutions and a green future for Africa

It has been a long journey for Divnar Padayachee who started out at Hilton College, travelled to China and launched a new sustainable energy business for Africa.

Today he works with manufacturers of solar photovoltaic products and solar thermal generators to bring sustainable and green energy to the country of his birth – South Africa.

Challenges

"Climate change is one of the greatest challenges of the 21st century, and these times need innovators and investors to put forward visionary ideas and act upon them," says Divnar Padayachee, entrepreneur and venture capitalist.

"For every challenge I believe there is an opportunity and my goal is to capitalise on that opportunity. I truly believe that sustainable green energy – solar, wind, hydro and bio – is the future and, from a business perspective, it presents a world of opportunities for young social entrepreneurs to explore."

It is more than just the challenges inherent in climate change that inspires Padayachee; he is also motivated by the potential for green energy across the globe, specifically in Africa.

He believes that this continent offers up the last true frontier of growth because rural areas with no access to electricity can be switched to alternative green methods rather than the traditional power sources of coal, nuclear or gas.

It is a chance for sustainable energy to really take hold and make a difference.

"I am in China to learn about how this country has become one of the leaders in the business of green energy," says Padayachee.

"It is said that by 2030 all of China's electrical demands may come from wind power and they truly are at the forefront of green energy innovation. This experience has given me the opportunity to gain an in-depth understanding of the market so I can bring best practices back to Africa."

The goal of this young entrepreneur is to substantially reduce South Africa's reliance on coal as an energy source through green and sustainable methods.

Part of this dream is to ensure that consumers are given more choice, allowing them to select either the traditional or sustainable source of power.

To this end, he is launching his start-up company in July 2014 called Amandla-X that will be offering green energy sources to the market.

"I am actively engaging with investors to raise the capital that will be allocated to sustainable energy projects," says Padayachee.

"I think more people need to un-

derstand the facts around global warming and the problems that we face. The map of the world may not look as it does today by 2050 and that's a terrifying thought."

Today Padayachee's business may still be fledgling, but it is ideas such as these that will make all the difference to the future of the planet.

I truly believe that sustainable green energy – solar, wind, hydro and bio – is the future and, from a business perspective, it presents a world of opportunities

He aims to be the change he wants to see in the world instead of waiting for things to change around him, and is taking the steps needed to see his dreams of sustainable energy become a reality. – Tamsin Oxford

I would like to see people have a greater appreciation for and make them more aware of the natural fuels that make their daily lives more comfortable and convenient

Gregor Kuepper

More than a sunny disposition

Gregor Kuepper started selling solar thermal equipment in the late 1990s after spending many years involved in other technical industries throughout Europe.

Today, he is the managing director for the African subsidiary of one of the largest solar companies in the world, SolarWorld Group.

Based in Cape Town, Kuepper relishes the challenge of raising awareness of the benefits of solar energy.

"My previous jobs were fun, but they all involved normal products. By the end of 2002, I decided to embrace a change in career and joined SolarWorld.

Future potential

"Solar is one of those industries that is highly technical and combines future potential with existing implementations. Ultimately, solar is the future of electricity supply globally and will provide all of us with a better future.

"Even in Africa, we have started to see how people exchange their

classic power supply for renewable energy," he says.

When he moved to South Africa in 2006, Kuepper was at a crossroads needing to decide whether to stay in the market or come back in five or 10 years when people were more ready for solar.

"There were many sceptics back then asking whether solar could work. While perceptions have improved over the years, many people still need to be convinced about using solar for renewable energy," says Kuepper.

He says that a lot of development in the solar market is politically driven, which makes it difficult in South Africa and the rest of the world.

"The renewable programmes established in Europe, the US and Japan were instrumental in opening up the market.

"Without these initiatives, a lot of development that happened over the years would not have been possible today.

"Unfortunately, this has led to so much regulation. Even in South



Africa, there is a big push for local manufacturing to create jobs."

The problem with this, he says,

is the fact that the big opportunities in solar are in maintenance, design and systems integration.

There were many sceptics back then asking whether solar could work

"Consumers want to become more green with their energy, but there is still no easy way to do it. Many of the systems I see installed on roofs are done without being a proper legal connection.

"This shows how keen people are to start saving, but they need to have an easier structure to do so."

And this is where Kuepper hopes to play his part in the market. – Iwan Pienaar

Brett Wallington

Conservation beyond ecotourism

Preserving biodiversity through eco-friendly interventions

Leaving a vision of becoming a professional cricketer behind after repeated injuries, Brett Wallington armed himself with a BSc honours in ecology, environment and conservation sciences and went back to his love for nature as a guide in the Sabi Sands.

His passion for conservation continues today in his role as group sustainability officer for Wilderness Safaris.

I have the potential for my life purpose to be realised

According to Wallington, his role with the entity has afforded him the "privilege of being part of an incredible team that positively impacts the conservation of more than 3.1-million hectares of pristine wild areas.

"I have the potential for my life

purpose to be realised and I am committed to achieving my goals," Wallington says.

"I am extremely passionate about the remaining reserve areas in Africa and through Wilderness Safaris, ensuring the safari industry has a net positive impact on this world, against a scenario of so many industries today taking from the earth and not giving back.

Driving life's purpose

"I believe life is not random, but about a purpose. Once that purpose is discovered, you leave this world in a better place than you found it."

Wallington's manager, Wilderness Safaris' chief sustainability officer and financial director, Derek de la Harpe explains: "Brett was the first person to fill this role so we were unclear about what the job would entail, effectively making things up as we went along.

"I could not dedicate remotely the amount of time to supervising Brett that we would ordinarily expect with such a young person, which meant he had to work in a vacuum. He has driven the role in a direction that we are really pleased with.

"Being head office-based, trying to impose standards on busy operational people in lodges is always difficult. It is easy to create resentments.

"Brett has handled that situa-



tion so well, to the point where his conservation interventions are welcomed by the regions."

Impacting biodiversity

"Brett's honours degree hinted more to his commitment to conservation and sustainability than just pure tourism," comments Chris Roche, Wilderness Safari's head of group marketing.

"He has subsequently carved out an important niche in ensuring that high-end ecotourism, as practised by us and now a number of our peers, can have both a positive impact on biodiversity and that inherent negative impacts, such as building and operating camps, vehicles and planes, can be mitigated to be negligible compared to the beneficial impacts of the industry when

operated responsibly."

Wallington cites Wilderness Safaris' greatest success with regards to climate change as being the reduction of carbon emissions from seven of its camps in its Botswana operation.

It has achieved this through converting from diesel power generators to 100% solar power. – Rebecca Haynes

Building and Construction

Christiaan de Jongh

Steering businesses in the right direction

Christiaan de Jongh is a man who lives what he believes – that every individual has a role to play in the protection of the natural resources from which we all benefit.

He believes these are steadily being destroyed, and we all need to make every effort to decrease our reliance on fossil fuels.

This determination to drive efficiency and save the earth's natural resources saw de Jongh, who works for Vodacom in Century City, championing the construction of the largest solar array on any single building in Africa.

Built on Vodacom's roof in Century City, Cape Town, the solar plant consists of 2 127 mono-crystalline panels covering an area of 3 600m² and produces 542kW of electricity at peak time. This is around 90% of all power required by the building, and translates to a 20% energy saving for the company and a carbon dioxide reduction of 830 tonnes a year.

Growing up on a farm near Franschhoek in the Western Cape gave de Jongh his love for the outdoors and his appreciation of nature.

His father, an electrician, has always been his greatest inspiration, inventing and building things in his



garage, teaching him how to resolve complex problems with logical reasoning.

Initially trained in law, he changed career track and qualified as an artisan in the electrical and mechanical fields.

He worked as a maintenance manager in the tourism industry before joining Vodacom in 2001 as a building technician at Century City. He is now the national repairs and maintenance manager responsible for the full facilities portfolio.

"I absolutely love my work and I seek challenges," says de Jongh.

"I keep myself up to date with new innovations, and in my role as part of Vodacom's energy management committee, I see endless possibilities for further energy

reductions, both on the corporate side and at home."

He believes there is still too much bureaucracy preventing business from making responsible decisions relating to the environment.

"With my actions I hope to nudge other corporates in the right direction – it's in everyone's combined efforts that the real differences can be made," he says.

De Jongh dreams of an office park like Century City precinct becoming fully self-sufficient and powered only by renewable energy.

"Although we cannot reverse the effects of the past, we can at least try to stop or slow down the effects we're having on the future," he says. – Linda Doke

Brian Wilkinson

Breaking the boundaries of green building

Having previously retired after spending many years at Old Mutual and Ilima Trust, Brian Wilkinson made the decision to extend his career, get back in the game and use his extensive experience in property to make a positive impact and do right by the planet, by taking on the role of chief executive of the Green Building Council of South Africa (GBCSA).

With a team of 20 staff members, Wilkinson not only plays the role of stakeholder engagement, but also supports the council's strategy of broadening its reach and travelling into the rest of Africa to support fledgling GBCs that are just starting their journeys.

Under his leadership GBCSA initiated many firsts and recently launched a number of tools, which will change the way builders and tenants operate.

The Existing Buildings rating tool is a new tool that will underwrite building owners' ability to differentiate a building in terms of green building attributes and will inform tenant decisions when it comes to renewal of leases or new leases.



The Interiors rating tool is another "step" change tool that will for the first time allow a tenant to demonstrate their commitment to environmental performance through their fit out.

The Socio-Economic category was launched as an addition to the traditional "hard" aspects of green building.

In this category a developer will have the opportunity to be recognised, alongside their energy, water and other green criteria, and the manner in which a development has influenced socioeconomic factors such as transfer of skills, equity and

local procurement. This is a global first for green building systems.

Over and above this the GBCSA has also redesigned their education platform.

They have already trained 5 000 professionals in six years and, by leveraging online smart technology, have aspirations of significantly growing this reach by including other national GBCs in Africa.

With Wilkinson at the helm, the GBCSA will continue to break boundaries and redefine the way the property world views issues of the environment. – Stacey Vee



Gumani Tshimomola

Driving energy conservation

Growing up in a rural community in Venda, Gumani Tshimomola was not exposed to discussions about climate change and energy efficiency.

Life was basic and it had its share of challenges. However, when he went to Stellenbosch University to study for his first degree, the seed of energy conservation was planted.

"My degree was about environmental studies. It made me aware of some of the issues about electricity and the impact that coal production has on the quality of our air and water. I realised that the location of charcoal plants directly impact the communities around them so I started looking at whether there are any alternatives available to those people," he says.

This saw him going to the UK thanks to a World Bank scholarship awarded to future leaders with merit, where he completed his master's degree at the University of Sussex.

His time there provided him with insight on how legislation about the insulation of buildings could help improve energy efficiency.

"I told myself that I could go back home and help change household behaviour so people would minimise the production of charcoal in those rural areas. But it is not only people in rural areas that could be positively impacted by this.

"All people in South Africa could benefit from reducing their electricity consumption and improve the quality of our air and water."

He started VhaVenda Roof and Ceiling Insulation with a business model built on the basis of energy conservation to reduce electricity consumption.

"If you insulate a house properly, people will use less electricity to heat and cool their home. The business was the first of its kind in Venda and the Limpopo province."

It would fulfil an important part in the communities, because the tra-

ditional lower pricing structure that Eskom used for special demographics fell away due to the energy shortage.

"We are helping households reduce their expenditure and save money. It is not about fighting for a cause, but playing in a space where people realise that they need to change their behaviour to see a financial benefit. If you lose 30% of the energy you use in your house thanks to bad insulation, then that is something that offers immediate returns if it is fixed."

And through all of this, he still considers himself to be an entrepreneur.

If you insulate a house properly, people will use less electricity

"If I go to a community such as the one in Venda where I grew up, I identify people in the area to provide them with training in Midrand for free. This is done to give them a skill they can use to create work in the communities back home and help other people."

He says that when people start to realise the benefits of proper insulation, they are aware that you are providing them with economic and educational services.

"The community appreciates that part of the job and they involve us in discussions about other things beyond electricity."

"We are creating a dialogue with the community and building platforms for other issues such as water conservation to be discussed." – Iwan Pienaar



Maesela Kekana, Judy Beaumont and Alf Wills. Photos: supplied

Securing multilateral climate change

COMMENT
Maesela Kekana

South Africa welcomes the outcomes of the 19th Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC), known as COP 19, which took place in Warsaw, Poland from November 11 to 22 2013 as well as the implications of these outcomes for the country.

South Africa participated as part of the African collective and under the negotiating group for developing countries, namely the Group of 77 and China.

Once again Africa approached the Warsaw conference with clear priorities, which included raising the level of mitigation ambition, ensuring progress on operationalisation of the finance mechanism, the Green Climate Fund, and addressing the issue of loss and damage from climate change impacts.

In addition the African group called for significant progress in the negotiation of a new legal instrument under the Durban Platform for Enhanced Action.

Pivotal progress

Firstly, good progress was made on a set of decisions aimed at finalising and enhancing the implementation of the international response to the climate crisis now and up to 2020.

This involved the finalisation of accounting rules under the Kyoto Protocol to enable countries to ratify the amendments and their legally binding emission reduction commitments as agreed in Durban in 2011.

In addition, a key milestone was reached with the conclusion of measurement, reporting and verification (MRV) systems for both developing and developed countries under the convention track.

Adaptation to the impact of climate



Maesela Kekana addressing stakeholders during a climate change breakfast briefing last year

change continued to receive the prominent attention that it deserves under all the convention bodies.

The most notable outcome was the conclusion of guidelines for developing countries to develop national adaptation plans.

This is key because it puts adaptation on a clear path to be in the centre of the new legal instrument being negotiated for implementation from 2020 onwards.

A major priority to enable enhanced implementation prior to 2020 is the question of how to finance climate change efforts.

The Warsaw COP adopted seven decisions on finance. The most critical ones include:

- Initiating a process on long term finance, aimed at achieving the goal of mobilising \$100-billion per year by 2020;
- Concluding arrangements between the COP and the Green Climate Fund, to enable the fund to start its resource mobilisation process and;
- Supporting the fundraising strategy and campaign of the adaptation fund. During the conference, pledges of more than

\$100-million were made, ensuring the continuation of the adaptation fund's support for concrete adaptation projects in developing countries.

This represents an important outcome for Africa.

Speeding up current processes

The second major area of progress at the Warsaw COP was in the negotiation of means to scale up mitigation ambition in the pre-2020 period.

This comes with the backdrop of the most recent science as outlined in the Intergovernmental Panel on Climate Change 5th Assessment Report and the United Nations Environment Programme's 2013 Emissions Gap Report.

The Emissions Gap Report presents an analysis of the gap between emissions reduction required by 2020 to limit temperature increase to two degrees, and emission reductions currently pledged by countries, showing an emissions gap in the year 2020 of between eight and 12 gigatonnes of CO₂.

A decision to accelerate activities under

the work-plan on enhancing mitigation ambition up to 2020 is therefore extremely important.

Parties agreed to identify, implement and scale up actions with high mitigation potential in 2014.

Ministers will, for the first time, attend the inter-sessional meeting in June 2014 to deliberate on the issue of mitigation ambition.

The third major outcome of the Warsaw COP was the establishment of a mechanism on loss and damage due to climate change, as part of the urgent implementation programme between now and 2020.

This is another key priority for Africa and other developing countries, recognising that there will increasingly be extreme climatic events that result in social, economic and environmental loss and damage.

Minister of Water and Environmental Affairs Edna Molewa facilitated these difficult discussions and achieved the launch of the Warsaw International Mechanism for Loss and Damage associated with climate change impacts.

The decision outlines institutional arrangements, functions and modalities of the mechanism.

Beyond 2020

The final major outcome of the Warsaw conference is the progress made in the negotiation of the multilateral climate system to be implemented beyond 2020.

This will result in a new legal instrument for implementation after 2020 and is being negotiated under the Durban Platform for Enhanced Action.

As part of the process of shifting into a formal mode of negotiation, all countries are required to initiate what was referred to as their "national homework".

This is a request for each country to start a national process that should conclude with an indication to the UNFCCC of what

each country will be contributing to combat climate change.

There are expectations that all countries will make announcements regarding their post 2020 commitments in September 2014 at the UN Leaders' Summit on Climate Change called by the UN secretary general, or at the latest during the Paris COP 21, in 2015.

As we approach the Paris COP 21, we need to avoid repeating what happened in Copenhagen in 2009, where leaders made a deal in the last hour. Leaders of governments at head of state level should use the September summit to give clear direction to ministers and negotiators.

The heads of states and ministers need to come to an understanding at the Leaders' Summit and achieve political agreement at COP 20 in Lima, Peru, at the end of 2014 on what kind of agreement will be delivered in Paris in 2015, including the legal form that it should take; how developing countries' contribution to the global effort to combat climate change will be financed, and whether the obligation to provide this support will be legally binding on developed countries.

South Africa looks forward to the 2014 discussions on ambition and the shape of the 2015 Paris agreement with great interest and commitment.

It is our view that parties under the UNFCCC will secure the Durban COP 17 legacy by making steady progress in both the implementation of previous decisions and in the negotiation to secure a post-2020 multilateral climate regime that is fair and effective in responding to the global climate change challenge. South Africa stands ready to provide the necessary leadership.

Maesela Kekana is the chief director of international climate change relations and negotiations at the department of environmental affairs.



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



Mitigating climate change and emission reduction

COMMENT
Deborah Ramalope

The energy intensity of the South African economy is largely due to the significance of mining and minerals processing in the economy and our coal-intensive energy system. Unchecked by climate mitigation action, South Africa's emissions could grow rapidly, by as much as fourfold by 2050.

However, South Africa is taking bold steps to reduce its emissions in accordance with the national climate change response policy, and its pledge under the Copenhagen Accord to implement mitigation actions that will collectively result in a 34% and a 42% deviation below its business as usual emissions growth trajectory by 2020 and 2025 respectively.

The approach to emission reduction is therefore informed by two contexts. First is South Africa's contribution as a responsible global citizen to the international effort to curb global emissions and second is its successful management of the development and poverty eradication challenges it faces.

Taking steps forward in its commitment to implement mitigation actions, the department of environmental affairs is leading in the implementation of two key projects: the greenhouse gas mitigation potential analysis and the carbon sinks assessment

Greenhouse gas mitigation analysis

As a first step towards the implementation of the emission reduction, or mitigation elements of the national climate change response policy, work is at an advanced stage on South Africa's greenhouse gas mitigation potential analysis. The study gives a projection of future greenhouse gas emissions and identifies mitigation opportunities available to key economic sectors.

The bulk of the emission reduction opportunities are in the energy sector given the fact that the majority of South Africa's emissions arise from energy supply and use.

There's a clear and unavoidable nexus between energy and climate change response.



Ministers Edna Molewa and Dipuo Peters during the launch of the department of environmental affairs' acquisition of green cars in February 2013. Photo: supplied

For the country to significantly cut its carbon emissions we need to dramatically transform our energy development pathway while providing secure, low carbon energy supplies.

Renewable energy is starting to play a significant role in reducing the country's emissions.

The successful implementation of the renewable energy independent power producer programme has shown that viewing climate change response activities as an investment rather than an expense can open doors to hidden opportunities.

This has also provided new opportunities for the private sector to invest in the South African energy industry and is likely to accelerate levels of investment in innovative clean technologies.

Another significant source of greenhouse gas emissions is the transport sector.

Transport systems form the backbone of South Africa's socioeconomic activities through enabling the movement of people and products.

The transport sector is the most rapidly growing source of greenhouse gas emissions in South Africa. The sources of transport sector emissions are from aviation, maritime, rail and road transport.

There are number of mitigation measures that could be applied to the transport sector to deliver emission reductions.

These include shifting passengers from private transport to public transport, or shifting freight from road to rail; the use of more efficient vehicles technologies; the promotion of more efficient transport operations; and the use of alternative lower-carbon fuels.

For these plans to come to fruition, South Africa must continue to prioritise transport

policies and development that result in lower carbon forms of transport; improve the efficiency of the vehicle fleet across the board through a range of measures; and invest in the further development and deployment of cleaner technologies for the transport sector.

The coming year will see the department lead the process of developing desired emission reduction outcomes (Deros) for key economic sectors.

As part of this process, there will be a thorough analysis of the spectrum of instruments available to achieve the Deros, including a carbon tax.

The mitigation programme is undertaken in collaboration with all key national departments and provinces. It has a strong emphasis on an ongoing and inclusive consultation process with key stakeholders.

National carbon sinks atlas for South Africa

Carbon is found naturally in four major pools: geological, oceanic, terrestrial and in the atmosphere.

Carbon is exchanged between these pools through photosynthesis, decomposition, and deposition. A carbon sink absorbs and stores more carbon than it releases.

A national carbon sinks assessment is currently underway and for the first time will make it possible for South Africa to quantify the carbon sink potential of the agriculture, forestry and other land uses (Afolu) sector.

The sinks assessment focuses on the terrestrial carbon pools in South Africa namely the five dominant vegetation types: grasslands, savannah, fynbos, Nama-Karoo, succulent-Karoo and forests.

The overall objective of this work is to present accurate, current and complete information on South Africa's carbon sinks. This will inform an economy wide work programme on carbon mitigation for South Africa.

This work will map the national terrestrial carbon stocks in plants and soils. In addition, fluxes will be calculated to understand the exchange of carbon dioxide between the atmosphere and plants.

Future potential carbon sinks in the Afolu sector will also be explored, given the potential impacts of climate change and land use dynamics.

The national carbon sinks assessment has identified several land based mitigation projects to help South Africa reduce its greenhouse gas emissions.

One example is the rehabilitation of hundreds of thousands of hectares of degraded land (due to overgrazing by goats) in the Eastern Cape by planting a shrub known as the spekboom (*Portulacaria afra*).

Taken together, the information in the carbon sinks assessment will enable informed decisionmaking on how to maximise the carbon sink contributions to South Africa's emission reduction efforts.

Deborah Ramalope is the chief director of climate change mitigation at the department of environmental affairs

The move to a lower carbon and climate resilient environment

COMMENT
Brian Mantlana

Measuring and monitoring climate change responses is key to tracking their effectiveness and impact. The national climate change response policy provides the mandate for the development of two different, but related, monitoring systems, namely the greenhouse gas inventory system and the climate change monitoring and evaluation system. Below is a representation of a brief description of the climate change response monitoring and evaluation system.

Climate change response monitoring and evaluation system

The over-arching objective of this system is to track the transition to a lower-carbon



The solar panel housed at the site of the department of environmental affairs new Green Building. The department is to take occupation of in June. Photo: supplied

and climate-resilient economy and society.

This requires a system that can provide responses to questions such as: Is South Africa reducing its emissions?

What emission reduction projects are being undertaken?

Which mitigation projects are working well?

A similar set of questions is relevant to tracking the transition to a climate resilient society. What adaptation response measures are being undertaken?

Are these responses effective in reducing vulnerability to the impacts of climate change, and therefore building the resilience of communities, and ensuring food security, water security and health security in the short, medium and long term?

But it will not be sufficient to simply track the high level progress towards these goals. The climate change monitoring and evaluation system must measure the outcome, the

impact and the cost of the project. Starting with the project outcome the monitoring and evaluation system should measure whether a set of energy efficiency projects in a particular province is contributing to a reduction in energy demand, and therefore to a reduction in emissions.

Or, taking a second example, it should be possible to measure whether a project to restore wetlands has improved the water yield in a catchment area.

The monitoring and evaluation system should measure other positive or negative impacts of an emission reduction or adaptation project, such as job creation or other improved social benefits, such as improved air quality or improved water quality.

It is therefore apparent that the concept of monitoring and evaluation goes beyond measurement, reporting and verification in that it incorporates (a) elements of evaluation of the impact of the responses and (b)

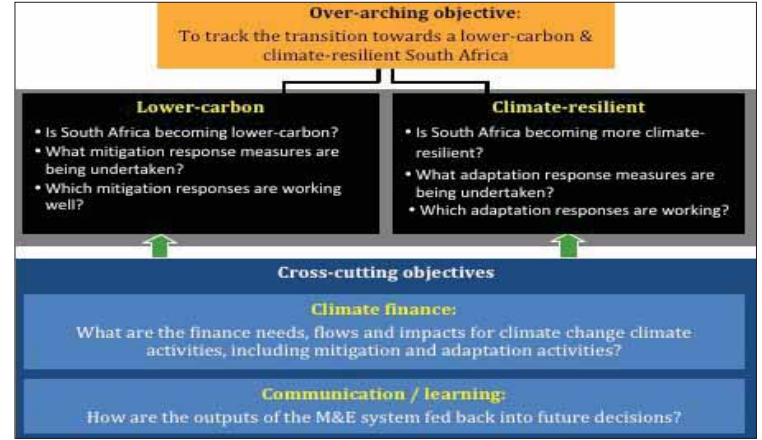


Figure 1: Overarching objectives of the climate change monitoring and evaluation system

learning from the implementation of these responses. Therefore, what is important is not just what and how the information is collected, and how accurate the information is, but also how this information is used, interpreted and communicated to understand the impact and to facilitate learning.

Implementation

In this context, the South African climate change monitoring and evaluation system is defined as a legal, institutional and procedural framework for capturing, analysing and publishing information on the impact of climate change response measures and allowing this information to be used to maximise project effectiveness and to inform future climate change response measures.

Figure 1 presents the objectives of the monitoring and evaluation system.

The climate change monitoring and evaluation system needs to be informed

and also has to respond to the needs of the stakeholders.

To this end, throughout 2013, the climate change and air quality branch at the department of environmental affairs met with the South African Local Government Association, key sector departments, provinces and metros to discuss the design, development, establishment and implementation of the system.

Discussion is also underway on piloting components of the system in two provinces. In addition, a considerable amount of work has been done on populating the national climate change response database with ongoing climate change projects in provinces, metros and municipalities.

This database will be made live on the website of the department next month.

Brian Mantlana is the chief director for climate change monitoring and evaluation

Sarah Alsen

A sustainable future

Sarah Alsen wants to rally the world around the simple philosophy of reducing our impact on the planet

Sarah Alsen is the executive director of BioRegional South Africa and coordinator of the One Planet Communities initiative.

She stands on the climate frontlines, fighting to preserve the planet and bring about a global change in perspective and behaviour.

"The One Planet Living framework is a holistic approach to sustainability that can be applied to all our lives," says Alsen.

"It is based on the concept of ecological footprinting – the amount of productive land and sea area required to produce the resources we consume and absorb our waste, including CO₂ emissions – which globally shows that if we all lived as the average middle-class person we would need three planets to sustain us.

"Yet, more than a billion people's basic needs are not being met."

Originally working as a nursing sister, Alsen realised that the planet needed protection and shifted her focus from not only conserving people, but to conserving the Earth as well.

She completed a master's degree in environmental science and started volunteering for various organisations.

It was at this point that she worked with BioRegional Development Group in the UK and decided to bring their philosophy and vision to South Africa.

The sustainability framework that Alsen promotes has 10 principles that she finds incredibly inspirational:

1. Zero carbon
2. Zero waste
3. Sustainable transport
4. Sustainable materials
5. Local and sustainable food
6. Sustainable water

7. Land use and wildlife
8. Culture and heritage
9. Equity and economy
10. Health and happiness

"My goal remains to work with partners in the development and construction industry to build a One Planet Community in South Africa and show that we can do things differently using the principles to examine the sustainability challenges we face and develop action plans to live and work.

"This will contribute to our vision of thriving regional economies where we meet more of our needs from local, renewable and waste resources, enabling people to enjoy an affordable and high quality of life while leaving space for wildlife and wilderness."

Alsen believes that people need more positive examples of what to do and what can be done, rather than litanies of bad news about climate change.

BioRegional wants to teach and inspire others so people realise how easy it is to live a sustainable life



and actively work towards playing their part in addressing climate change. – Tamsin Oxford

Sandika Baboolal

Inspiring agents of change

It's no surprise that Sandika Baboolal is the first South African to be selected for the Antarctic Youth Ambassador Programme for the International Antarctic Expedition 2014.

The 28-year-old ophthalmologist has always felt a deep connection to the earth and has done everything within her power to protect it. She lives in a wooden log cabin and is a vegan. As part of a green international youth group, she regularly engages with young people, encouraging them to practice sustainable living, reduce their carbon footprints and be agents of change in their communities.

"For as long as I can remember, I've felt a deep connection to the earth," she says. "My heart beats with the heart of the earth, and I've always had a deep regard and love for the earth."

Baboolal also links her profession to her passion for protecting the earth. "As ophthalmologists we are physically restoring vision, giving people the ability to see the beautiful earth."

In March, Baboolal will join 28 other young people from around the world for the International Antarctic Expedition, which aims to take youth to the Antarctic with legendary explorer Robert Swan to learn about the region's unique ecosystem. Swan was the first person in history to walk between both the North and South poles, and has dedicated his life to the preservation of Antarctica by promoting recycling, renewable energy and sustainability to combat the effects of climate change.

"Post expedition, I hope to create an Inner Leadership Development Programme that combines the principles of Climate Change, Ubuntu, and sustainable leadership using examples such as Nelson Mandela and Kumi Naidoo as case studies," she says.

Ultimately, Baboolal would like to see every inhabitant of the earth viewing him/herself as a guardian thereof.

"The earth is a part of us, and we are a part of the earth. To neglect is to neglect who we are. We are completely dependent on the earth. We grow from the womb of the earth. If we don't protect the earth, we won't have a sustainable society. But we don't realise how reliant we are on the earth. If each of us could truly feel the Earth's love pulsating through our own hearts...become deeply aware of this eternal, infinite and intimate connection...we would secure the protection of our planetary home in a single collective heartbeat...and all other actions would most naturally and powerfully follow." – Fatima Asmal

Christy Bragg

Protecting human and biological communities

Christy Bragg, programme manager of the Endangered Wildlife Trust's Drylands Conservation programme, has led a number of critical projects focusing on climate change and biodiversity.

A cum laude graduate of the masters in science conservation biology degree from the University of Cape Town, Bragg runs programmes that not only look to improve ecosystem resilience to climate change and restore critical freshwater services and ecosystems for improved biodiversity conservation, but also simultaneously provide jobs for unemployed rural communities.

With the impact of climate change making her hot under the collar, both literally and figuratively, Bragg has a burning need for innovative ideas to help protect our human and biological communities, especially in the Karoo where droughts and climate extremes are fierce upon an already parched and impacted landscape.

Her passion is seen in her work, which focuses on linking biodiversity conservation with job creation and community benefits in arid rural regions.

Through her ecosystem restoration activities local communities have seen improved skills development and livelihoods.

The programme has supported more than 1 000 man-hours of job creation in the last two years by employing people from the local community and placed two people



from the Loxton community in permanent posts at the programme's Karoo Indigenous Nursery.

The programme has also facilitated 350 000 ha of private farmland to operate as Riverine Rabbit Conservancies, the aim of which is to encourage sustainable land management practices, which contribute to building resilience of communities to the predicted impacts of climate change.

Watching their ecosystem restoration sites do exactly what they are supposed to do; seeing the difference made in terms of improv-

ing the livelihoods of people in their surrounds and their employ, and noting the gains in ecological infrastructure achieved by upscaling the area of their restoration site by two orders of magnitude in April 2013 is the reason Bragg and her team wake up in the morning.

Bragg is currently completing her PhD on the ecology of a Karoo biodiversity-driver; the humble but prickly porcupine, which has seen her settle in Nieuwoudtville, a small town in the Karoo right in the middle of a geophyte (bulb plant) hotspot. – Stacey Vee

Through her restoration activities local communities have seen improved skills development and livelihoods

Civil Society and NGOs

Joanne Lee Carty

Capturing the climate on film

Joanne Lee Carty has used her talent in photography to show the world what climate change really looks like.

Joanne Lee Carty has been passionate about community development and greening since she completed her bachelor's degree in technology.

It inspired her to produce a photographic thesis based on the work done by Food & Trees for Africa (FTFA).

She travelled around the continent with the organisation, documenting their tree planting and permaculture food gardening initiatives alongside the disadvantaged communities and barren environments in which they work.

"My inspiration stemmed from a desire to photograph the impact of climate change on disadvantaged communities in South Africa and as I see more of and learn about the devastating effects, I see how desperate the need is for us to adapt to our changing world," says Carty.

"The world that we will leave for our children and grandchildren, if we do not do something immediately, is a future I cannot comprehend."

Carty has been with FTFA for nine years, during which time she has managed three of their six national programmes.

Currently she is running the EduPlant and Food Gardens for Africa initiatives, both of which focus on sustainable development through permaculture food gardens as well as education and awareness.



"Over the last 12 months we have established 350 school, community and home food gardening projects and while I was working on Trees for Homes we planted more than 600 000 trees, which will offset more than 220 000 tonnes of carbon," says Carty.

"The EduPlant programme has seen more than 50 000 educators participate in workshops and thousands of schools developing permaculture food gardens."

Many of the systems, resources and materials for the programmes she has worked with, and for FTFA as a whole, were developed and grown by Carty, and she has ex-

panded her knowledge horizons by taking courses in permaculture and tree identification. She is even a qualified carbon footprint analyst.

"FTFA works with disadvantaged communities that most often have relatively small climactic impact, but are hardest hit by its effects.

"Biodiversity loss, storms, droughts and flooding will affect the availability of food in South Africa and through teaching communities and school children how to grow their own food and live sustainably, we are in essence teaching them how to adapt to the imminent effects of climate change."

Carty has been trained by Al Gore, been a finalist in the Johnnie Walker Celebrating Strides in 2010 and has worked hard with the media to raise her profile and inspire others to make a difference and learn how to live more sustainably.

"Unfortunately there are still many deniers and those who simply do not care and they are most likely the ones who will only start making a change when it affects them directly, when it is too late.

"It all starts with one and if every one of us spreads the message we will reach a critical mass," says Carty. – Tamsin Oxford



Misha Teasdale

From films to flora

When Greenpop founder, Misha Teasdale, first decided to plant a thousand trees to compensate for his own carbon footprint after he flew around the world for four months to 12 countries for a film job, little did he know that this would prompt him to leave the film industry to plant trees on an ongoing basis and create energy and excitement about greening and address deforestation issues.

According to his colleague, Marleen Lammers, Teasdale's drive and dedication to this cause are an inspiration to all those who know him.

After considering the undergreened, under-privileged areas versus leafy suburbs in South Africa, Teasdale decided to focus on planting trees in townships.

Although this venture began as a one-off volunteer project with a few of his friends, it became evident from the huge amount of support and enthusiasm that there was a real need and scope for turning this into something bigger.

To date, more than 27 000 trees have been planted at more than 250 locations during urban greening and environmental education projects.

Asked what drives someone with a BTech in industrial design to turn his life around to do this, Teasdale says: "I believe we can make a difference. Greening public spaces creates general community upliftment.

"This concept is based on the criminological broken window theory developed in the US that states that disorder creates further disorder and that well-maintained urban environments are relevant to reducing crime.

"We work on the assumption that creating a greener, healthier and generally better-looking living environment stimulates a pride of space and happier communities.

"It is the little things, habits, decisions that got us into this pickle and it is going to be the little decisions and choices we make that will get us out of it." – Rebecca Haynes

Chris Bradnum

Maximising fuel efficiency

Aiming to take a safer and more efficient biomass stove to rural and low-income communities, Chris Bradnum, head of the industrial design department at the University of Johannesburg, is working with the Tshulu Trust in Limpopo to develop and enhance a stove that maximises fuel efficiency and significantly reduces dangerous emissions.

Bradnum has long focused on stoves as a research and development specialty and also sits on the SABS technical committees for paraffin pressure appliances and non-pressure paraffin appliances.

His work on improved stoves is informed by the dangers of some paraffin stoves and the respiratory hazards posed by cooking in enclosed areas using wood stoves.

He notes that the Global Al-

liance for Clean Cookstoves estimates that 3-billion people in the developing world cook with traditional cookstoves or open fires, and that around 4-million premature deaths occur every year due to smoke exposure from these methods.

"Our research has found that as an alternative to electricity, gas could be ideal in terms of clean cooking and efficiency, but there is a general mistrust of gas stoves.

"In many areas, paraffin is the fuel of choice for cooking. However, in the Ha-Makuya Vhembe District in Limpopo, the community tends to use wood fires for cooking.

"Wood use is carefully controlled by the local headmen, and only fallen wood may be used for fuel. This means the community must spend extended periods look-

ing for wood for their fires," he says.

The Tshulu Stove is based on the ubiquitous rocket stove design developed by Aprovecho in the US, which includes a burn chamber and a directed chimney of heat to the base of the cooking pot.

The Tshulu Stove, however, includes innovations such as introducing air below the burn chamber, a removable ashtray, standing height cooking, an inner sleeve that reduces the amount of heat loss from the burn chamber and an outer sleeve that reduces the chance of burning the stove users.

In laboratory testing conducted at the University of Johannesburg's Sustainable Energy Technology and Research Centre, the stove proved to be incredibly efficient.

Bradnum explains that combustion efficiency levels are ideal at 2%



for paraffin, 5% for charcoal and 10% for wood, with a lower percentage indicating better efficiency.

The Tshulu Stove achieves an average efficiency of 3%, a fraction above the ideal paraffin stove.

This is expected to represent a saving of up to 2 500kg of wood per household per year.

Its reduced fuel consumption also significantly reduces emissions. – Tracy Burrows

Tasneem Essop

A fight against injustice

Tasneem Essop works for Worldwide Fund For Nature in South Africa and spends her life working towards positive change



The impact of climate change will be most felt by those who are not responsible for it, the poor and vulnerable across the world and Tasneem Essop in her role at the Worldwide Fund for Nature (WWF) in South Africa is spending her life fighting this injustice.

"I was inspired to take on the issue of climate change because it is one of the most serious global threats facing humanity and the planet," says Essop.

"Most of my life I have struggled against injustice, starting at the days of apartheid and then in the work needed to rebuild a democratic South Africa.

"The fight against climate change is a continuation of this struggle for local and global justice, and we need to defend the rights of the poor and future generations."

Essop first became involved with climate change issues when she was appointed the provincial minister for environment, development planning and economic devel-

It is the current generation that must do this

opment in the Western Cape.

Through her work there she became more aware of how it was an economic and social issue in as much as it was an environmental one.

She then joined WWF as the international climate change policy leader and is currently appointed by WWF international's global climate

and energy initiative and heads the global climate team on both a national and international level.

"I lead the work on policies, strategies and plans that provide solutions to the climate crisis," says Essop.

"We work with a range of partners, including governments, civil society, business and labour to build support for a just transition to a low carbon, climate resilient economy and society. We promote policies that will ensure urgent action at national levels and do this by presenting alternatives that are both good for development and for preventing dangerous climate change."

Essop is passionate about bringing more people to understand the climate change crisis and to become more actively engaged.

She is working hard to show the world how important it is to make governments take urgent action and be accountable.

"If we do not win this struggle, we place humankind and the planet at risk", says Essop. "This is an immense responsibility and it is the current generation that must do this. I want to know that I tried the best I could to secure the future of this planet for my children and their children." – Tamsin Oxford



Brenda Martin

An Earth worth inheriting

Brenda Martin has singlehandedly started a non-profit organisation with the sole goal of preserving Earth's ecosystems

Desiree Kosciulek

Cultivating future leaders

Every day Desiree Kosciulek has the opportunity to combine her passion for international affairs, her dedication to climate change and a chance to work with amazing young people.

As youth development officer at the South African Institute of International Affairs (SAIIA), Kosciulek, who is fluent in four languages, oversees all of the SAIIA youth programmes (Youth@SAIIA), of which Environmental Sustainability is at the core and explicitly focuses on climate change and sustainable development.

To Kosciulek, the primary objective of Youth@SAIIA's programmes is to not only foster awareness on climate change and international affairs, but to also cultivate future leaders and researchers while creating platforms for children and youth to start to engage with policy makers and other stakeholder groups on these important global issues.

Through these programmes, the impact made on young people is amazing.

Learners develop their knowledge on global climate change and sustainable development issues while also learning important research, writing, and presentation and negotiation skills.



Through these programmes, the impact made on young people is amazing

Youth and Children's Protocol.

This was presented at an official UNFCCC side event at the ICC to the Minister of Women, Children and People with Disabilities in the presence of several international delegations and civil society organisations.

Subsequently top learners are now invited to participate in the annual SAIIA Young Leaders Conference which gives them an opportunity to hold their own negotiations to determine what possible recommendations or solutions they would propose at a local, national, and global level, and share through an annual declaration.

Through her efforts Kosciulek is ensuring that those who follow and ultimately inherit the planet are more than well equipped to take care of it. – Stacey Vee

They then go back to their schools and into their communities and start getting involved in creating more awareness around water issues, food issues, waste issues, energy issues, drawing links between these global concerns and taking personal action.

Beyond the learners there are the policy makers who meet them and are realising the value of listening to young people, incorporating them into their processes and bringing the youth inputs to local, national and global discussions.

At the 2011 COP17 Summit held in Durban, young people from Youth@SAIIA held their own climate negotiations and created a

Project 90 by 2030 takes its name from its goal – to encourage and enable South Africans to reduce their environmental and carbon footprint by 90% by the year 2030 – and is the brainchild of Brenda Martin.

As founder and director of this ambitious and bold project, Martin has taken her idea and seen it grow into something remarkable.

"While researching the questions for a series of energy planning dialogues in early 2006 I realised how inextricably linked our energy supply and our country emissions were and this ultimately resulted in my writing the concept note for Project 90x2030 in 2007," says Martin.

"The programme was funded immediately by Misereor, a German development agency, and our work has grown from a small team of two to a national total of 14.

"Ultimately we need to help everyone join the dots – it's not just about climate change, it's about considering the many ways in which the world has drifted towards a place where mechanical efficiency, devaluing people and acting as if there is no relationship between our daily life choices and the planet, has become the norm."

Brenda has always been interested in the wellbeing of people and it was her growing insight into the inter-relationship between people and the health of eco-systems services that saw her realising, early in 2005, that humanity needed to take

steps to actively manage the impact on the environment and thereby ultimately reduce human suffering.

"It took me months to work out what specific contribution I could make to these vast and interrelated areas and finally I decided to focus on a project that would seek to inspire lifestyle change, specifically through carbon footprint reduction," says Martin.

Brenda has focused on effective work in the areas of network building, internal organisational health, global interaction and local initiatives.

She has been actively involved in civil society network building and in 2013 helped organise the energy caucus where more than 30 energy policy focused NGOs worked together to co-strategise on energy policy lobbying and advocacy.

She has also consciously set out to ensure that her organisation is internally healthy, has a clear vision and works effectively.

"My children help me keep going when things get tough, they will inherit the world I am part of creating now," says Martin.

"I am also inspired when I see actual change in communities, when families switch on their solar-powered lights for the first time, when a young woman creates a livelihood for herself as a solar maintenance provider and people being inspired by what we do." – Tamsin Oxford

Civil Society and NGOs

Gareth Morgan

Effective communication on climate change

During his stint in Parliament, Gareth Morgan worked in the broad area of water and environmental affairs and was engaged in issues and topics that impact on the climate change response.

In January 2013, after nine years in the institution, he resigned from Parliament, put on his backpack and travelled with his fiancé through 14 countries in Central and South America.

It was an opportunity for personal renewal and reflection and on his return to South Africa he started consulting in several sectors, but mostly in climate change.

While in Parliament, Morgan attended workshops where public representatives were informed about climate change, but the workshop presenters would consistently make little impact on the capacity and learning of public representatives.

This was mainly because presenters assumed too much prior knowledge, and could not make real links with the climate change response and the ongoing work of public representatives, particularly mayors.

Facilitating communications

From this Morgan realised the pressing need for public representatives to understand issues of climate change, so he put a lot of thought into how to better communicate climate change to public representatives.

Recently Morgan designed and facilitated a workshop with about 30 mayors where they looked at



the existing policies and programmes in municipalities, and through a process of exploration discovered together how so much of their existing work has impacts on mitigating or adapting to climate change.

In his experience, trying to make people comfortable with familiar projects is better than launching immediately into new fields of work.

Over and above issues of climate, Morgan has mentored a number of young people in the political space.

As an MP for the DA, he helped set up the party's Young Leaders' Programme and mentored more than 10 young people from that programme over the last seven years. – Stacey Vee

Jeunesse Park

Promoting a greener future

Eco-warrior, ecopreneur and visionary change-agent are some of the ways green pioneer Jeunesse Park, founder of Food & Trees for Africa, has been described.

As an African presenter for Al Gore's show, Climate Reality, an Audi eco brand ambassador, an advisory board member of Ogilvy-Earth and winner of a United Nations Award for Climate Change, it is clear that Park has devoted her life to environmental awareness.

Born in England, Park's work in South Africa began in 1990 when she started Progreen, the country's first environmental communications and public relations company, promoting awareness of sustainable development, environmental issues and climate change.

Her effort culminated in what has become her life's work and passion, Food & Trees for Africa (FTFA), South Africa's first national social and environmental enterprise to address climate change, greening and food security among disadvantaged and under-served communities.

The organisation strives for a healthier, more sustainable and low carbon future through developing, managing and promoting greening, climate action change, sustainable natural resources management, organic farming and food security programmes.

Park conceptualised and developed six national FTFA programmes through which more than 4.2-million trees have been distributed, thousands of food gardens, bamboo projects and organic farms for poor communities have been developed.

Park has been a driving force behind climate change awareness in South Africa.

She lobbied for the inclusion of urban forestry, urban agriculture



and permaculture in South African government policy, and contributed to the country's first urban forestry policy.

She motivated the change from national Arbor Day to Arbor Week and now to Arbor Month.

She envisioned and enabled the first online carbon calculator and mobi calculator for South Africa, started the Carbon Protocol of South Africa, conceived the Climate Change Leadership Awards, and motivated the first internationally registered bamboo programme for carbon offset under the Verified Carbon Standard.

Park was the first African climate leader trained by Al Gore and was appointed African branch manager for Al Gore's Climate Reality project in 2013.

Her work in environmental conservation has been widely recognised.

Her many accolades include the United Nations Sasakawa Climate Change Award, the Mail & Guardian Green Trust Award for established environmentalists of South Africa, the Mail & Guardian Chairman's Award for Excellence, the International Chevron Conservation award, the Nelson Mandela Forestry award, the Caroline French Morton Arbor Foundation award and the Eco-Logic Eco Warrior of 2013.

Constantly seeking to inspire people to recognise their potential and their impact on the planet, Park is a true philanthropist who tirelessly shares her knowledge and experience to improve the lives of many thousands of people.

She says she lives and works with a real understanding that every individual can, and must, make a positive difference. – Linda Duke

Steven Nicholls

Developing a way forward

Steven Nicholls is an advocate for business action on climate change and has made it his life's work to make a difference

The simple reality behind climate change in southern Africa has inspired Steve Nicholls, head of Climate Change and Water for the National Business Initiative (NBI), to make a difference in how society thinks about and uses the environment.

Through his experience in business consulting he has facilitated transformational change in response to climate change and now continues this work at the NBI.

"I have always wanted to make a difference and I now have the wonderful opportunity of working at the NBI, a voluntary group of national and multinational compa-

nies which are driving sustainable growth and development in South Africa through partnerships, practical programmes and policy engagement," says Nicholls.

"I get to combine my understanding of business, sustainability and climate change into one job and I want to be as impactful as I can. I try to influence as many people as possible."

Nicholls works towards solutions that build the capacity of businesses to manage the risk of climate change and water shortages and water quality decline.

"If we are to create an equitable and just society we must manage

development on a number of interconnected fronts, including jobs, managing the skill base, reducing inequality and poverty and protecting our built and natural infrastructure," says Nicholls. "We cannot think of climate change as purely an environmental issue, it is also a social and economic one as it threatens growth and exacerbates many of the risks our economy faces."

Through his role at the NBI, Nicholls runs the South African leg of the carbon disposal project's Climate Change and Water programmes, an investor-led initiative based in London, which looks at the connections between climate



change impacts and corporate strategy and risk management.

In addition, he works towards creating safe channels of communication for business and government around climate change issues and attempts to create opportunities for businesses to share learning with

each other so they can engage more meaningfully in this discussion.

"I love what I do, I am in a truly blessed situation in that working in the field of climate change both interests me and gives me a sense of purpose," says Nicholls. – Tamsin Oxford



At the release of phase I of the Long Term Adaptation Scenarios: Salga’s specialist for environment and climate change, Telly Chauke, the department of environmental affairs’ director for biodiversity management, Dr Muleso Kharika, the department of water affairs’ director for climate change, Dr Mangi Mgguba, the department of agriculture, forestry and fisheries’ acting chief director for natural resource management, Ikalafeng Kgakatsi, and the department of health’s deputy director for environmental health, Ramsook Loykisoona. Photo: supplied

Local govt response to climate change

COMMENT
Telly Chauke

The South African local government sphere carries the mandate of delivering basic services and addressing service backlogs to ensure that all citizens have equitable and sustainable access to basic services. The execution of this mandate occurs in a context where poverty and economic disparities still exist within South African society. Local government is also faced with the challenge of ensuring sustainable socio-economic development while ensuring that communities become resilient and adapt to the uncertainties posed by climate change. Climate change — characterised by climate variability and resultant threats, such as vast weather anomalies and potential storms, droughts and floods — poses significant threats to human wellbeing, municipal infrastructure, food security and human health. Combined with high levels of poverty, the wide-spread incidence of HIV and Aids and other non-climatic stresses, these threats present myriad challenges to the way local government continues to fulfil its service delivery mandate.

Aims
The South African Local Government Association (Salga), as an organised body and representative of local government, is tasked to advise and support local governments to ensure that municipalities respond effectively to the challenges presented by climate change. In so doing, Salga provides technical and policy advice and support to municipalities with the aim of building municipal capacity to contribute to national climate change

mitigation and adaptation efforts. Salga’s strategic interventions are aimed at building resilience to climate change within local government, while enhancing the ability of municipalities to seek and optimise creative solutions and alternatives in the delivery of electricity, water, transport, waste management services and others that are directly linked to climate change. In this way, Salga harnesses the expertise of a diverse range of development partners to provide robust policy and implementation advice on technology choices; delivery models; financing mechanisms and performance standards in issues such as energy efficiency and renewable energy, water conservation and demand management, integrated transport planning and integrated waste management. Salga’s programmes in climate change, environmental management and waste management are based on a set of fundamental objectives and include the following:

- Enhancing the institutional capacities of municipalities in their mitigation and adaptation responses;
- Ensuring that the policy and operating environment of municipalities is an enabler for coordinated and effective climate change responses and;
- Improving municipal access to information and knowledge on climate change

Key interventions
Current initiatives of Salga in meeting these objectives and in fulfilling its mandate to member municipalities are executed with an ethos of cooperative governance and strategic partnerships. As such, Salga has partnered with key role players within the environment and

climate change discipline with an aim of enhancing the institutional capacities of municipalities in their mitigation and adaptation responses. In fulfilling its role of representation and strategic profiling, in the period leading up to the 17th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), known as COP17, Salga began to co-ordinate municipalities in crafting a local government position on climate change responses. This entailed convening a local government climate change champions committee (LGCCC), which championed South African local governments’ position for stronger support to building municipal capacity in climate change adaptation. A key outcome of the local government convention at COP17 was the signing of the Durban Adaptation Charter, which commits local governments across the world to take concerted action on climate change responses and to focus strongly on adaptation as a key policy response. Faced with the paucity of coordinated approaches to adaptation, the LGCCC developed a programme of action aimed at mobilising municipalities to prioritise climate change responses, as well as mobilising key stakeholders to strengthen their support to local government. A highlight in the work of the LGCCC has been the strengthening of partnerships with national and provincial government institutions, as well as with other like-minded organisations, such as the South African Cities Network and research institutions. The LGCCC also represented South African local government at the Rio+20 UN Conference on Sustainable Development, held in June 2012 in Brazil

and has committed to mobilising the sector to entrench and achieve the Rio+20 Outcomes. Salga also ensures that the policy and operating environment of municipalities is an enabler for coordinated and effective climate change responses. In fulfilling its role of representation, support and advice to member municipalities, Salga has conducted a study to analyse the institutional and fiscal requirements for municipalities to perform environmental functions. This study informs the lobbying activities of Salga, on behalf of member municipalities to ensure that municipalities have appropriate institutional and fiscal mechanisms to perform environmental functions and adequately respond to the risks of climate change. In consolidating a local government position for local government on the fiscal framework, Salga seeks to ensure that municipalities have sufficient financial means to strengthen performance. Of particular strategic importance to local government is the ability of municipalities to develop climate adaptation strategies; develop and implement monitoring and reporting tools and to integrate climate change responses in integrated development planning.

Integrated planning
The development of the Let’s Respond municipal planning toolkit has been a notable highlight and has been a significant display of how partnerships based on mutual objectives can be of benefit to local government. The planning toolkit, developed in a partnership between Salga, the departments of environmental affairs and co-operative

governance, and the GIZ, is aimed at supporting municipalities to integrate climate change responses in their integrated development plans. This toolkit fosters the use of scientific climate and non-climate data as a basis for enriching municipal planning across all sector of service delivery within the municipal landscape. With the aim of improving knowledge and information sharing within local government, Salga has partnered with Unisa and the Council for Scientific and Industrial Research in efforts to ensure that climate change information and knowledge is available as reference for municipal planning and decisions making. Salga has embarked on nation-wide climate change summits, involving Unisa and the South African Risk and Vulnerability Atlas, with the aim of sharing knowledge on risk and vulnerability analyses as a key input for integrated development planning; as well as building municipal understanding on the concept of green economy and how local government climate change action can transition the South African economy to one that is low-carbon and creates green jobs. Sustainable development is the core principles of the environment and climate change programmes of Salga, and it is within this context that Salga seeks to grow its impact on the sector by ensuring that climate change adaptation is mainstreamed in all service sectors of municipalities; while greater investment is made in technologies and opportunities for reducing emission of greenhouse gases through municipal operations.

Telly Chauke is a specialist in environment and climate change at the South African Local Government Association

Community

Sizwe Mkwanaazi

Remaking the old into the new

Sizwe Mkwanaazi takes plastic, paper, glass and cans and transforms them into a bright future

At age 21 Sizwe Mkwanaazi has already started his own business, Intermix Recycling, and made the preservation of the environment into a career.

He was inspired by his experiences growing up, his studies and his time spent working at the Sihlahla Muri Recycling Co-operative in Johannesburg.

He also wanted to build a business that created jobs while simultaneously protecting the planet.

Intermix Recycling was created around the principles of the triple bottom line – preserving the environment, looking after people and generating profit.

"Intermix Recycling has developed relationships with key players in the industry, such as Collect-A-Can in Pretoria, Sappi, Gayatri Paper and Huhtamaki Paper, and certain Petco contractors," says Mkwanaazi.

"We target businesses to provide them with recyclable paper as well as collect the glass from pubs and restaurants in the Standerton community.

"We also have a pilot project running at the moment with Gert Sibande FET College to collect recyclable paper at their Standerton Campus."



Mkwanaazi grew up on a farm near Standerton in Mpumalanga and enrolled at a local FET college. He excelled academically and used his exceptional results to further his studies at the University of Johannesburg.

It was at this time that he became increasingly involved in organisations that were focused on enriching the lives of others and making positive contributions to the world.

Once he qualified, he started to work with a number of recycling initiatives such as Sihlahla Muri Recycling and this inspired him to establish Intermix Recycling in July 2013.

He presented the concept at the University of Johannesburg Vice Chancellors Inno Entrepreneur

competition where it made the top 10 and won a R20 000 prize.

"Climate change affects everyone – from the rural areas to those in urban areas," says Mkwanaazi.

"Intermix Recycling has been developed to make a difference in a number of ways by collecting recyclable items and decreasing the waste that goes into the landfills.

"It is my dream that this endeavour grows enough to service the entire nation."

When most of the young people at university were deep in their cans for fun, Mkwanaazi formed a recycling team and used those cans to generate money that he could apply to further his studies and build on his business ideas.

His dream is to inspire young people to take on the challenge of climate change and come up with their own solutions and to make a difference every day.

"I have developed awareness campaigns at schools, businesses and communities to show people how they can contribute towards decreasing waste and knowing which materials can be recycled," says Mkwanaazi.

"I believe that by acting together and responsibly we can save this planet for future generations. There is already hope for change as we see more communities and municipalities working towards sustainable goals and keeping South Africa clean." – Tamsin Oxford

Karoline Hanks

Reducing single-use plastics

Mother, trail runner, writer and avid environmentalist, Noordhoek-based Karoline Hanks eats, sleeps and breathes efforts to green up the environment.

Apart from giving of her time to reducing the scourge of litter wherever she hikes, runs or cycles around the Cape Peninsula, she has taken on the personal mission to champion a shift in the thinking of the South African road running fraternity to improve its ecological footprint by replacing the plastic water sachets used at road marathons with either biodegradable cups or an alternative, more environmentally-friendly solution.

Incensed by the sight of hundreds of plastic water sachets strewn across the fynbos below Chapmans Peak Drive after this year's Two Oceans Marathon, Hanks set about raising awareness among organisers of road running races to the dangers of plastic to the environment.

"Our oceans and coastal ecosystems are choked with plastic. We really cannot continue on this single-use plastic trajectory, and road race sachets are just one example of this. To me, it is resource gluttony at its very worst," she says.



The task has been no easy feat – it requires sheer hard headedness and gutsy determination to shift the mindset of the "old school" thinking that is so entrenched in the athletics arena in South Africa.

Amazingly, she is making headway. By using radio and print media to raise awareness, she is gradually forcing the hand of Western Province Athletics and Athletics South Africa towards races becoming plastics-free.

So far she has had a number of positive meetings with the organising committee of the Two Oceans Marathon and the Peninsula Beverage Company (Penbev), who have committed to using biodegradable cups for the water tables along the 10km Chapmans Peak Drive sec-

tion of the race in 2014.

The plan is that this will include more tables along the route over the next five years and, ultimately, throughout the entire race.

"I'm excited that we are making such great headway and hope that within a few years, more and more race organisers around the country will move away from plastic sachets, so we can reduce the environmental footprint of road running in South Africa," says Hanks.

Her focus on fighting plastic pollution stems from her passion for the environment. With an honours degree in environmental science and a love for the outdoors, She constantly pushes the climate change message in the educational textbooks she writes. – Linda Doko



Tracy Frayne

Challenging the status quo

Tracy Frayne took her concerns about climate change and made them a way of life

Tracy Frayne uncovered her passion for climate change through research and first-hand experience.

She started online, using her skills in the digital realm to promote awareness and educate people, and then moved into activism, eco-consulting and volunteering.

"I fear we're going to completely destroy our environment before we fully realise how important it is to us," says Frayne.

"Conserving our fast-dwindling natural green areas is vital and to this end I've taken a course in environmental impact assessments and been learning more about environmental law.

"People don't realise why they need to take a stance on this issue and make a difference in their lives and my goal is to show them."

Tracy started out by going to rallies held by the local chapters of Greenpeace Africa and 350.org and soon she was organising events and speaking out about the climate issues facing South Africa on national television.

"The more I started to talk about climate change and making your life greener, the more people started to ask my advice and I realised that there is a lack of accessible information and guidance for the average person," says Frayne.

"Research led me to the Green Map and this inspired me to create a map that showed people where they could take their recyclable goods. I joined forces with someone who was already using the Green Map system to map out the green belts and areas in the east of Johannesburg and we worked with the team running the Cape Town Green Map to create the site as it looks today."

Tracy plans to expand the Green Map across South Africa, showing people where they can find eco-friendly and sustainable services and resources and explore their

natural environment.

This endeavour is about encouraging readers to take a stand and teaches them ways in which they can limit their impact on the environment.

In addition to the Green Map initiative, Tracy also gives advice and assistance to homeowners and small businesses as an eco-consultant, showing them ways to reduce their environmental impact through their electricity, water and waste management.

"The message is that each per-

I fear we're going to completely destroy our environment before we fully realise how important it is to us

son can make a difference, even to such a huge and global issue, and this is something that I will push and support for as long as I can," says Frayne. "Alongside my work as an eco-consultant and on Green Map I am also a volunteer at Friends of Rietfontein Nature Reserve where we are currently trying to stop road development across a section of the reserve.

"Humanity can't wait until we are all directly affected by climate change to try and fix it. We need less apathy and more respect for one another and to be held accountable for our actions." – Tamsin Oxford

MAKE
THINGS
HAPPEN



MAKING

A FREE CARBON FOOTPRINTING GUIDE

HAPPEN



Download your free copy today and support a greener economy.

As Africa's first and only carbon-neutral bank, we are proud to offer you a free guide on how to calculate your company's carbon footprint. Developed together with the Sustainability Institute, this comprehensive guide is available for download today at nedbankgroup.co.za. This is another milestone in our sustainability journey.

In partnership with:



Community

Tony Lopes

Green living a work of love

Creating solar panel arrays from two litre plastic softdrink bottles may seem improbable, but Tony Lopes is doing exactly this and more

He has developed solar and gas ovens, geysers, bio-digesters and by sourcing waste vegetable oil from restaurants and fish and chip shops, makes diesel to run his own car.

He is also not just producing and installing sustainable solar and gas-powered appliances. He has incorporated these into his own life and has made complete lifestyle changes.

"I enjoyed tinkering with electronics during my school days and completed a BSc in electrical engineering, with emphasis on project management," Lopes says.

"After completing my studies, I took up a career in construction project management in the industrial sector and did that for about 17 years."

It was after Lopes came across one of Einstein's quotes: "It is every person's obligation to put back into the earth at least what they took out" that he changed careers to pursue a passion in food gardens and low-tech sustainable technologies.

In his own words, he left a well-



paying job to share information on eco-friendly solutions and make these available to even the poorest of the poor and "in some weird way, doing this has become my business".

"I think that we have complicated our lives too much and I prefer simplicity," he continues. "Also,

having been in industry I have been directly exposed to the amount of waste and endless consumption – from plastic to industrial and other waste. I see the continued destruction and simply feel I cannot support this. This is why I researched, explored and developed eco-

friendly alternatives.

"I sometimes feel very alone in my thinking and my embracing a frugal, simple lifestyle, however my appreciation for our natural resources is probably helped along by having grown up in a rural area in northern Portugal.

“I think that we have complicated our lives too much and I prefer simplicity”

"I install eco-friendly systems for both wealthy consumers and in the poorest communities, but the convenience of electricity is so great and all too often, people – rich and poor, simply don't want to maintain an eco-friendly lifestyle. People are reluctant to plan ahead and unwilling to delay instant gratification urges.

"Especially in squatter camps, people should be embracing eco-technology, but all too often they don't, having the expectation that the government will provide the electricity promised by politicians.

"Mind-set change and more comprehension of the impact of electricity and using fossil fuels is hard work. The concept of green is a romantic one, but ultimately it is a work of love," he concludes. – Stacey Vee

Allan Schwarz

Making beautiful things from forest resources



Allan Schwarz is a firm believer that "if you don't like a system or see an injustice, don't whinge about it, propose a better alternative and go about making it real".

He never planned to launch what is now a very successful conservation project in Mozambique.

As a designer, architect and lover of a really fresh salad shared with his daughter, friends and ever expanding circle of neighbours, Schwarz started out making furniture from some of the most wonderful indigenous hardwoods and as a way of giving back, replanting the trees he was using.

Over time this evolved into something more, and Mezimbite Forest Centre was born.

This led Schwarz and his team to becoming more learned about the resources they used while figuring out better ways to manage them.

To date more than a million indigenous hardwoods have been planted with more than a third surviving.

With the realisation that trees need pollinators to maintain genetic productivity, they started to keep

bees and today there are more than 800 hives at Mezimbite Forest Centre.

Mezimbite currently operates two distinct regimes; one which assists family sector farmers to grow diverse organic crops in a permanent rather than shifting setting and the other is a system of growing useful nurse crops along with indigenous trees to restore lost Miombo Woodland.

These systems primarily produce what is needed for a balanced diet and the surpluses are integrated into an improved value supply chain.

Because value adding sustainable volumes of biological resources needs skills, Mezimbite has created scholarships for artisans and agro-foresters and people can assist Mezimbite in paying for rigorous schooling of a trainee until they are productive.

Training craftsmen

Over the years, hundreds of kids have been educated and currently there are three master craftsmen and nine journeymen, with 24 apprentices all qualified on site.

“To date more than a million indigenous hardwoods have been planted”

Over and above this, Mezimbite has two sites with over 100 direct participants and almost 400 seasonal participants in the bush.

With his skill set as a designer and developer, and his ambition to interpret and realise his stakeholders' dreams in a beautiful and integral way, Schwarz and his team make beautiful things from forest resources and people of the forest are trained to do the jobs so that as much of the value chain as possible is kept in the forest in the hands of its people.

Participating in creating a fair share of the real value of a resource is the best motive for people to change their attitude towards it, and to look after it. Mezimbite is about just that. – Stacey Vee

MORE CLIMATE CHANGE MEANS Less food

The earth's temperature is increasing. Unless we play our part, this will have serious consequences on our ability to feed the nation for years to come.

To see how you can save the future, visit:

www.environment.gov.za & www.climateaction.org.za



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

