



# HEART OF DARKNESS

WHY ELECTRICITY FOR AFRICA IS A SECURITY ISSUE

Geoff Hill



# Heart of Darkness: Why electricity for Africa is a security issue

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## About the author

Geoff Hill is a Zimbabwean writer working across Africa. His media career began at the *Manica Post* in Mutare in 1980 and he has worked on all six continents.

In Sydney, from 1983 to 1989, he was special reports manager for Rupert Murdoch's flagship paper, *The Australian*, leaving to start his own publishing firm, which he sold in 2000. In that year, Hill became the first non-American to win a John Steinbeck Award for his writing, along with a BBC prize for the best short story from Africa.

In the publicity that followed, he was approached to write a definitive account of his home country. *The Battle for Zimbabwe* became a bestseller in South Africa, and the US edition was launched in Washington by Assistant Secretary of State for Africa, Walter Kansteiner (who served under George W. Bush). The London launch was at the Royal Institute for International Affairs (Chatham House). The sequel, *What Happens After Mugabe?* enjoyed nine reprints and sold globally with a cover endorsement from author, John le Carré.

Hill has served as deputy chair for the Foreign Correspondents' Association of Southern Africa and from 2011 to 2013, he was vice president at the International Association of Genocide Scholars; he has lectured at The Hague on crimes against humanity.

Since 2002 he has been Africa correspondent for *The Washington Times*, and his work is published in the *Mail & Guardian* (Johannesburg), *The East African* (Nairobi), and across the continent.

A life-long conservationist, he has written extensively about the environment, and rescued more than 5,000 snakes from urban homes for release in the wild, catching his first brown house snake at 10 years old and a mamba at 14.

Geoff Hill owns the largest collection of autographs in Africa and continues to expand his hobby. Signatures include TE Lawrence, Florence Nightingale, David Livingstone, Jomo Kenyatta, Haile Selassie, Jacques Cousteau, Amelia Earhart, double agent Kim Philby (signed in Beirut from where he fled to Moscow) and Illich Sanchez, aka 'Carlos the Jackal'.

Hill is a director of the African risk firm, Something of Value Ltd, and is fluent in English, Afrikaans and Shona (Zimbabwe).





## Be afraid of the dark

You could have knocked me over with a candle. It was October 2017 and I was with a group of journalists quizzing US energy secretary Rick Perry on his first visit to Cape Town, when someone asked why Washington was spending billions on electricity plants in Africa. I expected a politician's answer: human rights, good work, a policy that cares about the less fortunate.

'It's a security issue', he said. 'Militia and terror groups are a magnet for young men without jobs, and if there's no grid or power, you can't industrialise'. He rolled off the numbers. More than 600 million Africans – half the population – are not on the grid. America uses more electricity in a day than Ghana or Tanzania generate in a year. Investors are keen on the continent, but a lack of capacity keeps them away.

Perry comes across as someone who understands how tough life can be for some Americans and how much harder it is in the developing world. He hasn't always been a politician; he served in the US Air Force, rising to the rank of captain, and flying humanitarian missions to Africa and Central America. He has a grasp of the world outside Washington. In his youth he worked in many roles, including as a door-to-door salesman. And he holds the record as the longest serving governor of Texas where, he says, he was exposed to 'the anguish of unemployment and the hopelessness people feel when they can't get a job'.

The border between Mexico and the US is more than 3000 kilometres long, and two-thirds of it lies in Texas. As governor, Perry took a special interest in immigration. The number of illegal crossings fell during his 12 years in office, but he insisted that poverty, poor governance and unemployment is what drove people to seek a better life.

'I see the same problem when young people trek hundreds of miles through the Sahara Desert to try crossing the Mediterranean into Europe', he said. 'Thousands have drowned, others made it, but many are deported. I don't believe we should vilify these exiles, but the answer also doesn't lie in moving them somewhere else. Rather, we need to make their countries of origin a better place to live'.

These, he said, were issues of conscience. Good things to do. 'They're what American aid and foreign policy is about: making a better world'. I sensed a 'but' coming on:

But I and the administration, along with Congress, we represent the American people. So while we're helping Africa, there has to be something for the tax-payers because it's their money.

Bringing real levels of power to Africa, the kind we take for granted at home, is good for America because it helps us end the scourge of terror. It cuts illegal migration and it makes economies stronger, so they have the buying power to trade with the US and boost American jobs.

After nearly four decades of reporting on Africa, I have heard a lot about aid, usually from two perspectives. The first says it's some

kind of moral responsibility for rich countries to help the poor, and I get that. The second points to billions spent across half a century with little to show. So Mr Perry made sense to me. Widening access to electricity wasn't America's duty or Africa's right. It was money on the ground with potential for both sides to reap a profit.

Left or Right, from Donald Trump to French President Emmanuel Macron or Sweden's Stefan Löfven, there's agreement that Africa has a problem with jobs. From a poor city like Dar es Salaam in Tanzania to Africa's richest shopping zone at Sandton in Johannesburg – with the likes of Chanel and Gucci plying their trade – there are young people out of work, or serving tables in spite of having good grades for English and algebra.

When it comes to unemployment, numbers are hard to find, and not because the state doesn't come up with them. The UN, World Bank, and most national governments have detailed charts on the workforce. In South Africa, for example, the figure depends on whether you count part-time jobs, subsistence agriculture and those not looking for work. Pretoria puts the jobless rate at around 25%, most of them urban.<sup>1</sup> However, when polling companies ask, 'Do you have a job?', more than double that number say 'No'. The difference lies in what's known as the *informal sector*. Across cities and towns, you'll see people from their mid-teens to middle age sharpening knives or fixing tyres and exhausts along the roadside. Others stand at traffic lights, holding fruit or a tangle of phone chargers. Officially, they have jobs but, when polled, most say the opposite. Vending, they say, is a way to pay the rent while looking for work.

South Africa is the continent's richest nation, with a GDP of close on \$400 billion, so what chance for the Central African Republic, whose total economy is less than 2% of that? Nothing will change there without access to electricity; according to the World Bank, close on nine out of ten are not on the grid. In many places, it's about what engineers call, 'the last half mile'. Electricity is there, but minus the lines connecting it to homes. With rapid urbanisation, slums and squatter camps spring up around cities. People use paraffin stoves or make illegal connections to a pylon, resulting in the so-called 'shack fires' that kill thousands every year.

Rick Perry's speech made headlines. I wrote a front-page story for *The Washington Times* and, after the press event, he held meetings with African energy ministers to set his plan in place. But he had one more rider. 'When people don't have electricity, they don't care where it comes from', he said. 'In Texas, we've done wonders with wind power, and Africa has potential there, and especially for solar. But on a continent rich in gas and coal, countries must have a right to use their own resources'. America, he said, was there to help, 'not to dictate'.

He closed as he'd begun. This was a security issue, reducing the pull of al-Shabaab, Boko Haram and the human traffickers. Bringing jobs and industry to a continent out of work.

'More than anything, our power project is there to give people hope', he said. 'Because, make no mistake, if we don't, someone else will'.

## Part 1: Problems

### Us and them

It was 4pm on Friday 11 June, 2010, as the first game of the FIFA World Cup got underway at Soccer City Stadium in Johannesburg. With a population of around eight million, the city is large by any standard. This makes it a draw, not only for rural South Africans looking for a job, but also for migrants from Congo, Zimbabwe, even Nigeria. Many make a living as street vendors. They stand at intersections, and especially at traffic lights – known here as ‘robots’ – selling all kinds of goods, from fruit and sweets to hats, belts and blankets. When it’s cold they have firewood, and in the heat of December, your vendor carries a portable cool-box, packed with colas and other drinks and, as you wait for the robot to change, he waves a glistening can at your window. Drink, money, change: the sale takes a few seconds and, when the light turns green, hawkers run for the traffic island and wait for the red.

But this was Jo’burg in winter and, at 5700 feet above sea level and well below the tropics, it can snow in the city, and temperatures overnight slip below freezing. There’s even a ski lodge in the mountains. That Friday of the first game of the World Cup, a wind from the east made an afternoon temperature of 14°C (57°F) feel colder, and vendors made a killing with blankets: many of the fans had come from Europe and the Americas dressed for safari, and at hotels, intersections and along the road to the stadium, black men and women in their early 20s sold duvets and throws. Demand was huge, the mark-up was crazy, but tourists stayed warm and, for one day at least, the poor made good.

Much of east and southern Africa lies on a plateau that rises quickly from the coast. Cities were founded during the colonial era, when white bwanas and their mem’sahibs wanted to live away from the heat of the lowlands. Of the world’s 30 highest capitals, half are in Africa. Just one, Andorra, is in Europe (Table 1).<sup>2</sup>

Table 1: Africa's capital cities are at high altitudes.

Country	Capital	Altitude	% access to electricity <sup>7</sup>
Ethiopia	Addis Ababa	7700	43
Eritrea	Asmara	7600	47
Kenya	Nairobi	5900	56
Namibia	Windhoek	5600	52
Lesotho	Maseru	5500	30
Rwanda	Kigali	5100	30
Burundi	Gitega	4900	8
Zimbabwe	Harare	4900	38
South Africa	Pretoria	4400	85
Swaziland	Mbabane	4100	66

Altitudes are rounded to the nearest 100 feet

These new settlements would have been agreeable places to live. Outside the Sahara or Kalahari – desert areas with little rain – Africa is well watered, and pioneers didn't have to set up along the rivers as in parts of Australia and the US. But at certain times of year, the climate would have been less pleasant. In the Oscar-winning film *Out of Africa*, Karen Blixen sits at the fireplace telling stories to her lover, Denys Finch-Hatton, and his friend Berkley Cole. Why at the fire? Because Nairobi is Swahili for 'cold water' and at almost 6000 feet, winters are chilly. In 2017, it snowed in the city. Similarly, in Maseru, the capital of Lesotho, also known as 'the mountain kingdom', temperatures have been known to touch  $-12^{\circ}\text{C}$  ( $10.4^{\circ}\text{F}$ ).

So how do people stay warm? The same way they cook and light their homes: with firewood. In many of these cities, poverty is rife.

In most African capitals, only around a third of people have electricity. In Burundi, the figure is just 7.6 per cent. Look at the world's worst 10 countries for access to electricity and are all in Africa. Countries in Africa take 41 of the bottom 50 places. South Africa is almost the only country with a majority connected to the grid. Yet across the continent there are rivers to dam for hydro and the sun shines for solar. Mozambique has offshore oil and gas, and Africa enjoys some of the world's richest coal reserves.

Talk to activists from some environmental groups, and it's all the fault of others. Europe underdeveloped Africa in the colonial area, loans are hard to get, aid has been cut and the arms industry sells weapons to leaders who go to war instead of serving their people. And there's truth in this. But how then have Malaysians, with the same colonial experience and a civil war at independence, managed to electrify all homes in a country of more than 800 islands? Or New Zealand with just 4.7 million people? Canada has a population of 30 million and a land area the size of Europe, yet the most remote hamlet has power.

So what are the factors that divide the world into light and dark?

There are places where we can measure freedom and prosperity across the same ethnic group divided only by politics. For example, since 1948, Korea has been split into a communist North and capitalist South. The two are of similar size and both suffered under one of the most oppressive colonial regimes after Japan occupied the peninsula in 1910, a period that ended only after the surrender to the United States in 1945. Like Germany, the country was shared among the allies at the end of World War II and it was the Russian zone that became North Korea. Today, the North remains a dictatorship, with only one in three homes on the grid. In the democratic South, electrification is total. South Korea is the world's 11th largest economy, with a GDP of \$1.6 trillion, larger than Russia or Australia. Meanwhile, North Korea's GDP is less than two per cent of the level enjoyed by its neighbour.

Another example is the Caribbean island of Hispaniola, land-



ing point of Christopher Columbus on his voyage to the New World. Hispaniola is divided into Haiti and the Dominican Republic. The first has a long history of dictatorship and is still far from what one might consider a democracy. The ‘Dom. Rep.’, as it’s termed, has free elections and a liberal press. Haiti has a paltry \$6 billion per year in GDP, somewhat smaller than the city of Coventry in England. Its neighbour has a vibrant economy and is one of the fastest-growing holiday spots in the world. GDP is more than ten times larger, at \$75 billion. And while the Dom. Rep. has everyone on the grid, in Haiti only 39% have power.

There are similar examples in Africa. Democratic Botswana exports some of the coal that also provides most of its power. Two thirds of homes are on the grid. Next door is Angola, Africa’s second-largest oil producer, but a tyranny in one form or another since independence from Portugal in 1974, and where six out of ten people have no lights.

Democratic Kenya will achieve full access to electricity within the next decade. Compare that with just 26% in Uganda, where Yoweri Museveni has ruled since 1986, censoring the press and rigging elections. Tanzania is little better, governed by the same party since independence from Britain in 1961.<sup>3</sup>

And it’s not just about kilowatts. By the end of World War II, Germany had been bombed almost to oblivion. It was then divided into the *Bundesrepublik*, better known as West Germany, and the *Deutsche Demokratische Republik*, or DDR, under Soviet control. At reunification in 1990, the DDR had an annual GDP of just \$150 billion. But West Germany was 10-times that and the world’s fourth-largest economy. Thirty years on, the east still languishes, with higher rates of poverty and unemployment.

It’s fair to say that Africa is now on the path to freedom and democracy, if faltering in countries like Zambia, Gabon or Djibouti, whose rulers believe democracy is okay only if they win the vote. But look at the countries where one party (sometimes renamed) has been in power for 30 years or more (Table 2).

Table 2: One-party rule and access to power.

Country	Year ruling party came to power	% on grid
Tanzania	1961	33
Angola	1974	41
Mozambique	1975	24
Djibouti	1976	52
Zimbabwe	1980	38
Uganda	1986	27
Sudan	1989	39

Grid figures as per The World Bank, 2016



You can therefore make a strong case that democracy and freedom are key factors in driving full access to electricity. But what about dictatorships that have 100% of their people on the grid? And there are many, including China, Saudi Arabia, Cuba, Egypt and Belarus. In 1994, ahead of the change to democratic rule, the all-white National Party had run South Africa since 1946, but the country produced more electricity than the rest of sub-Saharan Africa combined.

So what is now holding Africa back? Some have put it down to the legacy of colonialism, but this argument doesn't hold up on examination. Onan Akoragye is a Ugandan journalist and edits an online magazine in the capital, Kampala.

I always bash this notion that Africa is poor because of colonisation...It's been over 50 years since these guys left Africa. And a country like India whose GDP is fifth in the world was colonized about the same time as Africa.

Singapore and South Korea had about the same GDP as most African countries at the time of independence, but they have since developed into great economies.

The problem, according to Mr Akoragye, is more to do with Africa's political culture:

Our political way of life sucks! Everything bad about our economies revolves around stinking bad politics. Wars, coups, corruption, greed, patronage and impunity.

Others agree. Dr Sylvanus Ayeni is a Nigerian neurosurgeon, now retired and living near Washington DC. His book *Rescue Thyself* details the failure of African governments to serve their peoples.

Where countries have a plan for the future, and leaders look beyond their own pockets, you find development. Taiwan and Singapore both went through more than 30 years of hardline rule before they opened up, yet they were economic miracles. Botswana has been ruled by the same party since independence in 1966, and it has the highest per-capita income in Africa.

Sadly, many of our rulers have blended dictatorship with self-enrichment. Citizens who complain are seen as traitors and learn that it's safer to keep quiet. That's why in my own country, after 60 years of independence – and billions in oil sales and foreign aid – homes and shops rely on generators for electricity.

And that self-enrichment has involved the wholesale looting of foreign aid. Dr Ayeni has done a calculation of money given to the continent since 1960:

In the past half-century, America alone has sent more than a trillion dollars in aid to Africa and I challenge you to find where it's gone. Add to this the billions from France, Britain, Australia and soft loans from China and you see the tragedy.

Money blown on palaces, private jets and outright theft. As an African I'm sad to say this is the truth of my homeland.

This corruption is centred on state-owned enterprises, says Dr Ayeni:

Take the example of airlines. Nigeria, Uganda, Malawi, Congo and many others have lost their national carriers after propping them up for years. On some, it was difficult to buy a seat in first class because of ministers and their families who travelled free or at a discount.

Discounted air tickets is petty corruption, without wider implications, but once you get into the electricity sector, these can be serious. Dr Ayeni explains that jobs are often given to those with connections to the ruling party, even where they lack the skills.

South Africa has one of the world's most robust democracies, yet the state-owned power monopoly runs at a loss and the press is forever breaking stories on jobs for cronies or fraudulent tenders. And it's the same picture across much of Africa.

It's small wonder then that South Africa's electricity supply is increasingly unreliable.

As I write this, it's summer across much of Africa. Vendors keep water-bottles on hand, and spend up to 12 hours on the baking tar at robots, selling drinks and other wares. There's no talk of another World Cup, but winter will come back, temperatures will fall and so will the trees. Vendors will sell firewood in bags of a dozen logs, each the length of your forearm. It takes two bags to keep a family warm for one night. Along the roads, we'll see barrows and 'borrowed' trollies from supermarkets carrying timber. Another cold spell, another forest gone. Others will sell blankets, not at the profit they made from the soccer fans, but enough to get by and, with luck, feed the meter to keep the lights on.

## Streets of gold

Where do you begin to understand the change happening across Africa? I'd start at Park Station in the centre of Johannesburg, a rail hub, but also a taxi rank, stretching for several blocks. Here, buses, cars and minivans pull in from across the region. The rural poor, who are lifting the city's population at three times the national growth rate, arrive here daily in hundreds, sometimes thousands.

The taxis and buses are known as *matatus* in Kenya and *malai-sha* in South Africa, meaning 'we are never full'. There's always room for one more passenger, another bag, sometimes even a goat. A vehicle built for 12 may carry double that number, plus driver, luggage (usually on the roof) and a conductor-cum-bouncer known as the 'windy' who stands by the open or missing door, holding on to whatever he can, at speeds well over the limit.

Most of the routes are within South Africa, but some will take you across any of the borders *sans* passport: the windy knows how to bribe officials on both sides. Traffic runs 365 days a year, but January is different. With the final year of school behind them, gradu-

ates head for the richest city in Africa, with cases and haversacks, certificates and CVs in desperate search of a job. Most will be disappointed, but few go home. Instead, they bunk with friends or relatives in one of the townships: high-density suburbs that are elsewhere known as slums. In a room the size of a garden shed, sleepers do the best they can, sharing blankets in the cold or braving mosquitoes to lie outside in summer.

In 1960, Africa had just 250 million people. In 2019, the population has reached 1.3 billion and that figure is set to double in the next 30 years. Couples are having smaller families, but of the world's 30 fastest-growing countries, 26 are here. And where, 20 years ago, the rising population was rural, today it's urban.

The move to the cities is taking place across the world. Europe and the USA are more urban now than at any time in history. Australia has 70% of its 25 million citizens in just eight cities. Ninety per cent of Canadians live within 150 miles of the US border. Britain has tipped into the south-east, and where towns in Kent or Hampshire have grown, it's as commuter hubs for London. New Zealanders are shifting to town at 1% per year. Britain and the US are just below that rate. Palm Beach in Florida – mushrooming ahead of anywhere on the east coast – manages a limpid two per cent.

But in Africa, the pace of change is different. The world's ten fastest-growing cities are in Africa (Table 3), and forty of the top 50. In Tanzania, urban populations are exploding at 5% annually. Kenya, Namibia, Mali, Mozambique: move your pointer anywhere across Africa and you'll find a Park Station and buses full of youngsters, all moving away from the traditional life of crops and cattle in search of the urban dream.

One of the big drivers is lack of power in the countryside. I fly regularly between Johannesburg and London, always at night,

Table 3: The world's 10 fastest-growing cities.

City	Country	Annual change (%)
1. Ougadougou	Burkina Faso	5.0
2. Dar es Salaam	Tanzania	5.0
3. Bamako	Mali	4.9
4. Kampala	Uganda	4.8
5. Lusaka	Burkina Faso	4.6
6. Huambo	Tanzania	4.6
7. Abuja	Burkina Faso	4.6
8. Antananarivo	Madagascar	4.4
9. Mogadishu	Somalia	4.4
10. Onitsha	Nigeria	4.4

Source: Worldatlas.com

and as we cross Chad or the Congo, there are flares of light below, marking cities like N'Djamena or Kinshasa. But for thousands of square miles, it's like looking down on black velvet. There are people, settlements, farms and huts, but no power. In Zimbabwe, for example, with one of the best line networks in Africa, mostly dating back to the 1970s, power ends at the local 'growth point', a collection of stores and markets. In the huts and villages beyond, there's not a spark. Faced with that, who wouldn't move to town?

Urbanisation has also changed the mathematics of industry. While there seems a crying need for decentralisation, the more people move to the city, the less sense it makes to manufacture goods anywhere else. It doesn't have to be this way. In 1973, Australia elected the first Labor government in 21 years. Prime Minister Gough Whitlam saw himself as a revolutionary, and one of his passions was the growth of rural towns. His pilot project was Albury and Wodonga, two settlements on opposite banks of the Murray River. Albury is in New South Wales, with its sister town a mile away and across the state line in Victoria. Land was bought by the Federal Government, industrial sites established and incentives granted to industry. Some firms were lured from Sydney and Melbourne, including the US multinational, Uncle Ben's. Whitlam's successor, Malcolm Fraser, scrapped the project just three years later, but despite this the 'twin cities of Albury Wodonga', as they are known, had taken hold. Although the population remains considerably smaller than Whitlam envisaged, growth remains positive.

But this was possible because in Australia, every last billboard is close to a power line. With an area many times larger than any country in Africa, Australia has achieved universal access. So where Africa has an exodus, one-in-four Aussies was born overseas, and polling shows that millions would move there if they could. India and China are now the top source countries, with Britain third and South Africa in the top 10. Requirements have been tightened, more are turned down, but most worryingly for rural Australia, two-thirds of migrants settle in Sydney or Melbourne.<sup>4</sup>

But for all that, Australia has a rural soul. Its most famous paintings have names like 'On the Wallaby Track' and 'Across the Black-soil Plains' and the country's biggest-grossing film is still *Crocodile Dundee*, with Paul Hogan as the outback hero. Another epic, *Picnic at Hanging Rock* focused on a rural girls' school where students vanish on a day out in 1901. Even the national song, *Waltzing Matilda*, tells of a swagman or vagabond, arrested for poaching: for all its city gloss, at heart Australia is one big sheep station.

### ***The dream of 'kumusha'***

In the same manner, Africans talk of the village. In tales passed on through generations, it's the jungle or savannah that features most, begging the question: if there were jobs, would the young stay home?

Like Mecca to Muslims and the Vatican for Catholics, so *kumusha* holds a sacred place for Zimbabwe's Shona-speaking people.

My late father was a water engineer in Rhodesia (now Zimbabwe) and I spent some of my childhood in places with few other whites. And so I learned to speak Shona and heard tales from the elders of mythical beasts and wars with other tribes that happened so far back no one was sure of the year, but with each telling the battle was harder, the bravery greater and the victory more intense. And those who fell were buried *kumusha*.

There is no direct translation in English, but ask a Shona where they are from and they'll name, not necessarily the place they live, but their *kumusha*, a district where they might not have lived for years, home to their chief and the graves of their ancestors.

In the US, Canada and much of Latin America, indigenous people were exterminated like vermin. Africa's experience was less brutal, but colonial governments routinely uprooted black villages to make way for towns or farmland. And it was a big deal, leaving graves and spirits, a memory of rocks and trees known for centuries, and the river where every generation of kids learned to swim.

In 1998, I was living in Harare when a family I knew from the rural village of Murehwa lost their 20-year-old daughter, Christine, to meningitis. Her brother, Alexander, was helping me research my first book on Zimbabwe, and he went home for more than a month to arrange the funeral and comfort the family. A year later, they held a *nyaradzo*, a final letting-go, where everyone gathers in the village at sunset and, until dawn, they eat, drink and pass over and again through the thatched hut of their loved one. Like a Viking funeral, some set fire to the house as a last salute.

With me on the drive from Harare were Alexander and two of his cousins. Murehwa is just 35 miles north-east of the capital. After the end of the tarmac road, we made our way slowly across tracks that were more like a ploughed field, past a place called Chizanga – the last store with electricity – and on to the village.

I met the elders and the rest of Alexander's family, and while the men sat by the fire drinking beer from a gourd, the women prepared a meal of maize and beans. These are not Africa's hillbillies. Everyone spoke English, the kids were all at a local school, and thanks to a love of extended family – largely lost in the developed world – money was sent home each month by those in town. The overwhelming sense is one of attachment, and that is what *kumusha* means. If, as Mark Twain said, 'Home is where you want to be buried', then this was it. When Alexander died in 2014, aged 38, from complications linked to HIV, he too was buried *kumusha*, survived by his wife, two daughters and a son.<sup>5</sup>

In most of Africa, the village is dominated by children and grandparents. Those of working age have gone, but the bonds remain. Christine's family would stay here if they could, but it is difficult. Would it be different if there were jobs to be had? If there was industry – with electricity to run it? Surely then fewer people would move to the city. But how can this power be delivered?

## Part 2: Solutions

### Overcoming the political culture

If, as Sylvanus Ayeni points out, Africa's corrupt political culture is holding the continent back, what can be done? Ayeni says it would be better to sell the state corporations and let the private sector do the rest. He has a note of warning though: 'Too often in Africa, privatisation means selling an asset at a discount to someone in government. Instead, we need real investors to buy the shares and others to set up in competition'. In other countries – Zimbabwe for example – there is a requirement that a controlling stake remains in local ownership. This inevitably opens the door to corruption, and in fact ownership is of little interest to consumers. For example, in Harare, Dr Aaron Chiwoko is an engineer who has made a study of his country's power supply. He believes the poor don't care who owns what. 'Ask those who live without electricity or running water', he says. 'Ask them if they care who provides the plumbing or electricity. They will tell you it doesn't matter so long as they get a reliable supply at a price they can afford'.



"Will you sign our petition for cleaner power?"

## Overcoming the greens

Electricity for Africa is on the shopping list for most donor countries. The US is trying to help with its *Power Africa* program, for example. But much of the potential funding is stymied in practice because donors like the World Bank impose rules that prevent them being spent on power stations that will burn fossil fuels. Dr Chiwoko says this makes no sense in resource-rich countries:

Angola and Nigeria are among the world's top-ten oil producers. Mozambique has natural gas, South Africa, Botswana, Zimbabwe, Kenya and others have billions of tons of coal in the ground. But they can't use any of these at home with funds from the World Bank or even with loans from some democracies who decree there must be no fossil fuel in the mix. And so electricity is either not available, or it's in short supply with long outages. And even those who have it only use the grid just for lights and maybe a fridge and TV because anything that generates heat uses a lot of power. For that they turn to paraffin or, more often, firewood.

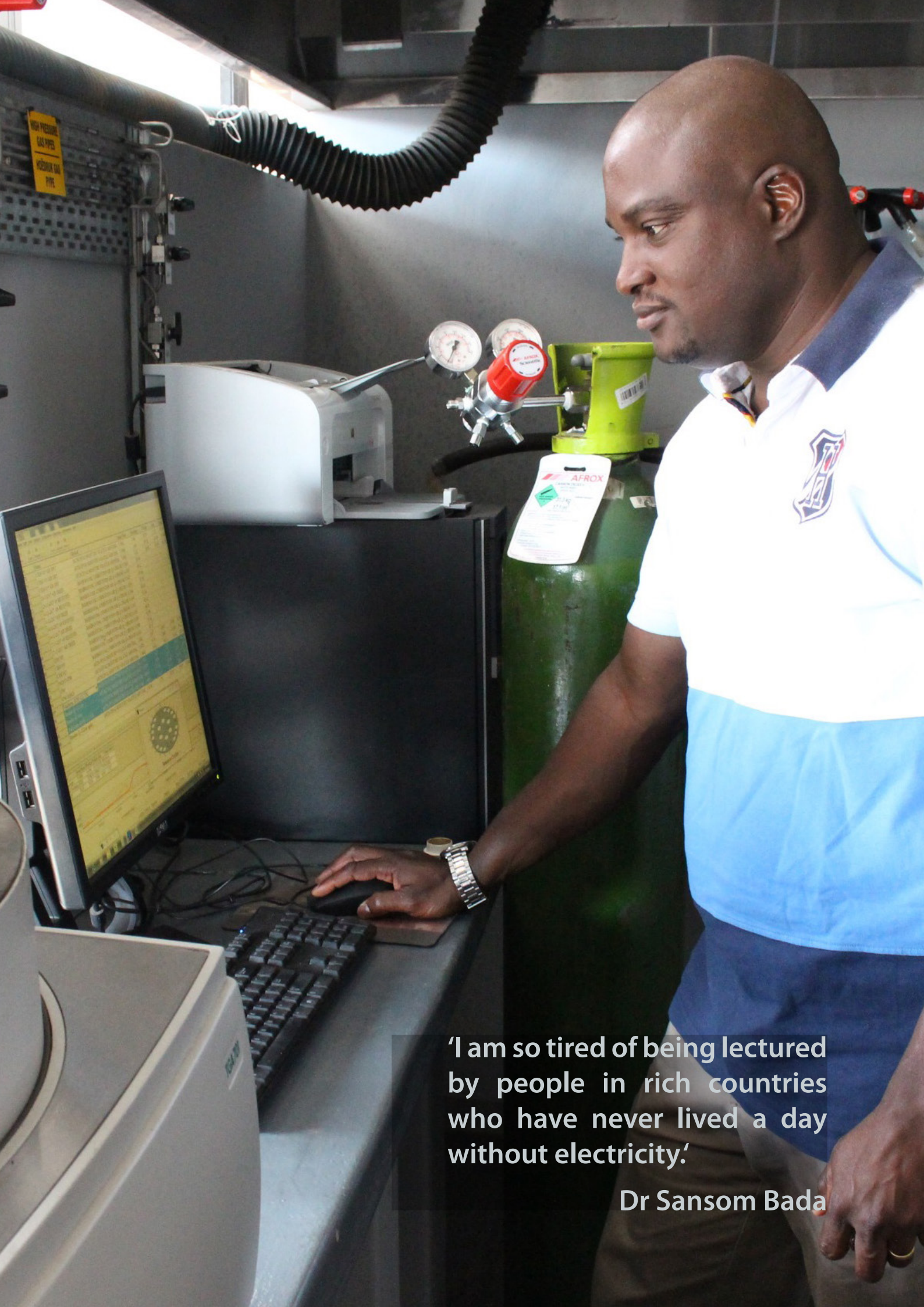
The rules, he says, are made up by people who have no idea of hardship. He thinks Africa needs its own solutions, drafted in consultation with the public. 'This is how we will change a continent that remains so tragically in the dark.'

Coal is likely to be key, and in particular, clean coal. Coal delivers 90% of South Africa's power, and in Botswana the figure is 100%. Both Kenya and Tanzania have plans for new coal-fired generators. Greenpeace and other environmental groups get it right when they say coal is dirty, emits carbon dioxide and is not good for the planet. I've supported the green cause since my teens, but on campus or at UN meetings, it worries me to hear speakers shouted down by the chant: 'There's no such thing as clean coal'. It's also true to say that surgery is painful and raw potatoes can be toxic enough to make you ill. That's why you get a jab before the doctor goes to work, and we cook our spuds.

Clean coal is certainly real. Professor Rosemary Falcon pioneered the Clean Coal Research Group at the University of the Witwatersrand in Johannesburg. Known locally as 'Wits', this is where the late Nelson Mandela studied law in the 1950s. Now retired, but still consulting, Falcon says she and her team have proved that clean coal is not only possible, but one of the cheapest ways to generate electricity. The process starts at the mine. 'You need to separate the low-quality coal from the better grades that are already less toxic', she says. 'Then, we can crush it and take out chemicals that don't contribute to a clean burn. Now you're starting with a product that generates more heat, stays alight for longer and produces less fumes.'

It's not just South Africa though. At the other end of the continent too, clean coal is seen as part of the future. Egypt's notorious power blackouts were among a list of grievances when, in 2011, crowds on Cairo's Tahrir Square forced president Hosni Mubarak





**'I am so tired of being lectured by people in rich countries who have never lived a day without electricity.'**

**Dr Sansom Bada**

from power in one of several revolts known as the Arab Spring. The new government was unable to lift power output, however, and outages continued until, in 2016, Parliament voted to overturn a ban on coal. Within months, the government announced plans for a clean-coal plant – the world’s largest – at Hamrawein, a fishing village on the Red Sea, 600 kilometres south-east of Cairo.

And the move to clean coal is taking place outside Africa too. Electrification has been at the heart of Indian elections for 30 years, with candidates promising to get rural homes on the grid. Since 2015, villages have been wired at record speed though, as in Africa, consumers are often short of money to pay for the service. In December 2018, at a UN climate change meeting in Poland, the Indian minister for the environment, Dr Harsh Vardhan, told the assembly that those who condemned the use of coal either hadn’t caught up with the facts or were ‘in denial’.

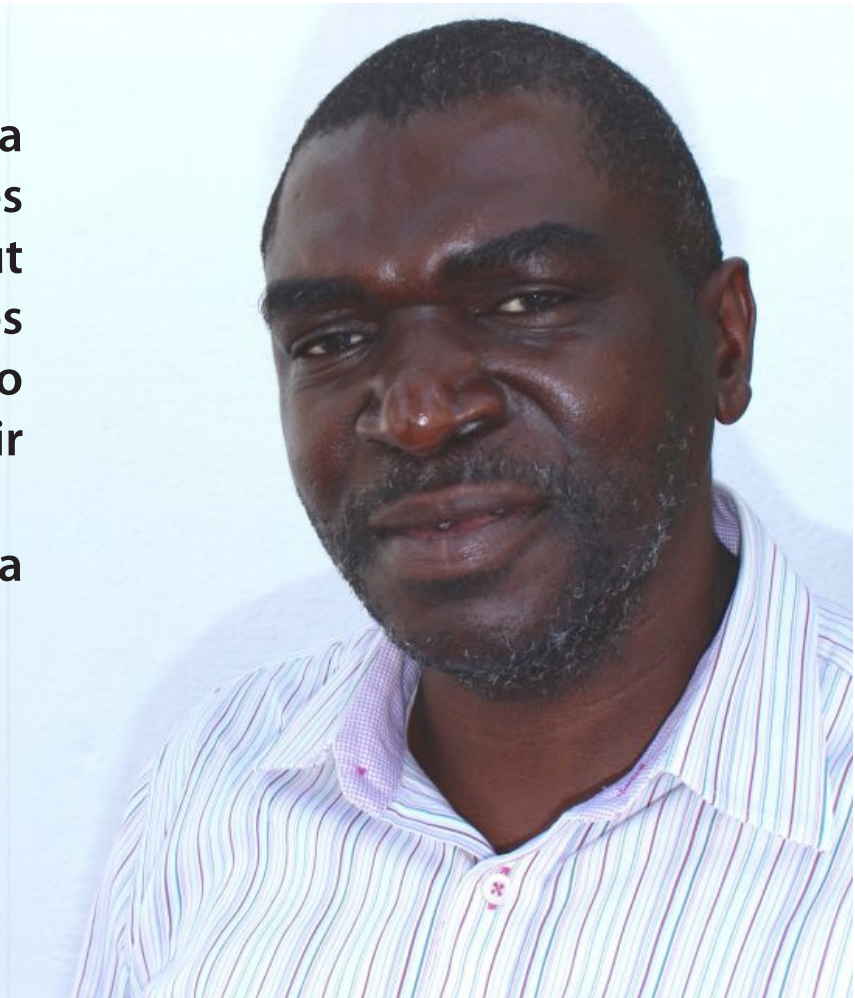
‘We are launching coal plants all the time and we are castigated’, said Vardhan. ‘What they don’t tell you is that we are closing dirty generators even faster and replacing them with new, clean technology’.

Vardhan is a medical doctor, and understands pollution, but says that India still has to use coal, but will use modern technology to burn it cleanly.

This is part of our shift to clean energy, in line with our goals of lowering emissions under the Paris Accord. And cleaner coal is being researched all the time in our labs. In short, we shut down dirty, inefficient power stations and open new projects with clean coal.

**Aid groups come to Africa and give out solar lamps the size of a pumpkin but no one in London or Los Angeles would be willing to make do with that as their only source of electricity.**

**Dr Jacob Masiala**



And he warns against foreign interference: 'These decisions have to be taken by us', he says. 'There are people far away, with good, even noble ideas, but they are not on the ground, living with our problems.'

This has not stopped environmentalists attacking the countries that want to move to clean coal. One of Falcon's colleagues, Dr Samson Bada, is originally from Nigeria and, like Falcon, believes clean coal is the future. India, he says, has set an example for the world. He is therefore bewildered by criticism of its use of fossil fuels.

I am so tired of being lectured by people in rich countries who have never lived a day without electricity. Maybe they should go home and turn off their fridge, geyser, their laptops and lights. Then live like that for a month and tell us, who have suffered for years, not to burn coal.

And western environmentalists' enthusiasm for renewables is not always shared. Dr Jacob Masiala is Zimbabwean and took his doctorate under Falcon. Africans, he says, need the same level of energy as the developed world if the problem of emigration and militia is to be stopped. 'Aid groups come to Africa and give out solar lamps the size of a pumpkin', he says. 'But no one in London or Los Angeles would be willing to make do with that as their only source of electricity...Don't tell me that China, Russia and the West should have electricity and black people in Mali or Mozambique should live in huts with light from a solar toy. We need power for factories and to run schools and hospitals.'

Dr Bada, on the other hand, thinks that wind and solar do have a future, but he also says the technology is not yet ready to drive the industrialisation of the continent. 'Solar doesn't work at night, and turbines stand idle when the wind doesn't blow', he says. 'How do you run an operating theatre with that? How do you power a city, a school, the lift in a gold mine taking workers more than a mile underground? There has to be a baseload power supply and this can be complemented with solar...The industrial revolution and the growth of China and India has all been powered by coal.'

Bada says that for Africans, electricity is an ethical issue. 'Tanzania, for example, has around 70% of its people still short of electricity while it sits on four billion tons of coal', he says, 'and still we hear activists from wealthy countries chanting, "Leave it in the ground".'

All that is holding up a wholesale change to clean coal is a lack of funding and political will. But he warns that 'For every day that we live with the status quo, people are forced to breathe dirty air. That is tantamount to a crime against humanity if we have the science but do nothing.'

## **The light fantastic**

Writing this paper has saddened me. As an African, I knew there was a problem, but not the extent to which it holds the continent

and its people in poverty. Yes, I walk past generators in the street in Kampala, Abuja, or Lusaka, but then I fly to London or Johannesburg and it's easy to forget those who live 24/7 without something we take for granted.

Life for Africans is getting better. But not fast enough. In September 2019, there were riots in Johannesburg as locals beat up migrants from the rest of Africa. Across much of the continent, South Africa is seen as a place of plenty. Compared with what some of the newcomers have at home, anywhere with lights and running water is a step up, but where does that leave the millions of unemployed in Cape Town, Durban and Johannesburg who feel their jobs are being taken by foreigners?

Barry Worthington has spent a lifetime in the power business. His current role as executive director at the US Energy Association in Washington has allowed him to engage with similar organizations across the world, including Africa.

'For too long, aid has been about trying to fix a broken arm with aspirin,' he told me. 'Aid groups spend on water, schools and hospitals but rarely on the key problem, which is access to electricity. Until you get that right, the other things will alleviate misery, but they don't give people a chance to move permanently out of poverty.' He says even a short outage in America proved the point.

Your water goes off and you might phone the authorities, or you just sit it out for a few hours. The council forgets your bin one week and that makes you mad but you get by. But when the power goes off, people feel it immediately. You can't work, there's no TV, you might not be able to cook and your safety may be at risk if it happens at night.

Now, imagine that outage lasting a lifetime.

I asked him about Rick Perry's idea that a lack of electricity was a factor in the war on terror.

Absolutely. And it's so hard to understand why the World Bank, which is there to alleviate poverty, won't fund projects using clean coal.

Worthington supports a move to renewable energy, but says it has to be in tune with local needs.

In eastern Europe, especially Ukraine where I've spent a lot of time, you can't heat a city with anything but baseload power when it's -40°C outside. And you also can't have a shutdown at the generator. At those temperatures, hypothermia sets in and people will die. For now, the only option is coal and gas.

Africa, he says, is different. 'There are cold winters in some regions, but not like Europe or America'. But he compares living without electricity for years to an endless winter. 'People lose hope. There's no work, no way out, but they hear there's a better world somewhere else. And so they move'. Who wouldn't do the same, he wonders. This, he points out, is why the world cannot ignore more than half a billion people in Africa who don't have electricity.

George David Banks served as energy advisor to President Donald Trump and is now a research fellow at Columbia University. He believes the US was wrong to withdraw from the Paris Accord on climate change and, like Barry Worthington, he sees a vital role for renewables.

'I really don't care how you get the lights on in Africa, I just know we have to do it soon or there's going to be a catastrophe,' he says. 'Put solar panels in the Sahara, build wind farms off Mombasa, use the gas from Mozambique and clean coal in Tanzania. But remember, once you give people electricity, you can't take it away or there'll be chaos. So we must do it in a way that is cheap and reliable.'

He thinks that African governments had an 'absolute right' to use their own resources, but they should also work to achieve the goals of the Paris deal. 'Cutting down a forest for firewood or burning coal in a way that pollutes the air is not the best,' he says. 'Get baseload power. That means you need to start with gas or coal, but do it cleanly. The technology is there. Run cables so that every home and factory has power and you can then build an economy.' And he thinks wind and solar can be used as a top-up.

Morocco has done great work on solar, and the whole science of how we generate power is changing. Renewables are getting better, batteries are storing more power, it's all much cheaper than before and we have clean coal for baseload. Now we need political will, and aid money that doesn't get diverted to some other cause.

## **Conclusion**

For those of us who lived through the 1960s, 70s and 80s, with coups and tyrannies across Africa, things are so much better now, and freedom is on the march across the continent. But looking down at night from a plane, there's still that problem you can see on the cover of this essay: spots of light and mile after mile of darkness.

Not long ago, Africans spoke of power coming from 'the barrel of a gun'. Now we need it to come from the arms of a pylon. Lights for all. Fantastic? Not really. Go back a generation and much of Latin America was the same but they're now close to full connectivity. China too.

But until it happens, those with nowhere else to turn will be drawn to the dark side.

## Appendix: Singing the spirits back of beyond

Originally published in *The Sunday Standard* – Harare, 24 December 2000

Last week I was invited to a *nyaradzo* in a rural area about 40 kilometres bush-side of Murewa, the *kumusha* or tribal home of one of my colleagues, Alexander Chitsomba. Call it what you like, it was back of beyond! It was almost full moon, like daytime without the colours. Huts stood in silhouette and, behind them, cattle moved in their pen, disturbed perhaps by dogs determined to add their voices to the night. And a night of voice it was!

'Zander said you were coming', Maria and Rudoh – daughters of Erica, his father's second

wife – told me when we arrived, 'but no-one here believed a white man would come *kumusha*', and they gave me tea and bread and a bowl of warm water to wash my hands.

Christine Chitsomba had died of meningitis a year earlier and everyone from miles around came to the funeral. She was one of seven siblings, five of whom have died over the past decade. Zander (for short) and his brother, Stewart, are the last in the family and, in Shona culture, fathers to all their nephews and nieces.

In a large hut, the women had started beating drums after sundown, singing tirelessly as they sent Christine on her way. I went outside so I could appreciate the rise and fall of the harmonies, all so perfectly in tune. Have you ever heard a black person sing off key? The moon was so bright, I could see to the horizon across



lands we had walked that afternoon, calling at each hut to show the people that Zander was back from town and the *nyaradzo* was on. And I had been welcomed like a lost son, perhaps the first white person to tread these paths since Livingstone. The elderly arrived late and hobbled past me on walking sticks, and sub-chief Mangwende was given a chair by the fire where the men were sitting in a circle, drinking beer and discussing affairs of state. Different people told me about their problems: clinics without drugs, children out of school for lack of fees, no electricity, and rural bus fares so high their relations in town are lucky to make it home once or twice a year.

'Yes, it's painful', one of the mourners explained, 'but the government doesn't care. They've got maBenz – why should they worry if I can't buy a ticket for the bus'. And, they spoke of good things, like cattle and rain. Together we ate sadza<sup>6</sup> and relish and drank beer, though I stuck to the bottled variety because traditional plonk gives me the runs.

There is no word in Shona for cousins (regarded as brothers and sisters) and Alexander's had come from all over the country. Others couldn't make it and this too was discussed. For many, the cost of transport makes it impossible to attend funerals or *nyaradzozos* and I was told how this weighs on the hearts of rural and urban folk. In English we refer to midnight as the 'bewitching hour'. In Shona it's called *madzimbawe* or *nguvai dze mhondoro* (time of the ghost) and comes around 2am, well past the hour when I would have turfed the visitors out of my home.

'Go to bed?' said Zander when I asked the question and he laughed at the thought. 'This is the hour when the spirits are about and it is only now that the ceremony will happen in full'. And so it did. Everyone crowded into the hut and the drums went wild. 'Zander, Chengeta vana!' sang the mourners: 'Zander, (now head of the family), protect your children'.

I took a turn on the drums and I danced the slow rhythms of the mourners and, if the spirit of Christine was with us, she knew that many people loved and missed her and wished her

well in the next world.

The fanfare lasted until first light, then it seemed as if God had held up his hand and stopped the world. Nothing hurts your head like silence. Everyone left the hut and, as my ears adjusted to the quiet, I heard the birds singing and the plod of the cattle walking from their pen to graze. 'It's first light', said Zander, 'we must visit the grave'.

'We', I discovered, consisted Zander, his 16-year-old nephew, Tawengwa Dzambo, and myself, the two people who had not attended the funeral. An ancient man, Bhasvi, sawhira or best friend of the family, led the way and, when we reached Christine's mound, he spoke as though she could hear him, seeking her blessing before we approached.

Zander broke into tears. Buried, next to Christine, was his brother, Gibson. The rest of his family lie in the villages of their husbands and wives. His father, John, who died in 1978, has a grave near Gwebi because it was impossible to bring bodies home during the war. I'm an only child and both my parents are dead and I felt something of Zander's loneliness. But his was sharper for I have never known the closeness of a big family.

We returned to the village and said our farewells and, as I drove away and the huts grew small in my rear-view mirror, I was a more learned man than when I arrived.

In the past I have chastised workers for spending so much time and money on funerals and ceremonies for the dead. Yet, the parameters of their lives are set by the love and support of others. How can one not be there when so many friends have come to be with you in your time of sorrow? I hope that, when I die, someone, somewhere holds a *nyaradzo* for me. And maybe my spirit will stand in the moonlight outside the hut and hear the drums and the singing and see the people coming from miles around.

I have not yet seen into the next world, but I have come to understand this one a little better. Truly, Zimbabwe has a good soul and much of that goodness lives in the back-of-beyond.





## Notes

1. Department of Statistics, Pretoria.
2. Eight of the 30 highest capital cities are in Latin America (the conquistadors had the same idea), including La Paz in Bolivia, top of the list at 11,900 feet. Four are in Asia. Canberra, highest city in Australia, has an elevation of just 2100 feet.
3. The Chama Cha Mapinduzi or Party of the Revolution changed its name in 1977, but has been in power under different guises for almost 60 years.
4. Statistics Australia. Trends in migration. *The Guardian* 12 June 2018. Australia's immigration rate to fall again as work visa approvals drop.
5. At the end of this report, I've included the story I wrote for a weekly in Harare about my first *nyaradzo*. Suffice here to say that, given the choice, many Zimbabweans would rather be *kumusha*.
6. *Sadza* is a stiff porridge made from white maize and the staple diet for much of southern Africa.
7. Figures are from World Bank estimates for 2016 and apply to the whole country.

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The Global Warming Policy Foundation is an all-party and non-party think tank and a registered educational charity which, while openminded on the contested science of global warming, is deeply concerned about the costs and other implications of many of the policies currently being advocated.

Our main focus is to analyse global warming policies and their economic and other implications. Our aim is to provide the most robust and reliable economic analysis and advice. Above all we seek to inform the media, politicians and the public, in a newsworthy way, on the subject in general and on the misinformation to which they are all too frequently being subjected at the present time.

The key to the success of the GWPF is the trust and credibility that we have earned in the eyes of a growing number of policy makers, journalists and the interested public. The GWPF is funded overwhelmingly by voluntary donations from a number of private individuals and charitable trusts. In order to make clear its complete independence, it does not accept gifts from either energy companies or anyone with a significant interest in an energy company.

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