

Scientists expect a 3°C increase in temperatures for our part of the planet. Tiara Walters reports how this could wipe out plant species, flood Durban's port and turn the Kruger Park into a virtual jungle

Climate change may unleash waves of destruction in SA

SOUTH Africa's rich natural resources, estimated to be the third most biodiverse in the world, may face apocalyptic ruin if climate change increases the country's temperatures by just 3°C.

This may cause mass plant extinctions at a rate "too scary to contemplate", said Dr Guy Midgley of the South African National Botanical Institute (SANBI).

The results are preliminary, but indicate that the likely 3°C increase by 2050 could wipe out extensive parts of the country's flora — and the wildlife that depends on it — on an unparalleled scale.

Last year the institute's experiments showed that a 6°C increase would kill South Africa's natural treasures within a few months.

The latest indications — whose full and alarming repercussions are being withheld until official release — suggest that the 3°C rise could unleash waves of destruction never before considered by scientists and the public.

At dire risk are the rural poor who eke out livelihoods on subsistence crops.

It would also hit eco-tourism and cause an enormous loss of plants and wildlife.

According to Midgley, even if we were to immediately stop producing greenhouse gases, the country's temperature would rise by between one and two degrees by 2050.

In the run-up to the middle of the century, droughts and heat waves could leave large tracts of southern, central and northern South Africa parched with potentially devastating impacts on commercial agriculture and subsistence sectors. The eastern parts of the country are likely to become wetter and suffer serious flooding.

South Africa's major cities are also in for a climate shock.

Africa's busiest port, Durban, may be inundated by a sea-level rise, a CSIR study by the eThekweni Municipality has revealed.

According to the 223-page report, this will cause considerable destruction to Durban's highly built-up commercial and residential areas and also to coastal areas throughout South Africa. A maximum sea-level



CREEPING DESERT: A Free State farm is transformed into a dust bowl during a recent drought. Scientists have warned that parts of South Africa could become arid, endangering unique plant species, wildlife and agriculture, while other parts could be hit by serious flooding. Picture: SYDNEY SESHIBEDI

rise of 90cm is expected for Durban by 2100.

But a mere 20cm rise may flood large, highly built-up areas like Durban's Umgeni catchment, Illovo beach, Isipingo beach and Bayhead, destroying roads and railways, property, beaches and causing calamitous coastal erosion.

The Golden Mile beachfront, the city's prime tourist attraction, could be engulfed by flood waters in the next 20 to 50 years.

To combat catastrophic consequences, the report recommends that proposed developments be moved to areas that would not be affected.

The eThekweni Municipality has already started to act on the report, which details not just the effects of a sea-level rise, but the full impact of climate change on the entire metropolitan area.

Although the Western Cape's steep coastline is relatively protected against sea-level rise, a CSIR/SANBI report tabled before the provincial government issues grave warnings.

A likely 50cm rise in the Western Cape's sea level by 2100 will make the coast vulnerable to fierce storms because of the erosion of buffer zones and may cause more salt water to infiltrate ground-water supplies.

Estuaries throughout the coastline would be severely threatened, as would the dense, low-lying developments on their banks.

Towns along the Cape Peninsula and commercial enterprises such as Cape Town's V&A Waterfront and harbour may face serious flooding if appropriate interventions are not applied.

Johannesburg is not built around a significant body of water, but it faces its own climate-change headaches.

Most notable of these are its rapidly burgeoning traffic volumes that add to South Africa's greenhouse gas output. Unroadworthy vehicles

and big fuel guzzlers like 4x4s are exacerbating the problem.

Midgley is co-author of the country's first climate-change report, *The Heat is On*. He has shocking forecasts in store for South Africa's eco-tourism industry.

The Kruger National Park and other protected reserves could morph into thickly tangled, wooded areas as a result of the so-called CO₂ fertilisation effect, which speeds up tree growth in savannah regions.

This would make game viewing extremely difficult, if not near impossible, in many areas to which local and international tourists flock in droves every year.

National suppliers take first green steps

THE predictions are dire, but national authorities have taken several major steps to combat climate change.

The Department of Environment and Tourism promulgated the National Environmental Management: Air Quality Act, with specific provisions for greenhouse gases, at the end of 2005.

South Africa's per capita carbon footprint is three times higher than China's and on a par with that of the UK and Japan, according to the World Wide Fund for Nature (WWF).

"From here on out, energy production, petrol prices and electricity rates rise," warns CSIR Fellow Bob Scholes. "These price hikes will not turn around. While there might be small fluctuations, petrol will never cost R3 a litre again."

The Treasury has suggested a carbon tax to help curb emissions. This would increase the cost of electricity by 16%, says the WWF (SA) Trade and Industry programme.

It's not just rate hikes, but the urgent need to secure much more dependable energy supplies that necessitate more research into alternative energy sources.

To help solve South Africa's energy impasse, the national utility has pipped much of its hopes on the Pebble Bed Modular Reactor, a clean nuclear energy technology that is still in development.

"By 2025, [the technology] will only comprise around 8% of the country's national grid," says spokesman Tom Ferreira.

"However, it's a very exciting, environmentally friendly technology of which we are the world leaders." But for the time being, as Pretoria University environmental economist

Professor James Blignaut points out, this leaves the country's economy and environment at the mercy of less reliable, traditional energy sources that are heavily dependent on fossil fuels.

"If we are to halt the dire consequences of our rapidly changing climate and failing energy security, Eskom is going to have to step it up — and drastically so," says Blignaut.

Together with Sasol, Eskom is responsible for 90% of our coal-based carbon emissions. Yet, in my view, its current commitment to making electricity generation more efficient and to seriously considering non-carbon alternatives such as renewable energy leaves much to be desired."

Eskom failed to respond to questions about what it spends on renewable energy research every year.

It has, however, conducted research on wind, solar, fuel-cell, biomass and ocean energy. In October 2006 the utility also launched a R9-million, three-year renewable energy fund with WWF (SA)'s Climate Change Programme.

But Richard Worthington, a spokesman for the Sustainable Energy and Climate Change Partnership, has criticised the amount allocated to the fund, saying that "it is less than half of CEO Thulani Geabhashe's annual remuneration, and indicates a disingenuous approach and lack of real commitment to increasing the share of renewables in its energy mix".

A White Paper on clean and renewable energy development — developed by the Department of Minerals and Energy and approved by Cabinet in 2003 — sets a target of generating 10 000 gigawatts of SA's needs by 2012.

IF WE act now, we have the power to make a difference and turn the tide on climate change.



wall when you are not using them.

Even when turned off, things like hairdryers, cellphone chargers and televisions use energy. In fact, the energy used to keep display clocks lit and memory chips working accounts for 5% of total domestic energy consumption in the US. Discipline yourself to switch off appliances when they are not being used.

● Plant a tree. A single tree will absorb one tonne of carbon dioxide over its lifetime. Shade provided by trees can also reduce your air conditioning bill by 10%-15%.

● Install solar-powered geysers. A solar hot-water heater on your roof may reduce your emissions by 0.7 tonnes, depending on your source of electricity, and how much hot water you use. A 2kW solar PV (photovoltaic) system may save you 2.5 tonnes, if you live in a sunny area. It costs between R7 200 and R17 300 to install. In an average home in South Africa almost half of the electricity costs are spent on heating water. A solar-powered geyser is capable of saving you 95% of the water-heating costs, reducing your electricity bill by half.

● Cut down on your car journeys. Road transport accounts for about a quarter of UK greenhouse gas emissions. Walk, cycle or use public transport wherever possible. If you use a car, investigate the possibility of car-sharing.

Sources: www.earthfuture.com, www.suntank.com; www.climate-crisis.net

It's here, it's scary — now what do we do about it?

FOR decades the world has aggressively debated, scrutinised and pondered the science of climate change — or, as the sceptics would argue, the lack thereof. But now, despite the shrill squeaks of a few die-hard denialists, the tussle is over by global scientific consensus.

In November Sir Nicholas Stern's review for the UK Treasury sent shockwaves around the world with predictions that global temperatures could rise by 10°C by 2100.

The review's unequivocal endorsements of the implications of

climate change, as well as Al Gore's film, *An Inconvenient Truth*, dominated international headlines.

Even US President George W. Bush — seen by greens as the climate change anti-prophet — appears to have recanted.

During early January talks with German Chancellor Angela Merkel, Bush referred to healing past differences between the US and Europe on the Kyoto Protocol, the only legally binding global accord to curb climate change.

The US has, however, not yet

ratified the Kyoto accords.

In South Africa, it seems that the government has accepted that forewarned is forearmed. Since 2004 it has launched its national climate change response strategy and held the country's first climate change conference. The government has also commissioned national, provincial and local government studies on the impacts of climate change.

But, says Pretoria University environmental economist Professor James Blignaut, the success of South Africa's efforts to combat climate

change depends on how effectively we incorporate clean energy into the national grid.

"South African industry will have to find ways to reduce its dependence on fossil fuels, make petroleum refineries and electricity generation more efficient and seriously consider non-carbon alternatives such as renewable energy," says Blignaut.

This week South Africans saw red as another wave of Eskom power blackouts plunged the country into chaos, highlighting an urgent need

to bolster alternative energy programmes.

Despite the overwhelming climate challenges facing the world, the scientists remain optimistic.

Says the Trade and Industry programme manager of the World Wide Fund for Nature (SA), Peet du Plooy: "Since we are the only nation on Earth to hold sustainable development as a human right — and have the potential to realise the ambition for addressing climate change — it follows that we can again rise as a bright light to the world."

BUSINESS OPPORTUNITY

Includes **FREE R1200** airtime

Sell airtime & Prepaid funeral cover from your Cell Phone!

Please SMS your **NAME & ADDRESS** to **39390** to receive the **DVD** to GET-U-STARTED

*YOU MUST SMS AS THIS IS AN AUTOMATED PROCESS

2 weeks in the medieval village of Olargues 9 to 21 July 2007

Contact now: **021 786 3975** swartart@africa.com

www.artistvision.org/workshop

IMMIGRATION AUSTRALIA & CANADA

Temporary and permanent visas; Business and family migration

High demand for Technical Skills; Trades and Professionals

CONSULTATIONS with migration specialist: **JOHN GAMBARANA**

FREE SEMINARS

Durban: 29 Jan
Sandton: 6 Feb
Cape Town: 13 Feb

CONSULTATIONS

30 Jan - 1 Feb
15 Jan - 9 Feb
14 Feb - 15 Feb

Tel: 011 807 9245/9247
www.tgmigration.com
Mobile: 082 457 6698
E-Mail: info@tgmigration.com

Field Worker: Penreach

Penreach is the largest schools based outreach programme in South Africa and is a component of Penryn College, Mpumalanga.

We are looking for an Intermediate and Foundation phase fieldworker that possess knowledge and experience of Outreach programmes. The incumbent must be conversant in OBE and have knowledge of DoE policies. Report writing and computer literacy skills are critical. Knowledge of NGO structures will be advantageous. Teacher training experience essential.

The candidate must be able to work well under pressure, be a self starter and work well in a diverse team.

Code 8 Driver's license essential
Competitive salary offered.
Teaching Degree essential.
Project Management skills a must.
Travelling and relocation costs will not be covered.

If you have not heard from us within 3 weeks you may deem your application unsuccessful. Faxed CV's shall not be accepted.

WE LOOK FORWARD TO RECEIVING YOUR APPLICATION.

Please email your CV to Mrs. Janet Henning at henningj@penryn.co.za
Applications close **28 January 2007**

Stephen Hawking warns world to wake up

CLIMATE change is as great a threat to the world as international terrorism and nuclear war, Professor Stephen Hawking said this week.

The cosmologist and mathematician said that the twin dangers of global warming and nuclear proliferation needed to be tackled urgently.

Hawking, of Cambridge University, was speaking as the Domsday Clock — a countdown to Armageddon that was begun in 1947 and is run by a group of scientists — was moved two minutes closer to stand at five minutes to midnight to reflect climate change and the nuclear programmes of North Korea and Iran.

"We foresee great peril if governments and society do not take action now to render nuclear weapons obsolete and prevent further climate change," said Hawking.

"As scientists, we understand the dangers of nuclear weapons and their devastating effects, and we are learning how human activities and technologies are affecting climate systems in ways that may forever change life on Earth."

The Domsday Clock has been adjusted only 17 times in its 60-year history, most recently in 2002 when it was advanced to seven minutes to midnight after the events of September 11 2001 and the US withdrawal from the Anti-Ballistic Missile Treaty.

The threat of climate change was emphasised by a new set of maps that show how it was likely to affect parts of the world.

The atlas, compiled using a new index method that combines natural climate variation with global warming predictions, suggests that years like 2006, the warmest on record in Britain, will be normal by 2100.

The study is published in the journal *Geophysical Research Letters*. The results are presented on nine maps of the world, each assessing change as a single factor such as rainfall, drought, temperature and so on.

The areas that will experience the most significant changes are coloured red.

One of the most striking images, showing temperature changes, shows regions close to the Arctic Circle and the Equator covered in dark red, denoting the highest predicted increases. — © *The Times News Service, London*

SAQA Accredited Training Programmes

PROGRAMME	CENTRE	DATES	Course Fee
Assessor	Cape Town	13 - 15 February	R3 150
	Johannesburg	20 - 22 February	
Moderator	Cape Town	11 - 12 April	R2 400
	Johannesburg	27 - 29 March	
Training Facilitator (Train-the-Trainer)	Cape Town	06 - 09 March	R3 900
	Johannesburg	22 - 25 May	
SDF (Skills Development Facilitator)	Cape Town	08 - 10 May	R4 350
	Johannesburg	02 - 04 April	

Fees are exclusive of VAT

Confirm your booking: Tel: (021) 556-8112 or E-mail: info@skillsafrica.com

Other Programmes / Services: **Provider Accreditation; Leadership; Teamwork; Life Skills; Entrepreneurship and Interpersonal Skills.**

Skills Dynamics Africa = ETDP SETA accredited = www.skillsafrica.com

TRAINING: HYDROPONICS AND GREENHOUSES

Prof. G. Venter, with more than half a century's expertise, and other specialists share their knowledge about the newest technologies on Hydroponics, Greenhouse Management, Climate control, Marketing and Export strategies

Our complete and popular two-day short courses for 2007 start on 5 & 6 February 2007 : ARC, Silverton, Pretoria
12 & 13 February 2007 : Fleurbaix, Stellenbosch

Contact (021) 8498800/8683 for full details and registration information

Be Brilliant @ E-business

Learn to grow your business online!

Joburg: Jan 26 This one-day seminar demystifies e-business and e-marketing and shows you how to succeed!

Cape Town: Feb 11 Only R495!

Register at www.bitrefire.co.za or phone 021-790-0303

Love Helping Children? The Perfect Franchise!

Kip McGrath

Kip McGrath:

- is an International franchise company
- with over 500 branches in 8 countries
- with 25 years experience of helping children
- by tutoring Mathematics and Reading.
- 60 branches in South Africa after 11 years

If you love children and want to:

- invest in your own profitable business
- create a better future for your family

This is the Perfect Franchise for You!

Call, fax or email Brian Sleight now!
Franchises available nationwide:
Call: 031 903 5352 • Fax: 031 903 6445
Email: kmec@mweb.co.za