

# Privatisation of the Air turns Lethal: Carbon Trading as a Non-Solution to Climate Change

By Patrick Bond

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Dartmouth College (13-14 Nov)

The Brecht Forum, New York City (14 Nov, 7:30pm)

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York University Faculty of Environmental Studies (19 Nov, 12:30pm)

## Abstract

The passing of Durban environmentalist Sajida Khan in July 2007 reminds us of the life-and-death consequences of the climate justice struggle, even when conflict rises over a seemingly arcane topic, emissions trading. The trade is irrational and fundamentally unjust, and points to the way environmental reformers committed to the Kyoto Protocol process can do more harm than good, by installing a system of emissions reductions prone to structural corruption, which at the same time blocks genuine climate protection strategies. But the new market's failure is so obvious that a post-Kyoto coalition of global forces can and should now be built, with the alternative strategic orientation - following the Ecuadoran government's lead - of non-renewable resource preservation for the sake of the climate as well as victims of the resource curse: 'keep the oil in the soil', leave the fossil fuels in the ground.

(Patrick Bond is coeditor of the new book *Climate Change, Carbon Trading and Civil Society: Negative Returns on South African Investments*, published by Rozenberg of Amsterdam and University of KwaZulu-Natal Press. He directs the UKZN Centre for Civil Society in Durban. A version of this paper will be published in *Capitalism Nature Socialism* in December 2007.)

### Introduction: Carbon Trading Continues

The passing of Durban environmentalist Sajida Khan in July 2007 reminds us of the life-and-death consequences of the climate justice struggle, even when conflict rises over a seemingly arcane topic, emissions trading. The first CNS contribution on the issue, by Heidi Bachram in December 2004, showed how the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation schemes, as well as 'offset' programmes,

provide 'moral cover' for consumers of fossil fuels. The fundamental changes that are urgently necessary, if we are to achieve a more sustainable future, can then be ideologically redefined or dismissed altogether as pipe dreams. Furthermore, land is commandeered in the South for large-scale monoculture plantations which act as an occupying force in impoverished rural communities dependent on these lands for survival. The Kyoto Protocol allows industrialised countries access to a parcel of land roughly the size of one small Southern nation – or upwards of ten million hectares – every year for the generation of CDM carbon sink credits. Responsibility for over-consumptive lifestyles of those in richer nations is pushed onto the poor, as the South becomes a carbon dump for the industrialised world. On a local level, long-standing exploitative relationships and processes are being reinvigorated by emissions trading.<sup>1</sup>

Michael Dorsey followed earlier this year with a discursive analysis of expert and popular opinion related to climate science, focusing on the origins of the 'Durban Declaration' articulated in 2004 not far from the home of Khan, who provided dozens of the core signing group an inspiring example of local resistance to the new carbon market.<sup>2</sup> What became known as the 'Durban Group for Climate Justice' subsequently established one of the finest expert-knowledge networks in support of grassroots struggles across the Third World, with powerful voices from Indonesia, Thailand, India, South Africa, Brazil and Ecuador providing political guidance and unveiling CDM damage to allied researchers and campaigners in thinktanks and advocacy groups including the Cornerhouse, TransNational Institute's Carbon Trade Watch, the Institute for Policy Studies' Sustainable Economy and Energy Network, SinksWatch, Dartmouth University Environment Department, and the University of KwaZulu-Natal's Centre for Civil Society. The Durban Group's original sponsor, the Dag Hammarskjold Foundation of Uppsala, Sweden, published Larry Lohmann's monumental book *Carbon Trading* in late 2006, and within nine

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1. Heidi Bachram, "Climate Fraud and Carbon Colonialism: The New Trade in Greenhouse Gases," *Capitalism Nature Socialism*, 15, 4, 2004, pp.5-20.

2. Michael Dorsey, "Climate Knowledge and Power: Tales of Skeptic Tanks, Weather Gods and Sagas for Climate (In)Justice", *Capitalism Nature Socialism*, 18, 2, 2007, pp.7-21.

months had recorded more than 333 000 downloads and distributed over 10 000 hard copies. Booklets were prepared by Carbon Trade Watch with the titles as *The Carbon Neutral Myth: Offset Indulgences for your Climate Sins* (2007), *Hoodwinked in the Hothouse: The G8, Climate Change and Free-Market Environmentalism* (2005), *Where the Trees are a Desert: Stories from the Ground* (2004) and *Agrofuels – Towards a Reality Check in Nine Key Areas* (2007). Two other books - *Trouble in the Air: Global Warming and the Privatized Atmosphere* (2006) and *Climate Change, Carbon Trading and Civil Society: Negative Returns on South African Investments* (2007) edited by myself, Rehana Dada and Graham Erion – were published in South Africa and The Netherlands, and three specialist videos were made about Sajida Khan's struggle (all available on the DVD set *CCS Wired*), one by Dada which aired in 2006 on the SA Broadcasting Corporation's environmental show *50/50*.

South Africa remains one of the key sites of struggle against exploitative climate-related processes, and Khan lost her life battling the country's highest-profile CDM project, a methane-to-electricity conversion at a cancerous dump sited across the road from her lifelong home by a racist municipality during apartheid in 1980. Tragically, that dump – including an illegal medical waste incinerator - was cemented into place by the post-apartheid government instead of being decommissioned, as had been promised by the African National Congress during the country's first democratic elections in 1994. It gave Khan cancer twice, finally felling her in 2007, leaving her community without its most persistent advocate of dump closure, and leaving the world without one of the best-known campaigners for climate justice.

Khan's life, struggle and death are important in a changing global climate policy context, since 2005, which she contributed to with her no-holds barred critique of the CDM. Subsequent to Bachram's *CNS* article, there were some notable moments on the South African and global battlefields:

- February 16, 2005, Moscow: The Kyoto Protocol comes into force after Russian government ratification, thereby entrenching the nascent global emissions market into international law. *Washington Post* coverage that day leads from Durban:

Sajida Khan, who has fought for years to close an apartheid-era dumpsite that she says has sickened many people in her predominantly brown and black community outside Durban, South Africa, was dismayed to learn recently that she faces a surprising new obstacle: the Kyoto global warming treaty. Under the protocol's highly touted plan to encourage rich countries to invest in eco-friendly projects in poor nations, the site now stands to become a cash cow that generates income for South Africa while helping a

wealthy European nation meet its obligations under the pact. The project's sponsors at the World Bank call it a win-win situation; Khan calls it a disaster. She said her community's suffering is being prolonged so that a rich country will not have to make difficult cuts in greenhouse gas emissions at home. 'It is another form of colonialism,' she said.<sup>3</sup>

- June 21, 2005, Johannesburg: A mid-level manager at Sasol, one of South Africa's largest companies, admits its gas pipeline CDM project proposal lacks the key requirement of 'additionality' – i.e., the firm doing something (thanks to a lucrative incentive) that it would not have done anyway – thus unveiling the CDM as vulnerable to blatant scamming.<sup>4</sup>
- November 29, 2005, Montreal: Confirming that the US will not take its responsibilities to the rest of the world seriously, Harlan Watson, Washington's top negotiator to the Conference of Parties for the Kyoto Protocol, claims, 'With regard to what the United States is doing on climate change, the actions we have taken are next to none in the world' – hence leading Europeans to intensify their strategy of developing emissions markets.<sup>5</sup>
- April 20, 2006, New York: In advance of the G8 St. Petersburg meeting with its focus on energy, British finance minister Gordon Brown makes a strong pitch at the United Nations 'for a global carbon trading market as the best way to protect the endangered environment while spurring economic growth', reports Agence France Presse: 'Carbon saving can be a way of making money and increasing returns on investment. It makes economic opportunities of a climate-friendly energy policy real and tangible. Brown cites the European Emissions Trading Scheme – an EU policy to cut emissions across member states: the emissions plan could be matched by a similar plan to start a global market for collecting and trading carbon'.<sup>6</sup>
- April 30, 2006, London: The European Union's Emissions Trading market crashes thanks to the overallocation of pollution rights, and the carbon spot

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3. Shankar Vedantam, "Kyoto Credits System Aids the Rich, Some Say," *The Washington Post*, 12 March 2005.

4. Graham Erion, "Low Hanging Fruit Always Rots First", in Patrick Bond, Rehana Dada and Graham Erion (eds.), *Climate Change, Carbon Trading and Civil Society: Negative Returns on South African Investments* (Pietermaritzburg: UKZN Press, 2007), p.88.

5. British Broadcasting Corporation, "UN Summit Seeks Climate Solutions", 29 November 2005, <http://news.bbc.co.uk/1/hi/sci/tech/4476998.stm>.

6. Gordon Brown, "Speech by the Rt Hon Gordon Brown MP, Chancellor of the Exchequer, to United Nations Ambassadors, New York, 20th April 2006," [http://www.hm-treasury.gov.uk/newsroom\\_and\\_speeches/press/2006/press\\_31\\_06.cfm](http://www.hm-treasury.gov.uk/newsroom_and_speeches/press/2006/press_31_06.cfm)

market price loses over half its value in a single day, destroying many CDM projects earlier considered viable investments.

- July 3, 2006, Durban: After many years of community resistance and legal challenges, Durban Solid Waste revises their World Bank Prototype Carbon Fund application to capture landfill gas at local sites, dropping plans to incorporate the highly controversial Bisasar Road landfill. Khan's 90-page Environmental Impact Assessment critique was widely credited as having intimidated the World Bank away from the Bisasar site (the other two, much smaller landfills, were not located in the immediate vicinity of residential areas).
- September 11, 2006, Somerset West (Western Cape): Speaking to the UN Intergovernmental Panel on Climate Change, South African Minister of Environmental Affairs and Tourism Marthinus van Schalkwyk (formerly leader of the pro-apartheid National Party) rates CDM promotion second in his three priorities for the upcoming Nairobi Conference of Parties meeting (between more adaptation funding and tougher targets for Kyoto): 'The 17 CDM projects in the pipeline in Sub-Sahara Africa account for only 1,7 per cent of the total of 990 projects worldwide. To build faith in the carbon market and to ensure that everyone shares in its benefits, we must address the obstacles that African countries face'.<sup>7</sup>
- October 5, 2006, Monterrey: In the wake of the July 2006 G8 summit in St. Petersburg which ignored climate change, the group's energy ministers plus twelve other major polluters meet. Again there are no results, and as the BBC reports, hopes that the US Department of Energy would consider mandatory CO<sub>2</sub> caps for businesses were dashed because 'the White House Council on Environmental Quality (a hard-line group of advisers with close links to the US oil industry) have ruled that out.'<sup>8</sup> Russia does not bother attending.
- October 30, 2006, London: The British government releases *The Stern Review: The Economics of Climate Change*, which estimates climate change costs of 5–20% of global GDP at current warming rates. Stern calls for demand-reduction of emissions-intensive products, energy efficiency, avoiding deforestation and new low-carbon technology, and insists that carbon trading has a key role.

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7. Marthinus van Schalkwyk, "Speech by the Minister of Environmental Affairs and Tourism, Marthinus van Schalkwyk, on the occasion of the opening of the final lead authors meeting of Working Group 2 of the Intergovernmental Panel on Climate Change (IPCC)'s Fourth Assessment Report (AR4), Lord Charles Hotel, Somerset West," [www.info.gov.za/speeches/2006/06091112451001.htm](http://www.info.gov.za/speeches/2006/06091112451001.htm).

8. British Broadcasting Corporation, "US Continues to Resist Action At Climate Talks," 5 October 2006.

- 13 November 2006, New York: The Oxford American Dictionary announces the term 'carbon neutral' (first used in 1991) is the 'word of the year' for 2006, even though some offsets such as tree plantations cause enormous ecological damage and many other offsets are being unveiled as illegitimate.<sup>9</sup>
- 17 November, 2006, Nairobi: The twelfth United Nations climate change Conference of Parties (COP) ends. After eleven days of work there is still no timetable for post-Kyoto Protocol negotiations or reductions. Nairobi delegates and even many NGOs such as Oxfam adopt an uncritical perspective on carbon trading, and a new Adaptation Fund is established but with resources reliant upon CDM revenues. Activists from the Gaia Foundation, Global Forest Coalition, Global Justice Ecology Project, Large Scale Biofuels Action Group, the STOP GE Trees Campaign and World Rainforest Movement condemn the COP's move to biofuels and GE timber technology which are being promoted through the CDM.<sup>10</sup>
- 24 November, 2006, Pretoria: The largest industrial subsidies in African history are confirmed at the Coega export processing zone near Port Elizabeth. Alcan will build a \$2.7 billion aluminium smelter thanks to vast electricity discounts from Eskom. The following week, University of Cape Town's environmental studies professor Richard Fuggle attacks the CO<sub>2</sub> emissions associated with the Coega deal in his retirement speech, describing van Schalkwyk as a 'political lightweight' who is 'unable to press for environmental considerations to take precedence of "development"'.<sup>11</sup>
- 6 December, 2006, Pretoria and Canberra: Van Schalkwyk and his Australian counterpart, Ian Campbell from the conservative Howard government sign a cooperation agreement to 'identify, develop and implement a program of joint activities designed to deliver practical outcomes of mutual benefit' – which has the effect of lining South Africa up as an ally with one of the regimes most opposed to climate change action.<sup>12</sup>

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9. Oxford University Press, "Carbon Neutral: Oxford Word of the Year," 13 November 2006, [http://blog.oup.com/2006/11/carbon\\_neutral/](http://blog.oup.com/2006/11/carbon_neutral/).

10. Marthinus van Schalkwyk, "Statement by Marthinus van Schalkwyk, Minister of Environmental Affairs and Tourism, following the Conclusion of the United Nations Framework Convention on Climate Change (UNFCCC) COP12 and Kyoto (Conference of the Parties) COP/ Meeting of the Parties (MOP2) in Nairobi, Kenya," 19 November 2006, [www.info.gov.za/speeches/2006/06111916151001.htm](http://www.info.gov.za/speeches/2006/06111916151001.htm).

11. *Cape Times*, "Top Academic Slams SA Environmental Policies," 4 December 2006.

12. Marthinus van Schalkwyk, "Statement by the office of the Minister of Environmental Affairs and Tourism, Marthinus van Schalkwyk," 6 December 2006, <http://www.info.gov.za/speeches/2006/06120713451001.htm>.

- 15 December, 2006, Washington, DC: The World Bank (2006) proudly announces that, aided by its Prototype Carbon Fund, the carbon trading market 'rose from about 13 million tons of CO<sub>2</sub>-equivalent in 2001 to 704 million tons in 2005, when its value totalled \$11 billion. The value of the market continues to rise – it was \$7.5 billion in the first quarter of 2006 alone.'<sup>13</sup>
- 27 January, 2007, London: *The Independent* newspaper reports the Blair government's failure to fund the G8's allegedly 'carbon neutral' summit in Gleneagles (in July 2005) through a grant to the first United Nations gold standard project, the Kuyasa energy-efficient house retrofitting scheme in Khayelitsha township, Cape Town. According to the newspaper:

Two years on, Britain's £100 000 remains in the Treasury while the Kuyasa project struggles to get off the ground. 'It was very nice politically for the British Government to say "We've done this", but they haven't actually done anything yet,' said Stefan Raubenheimer, chief executive of South South North, a development agency involved in the project. 'They were seduced by the political kudos'.

The merits of carbon offsetting are increasingly being questioned by environmental experts. Critics argue governments, companies, even individuals, can pay for someone else to reduce their carbon emissions while doing nothing to cut their own carbon footprint. But as the problems faced by the Kuyasa project have now proved, it is not as straightforward as it may appear.

The British Government has frequently highlighted the 'carbon neutral' G8 summit as an example of its commitment to tackling climate change. But the truth is very different. 'In their drive to prove they had held a "carbon neutral" event they ignored the reality,' said Mr Raubenheimer.<sup>14</sup>

- 9 March, 2007, London: *New Scientist* offered a critical report on 'one of the fastest-growing businesses in the world: the sale of promises to remove carbon dioxide from the atmosphere, often at bargain-basement prices, by planting forests or investing in renewable-energy projects. Some see carbon offsetting as the ultimate guilt-free solution to global warming, but *New Scientist* has

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13. World Bank, *Global Economic Prospects: Managing the Environmental Risks to Growth*, Washington, 15 December 2006, [www-wds.worldbank.org/.../IW3P/IB/2006/12/06/000112742\\_20061206155022/additional/GEP\\_141-166.pdf](http://www-wds.worldbank.org/.../IW3P/IB/2006/12/06/000112742_20061206155022/additional/GEP_141-166.pdf)

14. Steve Bloomfield, "Why Britain's G8 carbon offsetting pledge rings hollow in Cape Town," *Independent*, 27 January 2007.

found that this market in environmental absolutism is remarkably unregulated and secretive, which leaves it open to deception and fraud.<sup>15</sup>

- 14 March, 2007, Pretoria: Van Schalkwyk issues the government's 'climate change roadmap' based upon the need to make 'mitigation policies and measures part of a pro-development and growth strategy', yet the essence of the roadmap is business as usual: 'Rather than viewing action on climate change as a burden, the message is that action on climate change also holds myriad opportunities for new investment in climate friendly technologies, creating access to cleaner energy for development and building new competitive advantages in clean and renewable technologies'. Moreover, in listing cooperating state agencies, van Schalkwyk fails to even mention the two most responsible for the South African economy's world leadership in CO<sub>2</sub> emissions: the Department of Trade and Industry and the Treasury.<sup>16</sup>
- 16 March, 2007, Johannesburg: In a *Mail & Guardian* interview, Nicholas Stern not only observes, usefully, that 'South Africa's over-reliance on coal' requires 'innovative ways to reduce the heavy carbon footprint' and that 'climate change would be an economic disaster for SA', but, less convincingly, that carbon capture technology is one solution and that Van Schalkwyk represents 'an important figure in global discussions on climate change and SA had the potential to bring opposing factions such as China and the US together'.<sup>17</sup>
- 19 March, 2007, Durban: The World Bank and Durban city officials announce that funding is now available through the Bank's Prototype Carbon Fund for 'methane-rich landfill gas from two landfill sites (not Bissasar Road) to provide fuel for the production of 1,5 MW of electricity... Moreover, in accordance with the Kyoto Protocol, the project offers much sustainable development advantages providing air quality betterment, social benefit and economical gains', including 'bursary schemes to engineering students, jobs at a highly technical level to general workers, a significant technology injection and business growth potential.' Other partners include the French Development Bank and SA Department of Trade and Industry.<sup>18</sup>

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15. Fred Pearce, "Look No Carbon Footprint!," *New Scientist*, 9 March 2007, [http://www.science.org.au/nova/newscientist/054ns\\_001.htm](http://www.science.org.au/nova/newscientist/054ns_001.htm).

16. Marthinus van Schalkwyk, "Minister of Environmental Affairs and Tourism M van Schalkwyk spells out SA's "Climate Roadmap" for 2007 and beyond," Pretoria, 14 March 2007, <http://www.info.gov.za/speeches/2007/07031415451001.htm>.

17. Yolandi Groenewald, "SA will Solve Climate Change," *Mail & Guardian*, 16 March 2007.

18. Matthew Hill, "World Bank, eThekweni Launch Landmark Clean-Power Project", *Engineering News*, 20 March 2007.



- 26 March 2007, New York: Reporting on carbon trading, *Business Week* observes that ‘some deals amount to little more than feel-good hype. When traced to their source, these dubious offsets often encourage climate protection that would have happened regardless of the buying and selling of paper certificates. One danger of largely symbolic deals is that they may divert attention and resources from more expensive and effective measures.’<sup>19</sup>
- 3 April, 2007, London: *The Independent* reveals that ‘Europe’s big polluters pumped more climate-changing gases into the atmosphere in 2006 than during the previous year, according to figures that show the EU’s carbon trading system failing to deliver curbs.’<sup>20</sup>
- 26 April, 2007, London: After an exhaustive series on problems associated with carbon trading and offsets, *The Financial Times* editorialises in favour of taxes, against trading:

Creating markets for carbon has political advantages. They are easy to sign into law and even easier to execute. Instead of the optimal method of auctioning permits, governments have given them away. It is no wonder that energy producers are keen to participate in these schemes. While short-term politics favour markets, taxes would be better in the long term, because industry needs certainty for investments years hence. A government committing to painful taxes signals the seriousness of its intentions. Carbon taxes, offset by cuts in other taxes, are more difficult to eliminate than artificial markets. Carbon markets have other problems. Above all, they fix the amount of carbon abated, not its price. Getting the amount of emissions a little bit wrong in any year would hardly upset the global climate. But excessive volatility or unduly high prices of quotas on carbon emissions might disrupt the economy severely. Taxes create needed certainty about prices, while markets in emission quotas create unnecessary certainty about the short-term quantity of emissions.<sup>21</sup>

- 20 June 2007, London: *New Scientist* commissions a US public opinion poll on how to solve the climate crisis, finding ‘clearly that policies to combat global warming can command majority public support in the US, as long as they don’t hit people’s pockets too hard. Americans turn out to be suspicious of policies that use market forces to help bring down emissions, and are much

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19. Ben Elgin, “Another Inconvenient Truth: Behind the Feel-Good Hype of Carbon Offsets, Some of the Deals don’t Deliver,” *Business Week*, 26 March 2007.

20. Stephen Castle, “EU Carbon Trading Scheme Failing to Curb Emissions from Big Polluters,” *The Independent*, 3 April 2007.

21. *Financial Times*, “CO2 needs a Price but Taxes are the Best Way to Get It,” 26 April 2007.

more likely to support prescriptive regulations that tell companies exactly how they must achieve cuts.’<sup>22</sup>

- 15 July 2007, Durban: Sajida Khan, aged 55, dies after chemotherapy fails to arrest her cancer.

### **Sajida Khan**

Sajida Khan, aged 55, died at home of cancer caused – she was convinced – by Durban’s largest dump. A large number of her neighbours also succumbed to cancers, she documented. As the research director of the Cancer Association of SA once remarked, ‘Clare Estate residents are like animals involved in a biological experiment.’

Passionate to a fault, Khan was self-taught and supremely confident when testifying about chemical pollution and the economics of solid waste. She earned a bachelors degree in microbiology at the former University of Durban-Westville, began work at Unilever, and soon invented a freeze-dried food formula that was patented. But she deregistered the patent so as to make it more accessible for low-income people across the world.

Khan became an activist in the early 1990s, because, as she observed, ‘As early as 1987 the city promised to close this dump site and in its place give us all these sports fields. And they broke that promise to us. And again, for the 1994 election, the political parties also promised to close the dump, decommission it, and relocate the Clare Estate dump site. Again they broke that promise to us. Before the permit was granted, they should have created a buffer zone of 800 meters minimum to protect the people and that wasn’t done.’

Khan was renowned for her hospitality, and visiting environmentalists made a pilgrimage to Bisasar Road, ranking it high amongst Durban’s numerous ‘toxic tour’ sites. Inside were her generosity, fine refreshments and doctoral-level lectures in plant ecology and public health. Outside, a few dozen meters away, was Africa’s first pilot project in carbon trading, in which methane from rotting trash will be extracted and the greenhouse gas reduction credits sold to Northern investors, in a plan initially endorsed by the World Bank. It is an innovation that municipal officials brag about - but that also stalled the dump’s closure.

After Khan filed an Environmental Impact Assessment challenge, the Bank backed off, a victory that helped raised the profile of numerous other carbon offset problems (although the Bank funded two similar but much smaller landfill projects in Durban in mid 2007).

An international network against carbon trading, the Durban Group for

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22. Peter Aldhous, “Exclusive Global Warming Poll: The Buck Stops Here,” *New Scientist*, 20 June 2007.

Climate Justice, was founded in 2004 in part because of her charisma. According to Javier Baltodano and Isaac Rojas of Friends of the Earth-Costa Rica, 'Sajida introduced us to how carbon credits were used to justify the dump in the middle of a neighbourhood. She showed us her strong willingness to resist over the sickness, the dump and the racism.'

Says Durban environmentalist Muna Lakhani, 'We have lost a sister, a stalwart, a spirit that I have known well for over 30 years. I miss her, but am glad that her suffering is over. Please can we choose to live our lives just a little bit in her memory, so that our consumption of our planet's resources does not lead to more Sajidas?'

Khan is survived by her mother Kathija and siblings Hanifa, Zainuladevien, Rafique and Akram.

### Why Carbon Trading is Contested

These moments add up to something very important indeed, requiring political-economic contextualization of the process we can term the 'privatisation of the air'. According to Daniel Becker of the Sierra Club's Global Warming and Energy Program, 'It's sort of the moral equivalent of hiring a domestic. We will pay you to clean our mess. For a long time here in America we have believed in the polluter pays principle. This could become a pay to pollute principle'.<sup>23</sup> But low wages and awful conditions faced by South African domestic workers reflect an historical legacy of injustice, apartheid, subsequently cemented by market-oriented labour relations – in a post-1994 context in which reparations have been rejected by the corporate-friendly African National Congress government, and the unemployment rate doubled. Reminiscent of the way apartheid represented a gift to white people, according to Larry Lohmann, 'The distribution of carbon allowances (a prerequisite for trading) to the biggest polluters presupposes one of the largest and most regressive schemes for creating property rights in history'.<sup>24</sup> Existing polluters have a huge advantage in the trade, as they are gifted what may be worth, if the market develops as planned, hundreds of billions of dollars of 'rights to pollute'.

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23. M Bustillo, "Developing Countries to Seek Pay for Preservation of Forests", *Los Angeles Times*, 28 November 2005.

24. Larry Lohmann (Ed), *Carbon Trading: A Critical Conversation on Climate Change, Privatisation and Power*, special issue of *Development Dialogue*, 48, September 2006.

The overall logic that South African president Thabo Mbeki calls 'global apartheid'<sup>25</sup> is hence reinforced by carbon trading based on historical allocations of pollution rights. To borrow Becker's metaphor, this occurs in the same way that pre-existing wage and social relations – evident especially in inexpensive domestic labour – are cemented by strengthened property rights in contemporary South Africa, in the wake of what the UN rightly termed a crime against humanity. The new carbon colonialism is thus a classical form of the North-South power relations entailing capitalist-noncapitalist superexploitation in the manner Rosa Luxemburg described imperialism,<sup>26</sup> updated by David Harvey as 'accumulation by dispossession'.<sup>27</sup> In South African parlance, it is what Harold Wolpe termed 'articulation of modes of production': this time not between white-owned businesses and an inexpensively produced black labour pool, but between the world capitalist economy and the environment, in which the reproduction of the former requires a subservient and partially-commodified role for the latter.<sup>28</sup>

It was under then US vice president Al Gore's guidance in 1997 that Kyoto Protocol designers created – from thin air - a carbon market and gave countries a minimal reduction target (5 per cent from 1990 emissions levels, to be achieved by 2012). They can either meet that target through their own reductions or by purchasing emissions credits from countries/firms that reduce their own greenhouse gasses beyond their target level. Carbon trading has become a central response of the international community to the climate crisis, both in the form of emissions trading and in the form of trading in carbon credits.<sup>29</sup>

According to Lohmann,

There is a critical distinction between pure emissions trading (for example, sulphur dioxide trading in the US, or the European Union's Emissions Trading System minus the linking directive, or the Kyoto Protocol not including Joint Implementation and the Clean Development Mechanism) on the one hand, and on the other, and trading in credits from projects (the CDM, World Bank Prototype Carbon Fund, Carbon Neutral Company, etc.). Kyoto, the World Bank, and private corporations are constantly seeking to blur this distinction and tell us that by investing in windmills or

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25. For a discussion see Patrick Bond, *Against Global Apartheid: South Africa Meets the IMF, World Bank and International Finance* (London: Zed Books and Pietermaritzburg: University of KwaZulu-Natal Press, 2003).

26. Rosa Luxemburg, *The Accumulation of Capital* (New York: Monthly Review Press, 1968).

27. David Harvey, *The New Imperialism* (Oxford and New York: Oxford University Press, 2003).

28. Harold Wolpe, "Capitalism and Cheap Labour-Power in South Africa: From Segregation to Apartheid." *Economy and Society*, Vol. 1, No. 4, 1972, pp. 425-56.

29. For the full text of the Kyoto Protocol see: [www.unfccc.int](http://www.unfccc.int)

light bulbs they are 'making emissions reductions' or doing something that is equivalent to emissions trading. It's not equivalent.<sup>30</sup>

This market does not lack for controversy, particularly because fatuous carbon offset public relations fibs have persuaded politicians and celebrities that they can make their global conferences, rock concerts and other extravaganzas 'carbon neutral'. *Guardian* columnist George Monbiot considered a *Nature* report on worsening global warming attributable to increased methane emissions from plants, which were formerly thought to be solely a 'sink' for CO<sub>2</sub> emissions:

It should shake our confidence in one of our favourite means of tackling [climate change]: paying other people to clear up the mess we've made. Both through the unofficial carbon market and by means of a provision of the Kyoto Protocol called the Clean Development Mechanism, people, companies and states can claim to reduce their emissions by investing in carbon-friendly projects in poorer countries. Among other schemes, you can earn carbon credits by paying people to plant trees. As the trees grow, they are supposed to absorb the carbon we release by burning fossil fuels.

Despite the new findings, it still seems fair to say that forests are a net carbon sink, taking in more greenhouse gases than they release. If they are felled, the carbon in both the trees and the soil they grow on is likely to enter the atmosphere. So preserving them remains a good idea, for this and other reasons. But what the new study provides is yet more evidence that the accountancy behind many of the 'carbon offset' schemes is flawed.

While they have a pretty good idea of how much carbon our factories and planes and cars are releasing, scientists are much less certain about the amount of carbon tree planting will absorb. When you drain or clear the soil to plant trees, for example, you are likely to release some carbon, but it is hard to tell how much. Planting trees in one place might stunt trees elsewhere, as they could dry up a river which was feeding a forest downstream. Or by protecting your forest against loggers, you might be driving them into another forest.

As global temperatures rise, trees in many places will begin to die back, releasing the carbon they contain. Forest fires could wipe them out completely. The timing is also critical: emissions saved today are far more valuable, in terms of reducing climate change, than emissions saved in ten years' time, yet the trees you plant start absorbing carbon long after your factories released it. All this made the figures speculative, but the new findings, with their massive uncertainty range (plants, the researchers say, produce somewhere between ten and thirty per cent of the planet's methane) make an honest sum impossible.

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30. Lohmann, *op cit.*

In other words, you cannot reasonably claim to have swapped the carbon stored in oil or coal for carbon absorbed by trees. Mineral carbon, while it remains in the ground, is stable and quantifiable. Biological carbon is labile and uncertain.

To add to the confusion, in order to show that you are really reducing atmospheric carbon by planting or protecting a forest, you must demonstrate that if you hadn't done it something else would have happened. Not only is this very difficult, it is also an invitation for a country or a company to threaten an increase in emissions. It can then present the alternative (doing what it would have done anyway) as an improvement on its destructive plans, and claim the difference as a carbon reduction . . .

But perhaps the most destructive effect of the carbon offset trade is that it allows us to believe we can carry on polluting. The government can keep building roads and airports and we can keep flying to Thailand for our holidays, as long as we purchase absolution by giving a few quid to a tree planting company. How do you quantify complacency? <sup>31</sup>

In economic terms, would this system work as designed, regardless of its ethical and ecological shortcomings? There are very serious theoretical problems with the carbon market, which economists would recognise if they give it serious thought. As Gar Lipow explains,

Neither emissions trading nor green taxes are the most efficient way to reduce carbon emissions, compared to an alternative combination of regulations, public works, and secondarily green taxes in the form of a green capital tax. Both emissions trading and green taxes are an inefficient way of reducing carbon emissions because they are largely driven by fossil fuel consumption and fossil fuel demand is extremely *price inelastic* [no matter how high the price goes, you are dependent and will find it hard to cut consumption].

In the short run, some savings may be achieved by simple behaviour changes. But past a certain point you are giving up the ability to heat your home, get to work and in general experience other things vital to a decent life – so in the face of higher energy prices you will give up something else and simply pay for more energy.

In the longer run, better capital investments can reduce such consumption without giving up vital things. But a combination of unequal access to capital, split incentives (where the person who makes the investment is not the one who would obtain the savings), transaction costs

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31. George Monbiot, "The Trade in 'Carbon Offsets; is Based on Bogus Accounting,'" *The Guardian*, 17 January 2006.

of energy savings vs. other investments, and other factors mean capital investment does not occur as you would expect in the face of rising energy prices.<sup>32</sup>

### South Africa's Contribution to Climate Change

South Africa is, we will observe, one of the most important sites to question both the internal logic and the practical implications of carbon trading. For context, however, it is also useful to briefly review the main reasons the trade has arrived: to take advantage of vast CO<sub>2</sub> and other greenhouse gas emissions *that resulted from apartheid's superexploitative resource strategy*. The location of Africa's largest rubbish dump within a black residential community is just one facet of that strategy.

Until her death, Sajida Khan lived in a country with a vast responsibility for the world's overdose of greenhouse gases. The economy inherited from apartheid was utterly addicted to fossil fuel, and the post-apartheid government made the situation *much worse*. South Africa is not included in the Kyoto Protocol Annex 1 list of countries that should make emissions reductions, and hence the economy as a whole is not subject to targets at this stage. But it will be in future, and looking ahead, South African officials and corporations – and officials, corporations and uncritical NGOs – are promoting the CDM as a way to continue hedonistic output of greenhouse gases, and earn profits in the process. Pretoria's own climate change strategy argues that the 'CDM primarily presents a range of commercial opportunities' and indeed 'could be a very important source of foreign direct investment'.<sup>33</sup>

But is such 'investment' deserved, if it rewards South African industry's vast contribution to global warming? Mark Jury has gathered the following damning facts about South Africa's *debt* to the planet:

- South Africa contributes 1.8 per cent of total Greenhouse Gases, making it one of the top contributing countries in the world;
- the energy sector is responsible for 87 per cent of carbon dioxide (CO<sub>2</sub>), 96 per cent of sulphur dioxide (SO<sub>2</sub>) and 94 per cent of nitrous oxide emissions;
- 90 per cent of energy is generated from the combustion of coal that contains greater than 1 per cent sulphur and greater than 30 per cent ash;

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32. Gar Lipow, "Carbon Trading," PEN-L listserve post, 19 January 2006.

33. Department of Environmental Affairs and Tourism, *National Climate Change Strategy*, Pretoria, October 2004.

- with a domestic economy powered by coal, South Africa has experienced a five-fold increase in CO<sub>2</sub> emissions since 1950;
- SA is signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and Montreal Protocol, yet CO<sub>2</sub> emissions increased 18 per cent between 1990 and 2000;
- South Africa has only recently enacted legally binding air pollution regulations via the National Environmental Management Air Quality Act, but energy efficiency is low;
- in rural areas of South Africa, approximately three million households burn fuel wood for their energy needs, causing deforestation, reduction of CO<sub>2</sub> sinks, and indoor health problems;
- the industrial sector consumes 2.6 quads of energy (57 per cent of total primary energy consumption) and emits 66.8 M T of carbon (65 per cent of total carbon emissions from fossil fuels), though industry's contribution to GDP is 29 per cent;
- since 1970, South Africa consistently has consumed the most energy and emitted the most carbon per dollar of GDP among major countries. South African energy intensity measured 33.5 K BTU per \$ unit, nearly at China's level;
- South Africa's carbon intensity is far higher than in most other countries due to its dependence on coal; and
- household and industrial energy consumption across the continent is predicted to increase by over 300 per cent in the next fifty years with significant growth in sulphur and nitrogen emissions.<sup>34</sup>

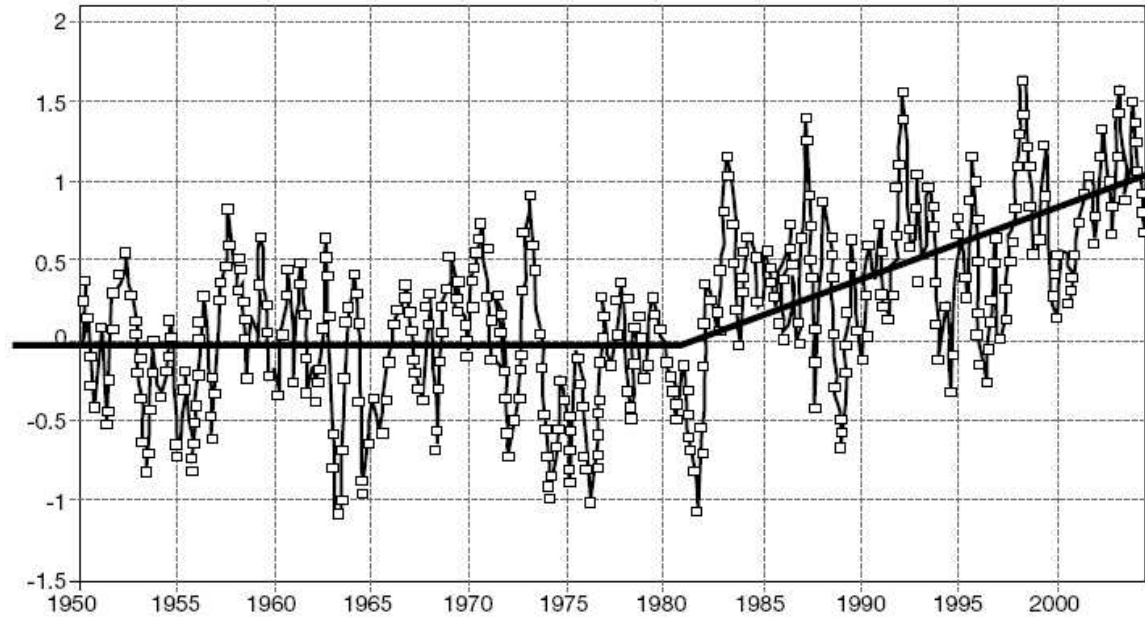
Coal is by far the biggest single South African contributor to global warming, representing between 80 and 95 per cent of CO<sub>2</sub> emissions since the 1950s. But liquid CO<sub>2</sub> emissions mainly from transport have risen to the level of more than 10 000 metric tonnes a year since the early 1990s. It is regrettable but true, just as in Eastern Europe (whose CO<sub>2</sub> emissions are well below 1990 levels), that the long recession of the early 1990s was the only point in South Africa's history since the early 1930s' economic crisis, that CO<sub>2</sub> emissions stabilised and dropped slightly. Needless to say, South Africa is by far the primary source of global warming in Africa, responsible for 42 per cent of the continent's CO<sub>2</sub> emissions, more than oil producers Egypt, Nigeria, Algeria and Libya put together.

### **Figure 1 Rise/fall in Southern African temperatures over historic norms**

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34. Mark Jury, "Presentation to the Durban Group for Climate Justice," Richards Bay, 9 October 2004.





Source: Mark Jury

Given the vast CO<sub>2</sub> emissions increases by South Africa especially during the 1980s-90s, added to similar increases in global greenhouse gas emissions, it is only logical to find an average 1 degree C increase in the region's temperature above historic norms. This is merely the surface-level statistical information about the climate change crisis, as it emerges. Much more could be said about the various other indicators, ranging from droughts/floods in South Africa and Africa.

As noted, the Kyoto Protocol came into effect in February 2005, but South Africa is not subject to emissions reduction targets at this stage. However, with targets likely to be set at some stage, some SA state officials, international financiers and local corporations – and even a few NGOs which should know better, mostly in the Climate Action Network – are promoting a gimmick, the Protocol's CDM, which substitutes investments in carbon-reducing projects for genuine emissions reductions.

For example, methane that escapes from the Bisasar Road dump in the Durban residential suburb of Clare Estate, should be captured, cleaned and safely turned into energy (no one disagrees). Durban officials instead aim to burn the methane on site, and in the process, will keep the cancerous dump open at least another seven years, and possibly twenty. The officials' goal is to sell carbon credits via the World Bank to big corporations and Northern governments.

Meanwhile, the economy's five-fold increase in CO<sub>2</sub> emissions since 1950 and 20 per cent increase during the 1990s, can largely be blamed upon the attempt by Eskom, the mining houses and metals smelters to brag of the world's cheapest electricity. Emitting twenty times the carbon tonnage per unit of economic output per person than even the United States, South African capital's reliance upon fossil fuels is scandalous. Not only are vast carbon-based profits fleeing to the mining houses' offshore financial headquarters in the UK and Australia. There are very few jobs in these smelters, including the proposed \$2.5 billion Coega aluminium project for which the Canadian firm Alcan was promised lucrative sweetheart deals from Eskom, the Department of Trade and Industry and the Industrial Development Corporation. Fewer than 1000 jobs will be created in the smelter, though it will consume more electricity than the nearby city of Port Elizabeth, South Africa's fifth largest.

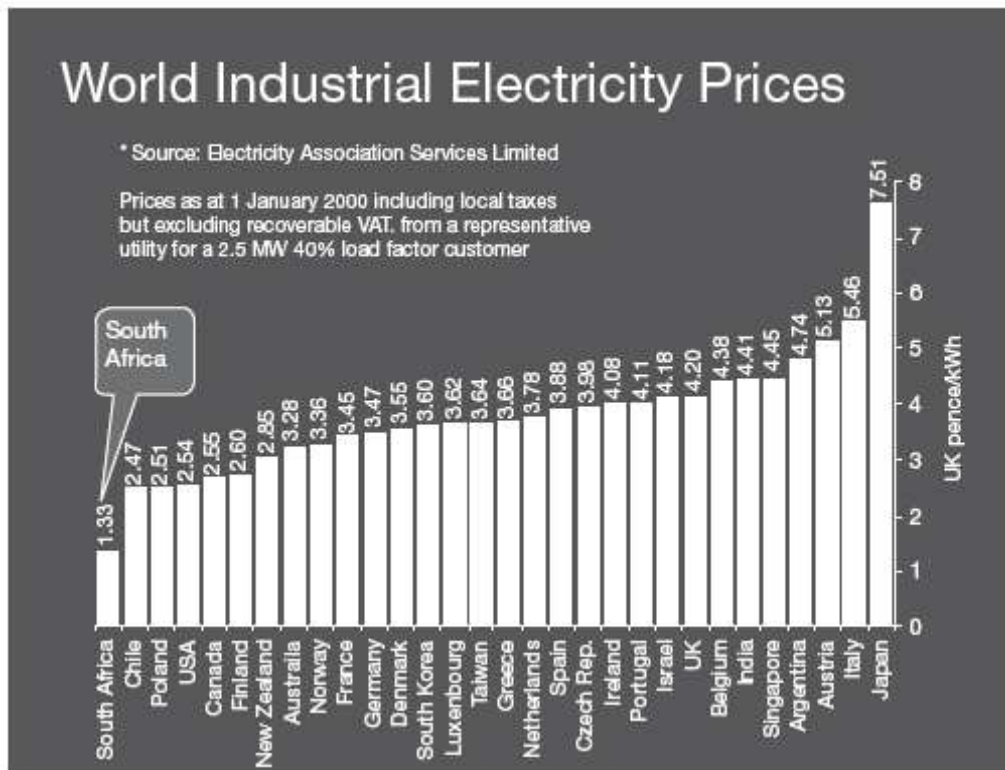
(Aside from carbon trading, the main answer to the climate question provided by public enterprises minister Alec Erwin is fast-tracking the dangerous, outmoded Pebble Bed Modular Reactor technology rejected by German nuclear producers some years ago. Renewable sources like wind, solar, wave, tidal and biomass are the only logical way forward for this century's energy system, but still get only a tiny pittance of government support, a fraction of the hundreds of millions of rands wasted in nuclear R&D.)

Meantime, because of alleged 'resource constraints', communities like Kennedy Road bordering Bisasar landfill – where impoverished people rely upon dump scavenging for income – are still denied basic services like electricity, leading to shack fires caused usually by paraffin spills. Unfortunately, a meeting of minds and strategies between these activists and Sajida Khan never materialised, as the former accused Khan of class/race privilege in seeking to rid the neighbourhood of their livelihood, the dump. Khan lobbied for an 800 meter buffer zone which would have stretched into part of the area occupied by the Kennedy Road shack settlement. While Kennedy Road activists were promised a few jobs and bursaries in the carbon trading proposal by city officials, the plan to burn the landfill's methane gas on-site could release a cocktail of new toxins into the already-poisoned air. Gas flaring would increase 15-fold under the scheme Durban has tried selling to the World Bank. The generator's filters would never entirely contain the aromatic hydrocarbons, nitrous oxides, volatile organic compounds, dioxins and furans. In all these respects, the potential for a 'red-green' fusion of interests between Kennedy Road and Khan's supporters was enormous, but too many divisions and other competing interests prevented a more holistic politics.

Meanwhile, to the discredit of the attendees, DEAT's October 2005 National Climate Change Conference did not engage seriously with the critiques of

Bisasar. The irony is that while generating enormous carbon emissions, energy is utilised in an extremely irrational way. The unjust system leaves too many without access, while a few large corporations benefit disproportionately, as we see below.

Figure 2 Comparative prices of electricity, 2000<sup>35</sup>



Source: Anton Eberhardt

### The Minerals-Energy Complex

Behind these problems is a simple cause: the centrality of cheap electricity to South Africa’s economy, which stems from the power needs of mines and heavy industry, especially in beneficiating metallic and mineral products through smelting. *The Political Economy of South Africa* by Ben Fine and Zav Rustomjee

35. Anton Eberhardt, “The Political, Economic, Institutional, and Legal Dimensions of Power Sector and Legal Dimensions of Power Sector Reform in South Africa,” Presentation, Graduate School of Business, University of Cape Town and National Electricity Regulator, 2002.

puts the parastatal into economic perspective.<sup>36</sup> Here we locate electricity at the heart of the economy's 'Minerals-Energy Complex' (MEC). Throughout the twentieth century, mining, petro-chemicals, metals and related activities which historically accounted for around a quarter of GDP typically consumed 40 per cent of all electricity, at the world's cheapest rates.

David McDonald updates and regionalises the concept a decade onwards in his edited book *Electric Capitalism*, finding an 'MEC-plus':

Mining is South Africa's largest industry in the primary economic sector and the country has the world's largest reserves of platinum-group metals (87.7% of world totals), manganese (80%), chromium (72.4%), gold (40.1%) and alumino-silicates (34.4%), as well as significant reserves of titanium, vanadium, zirconium, vermiculite, and fluorspar. South Africa also accounts for over 40% of the world's production of ferrochromium and vanadium and is the leading world producer of chrome ore and vermiculite... Outside of South Africa, there are major platinum group metal resources in Zimbabwe, a "world class repository" of copper-cobalt deposits and other ores in Zambia, major diamond deposits in Botswana, Angola and Namibia, possible uranium deposits in Malawi, nickel in Madagascar and gold in Tanzania... South Africa's appetite for electricity has created something of a 'scramble' for the continent's electricity resources, with the transmission lines of today comparable to the colonial railway lines of the late 1800s and early 1900s, physically and symbolically.<sup>37</sup>

South Africa's largest parastatal firm, the Electricity Supply Commission, better known today as Eskom, has played a triple role, as a) generator of virtually all of the country's electricity; b) sole transmitter; and c) distributor to many large corporations, municipalities, commercial farms, and to half South Africa's households, from sections of the largest municipalities to most rural villages. Eskom was crucial to South Africa's rapid capital accumulation during the past century. At the same time, Fine and Rustomjee show, the company fostered a debilitating dependence on the (declining) mining industry. Economists refer to this as a 'Dutch disease', in memory of the damage done to Holland's economic balance by its cheap North Sea oil. Moreover, Eskom as the monopoly electricity supplier played a role in strengthening private mining capital by purchasing low-grade coal from mines that were tied to particular power stations on the basis of a guaranteed profit. (Only in 2007 were plans concretised to add major

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36. Ben Fine and Zav Rustomjee, *The Political Economy of South Africa: From Minerals-Energy Complex to Industrialisation* (London: Christopher Hirst and Johannesburg: Wits Press, 1996).

37. David McDonald (Ed), *Electric Capitalism* (Cape Town: Human Sciences Research Council Press, 2007).

private sector electricity supply to the grid, in view of Eskom's failure to construct additional capacity to meet demand.)

After World War Two, growing demand from new mines and manufacturing caused supply shortages, and resulted in a programme for the construction of new power stations. In the process, the apartheid state promoted Afrikaner-owned coal mines, with Eskom contracting these for a portion of its coal supply. The national grid – which linked previously fragmented power station supplies via transmission lines – was initially formed in 1964, and extended supply into the Southern African region. Until 1985, when sanctions made international borrowing more difficult, foreign loans were used to build Eskom's massive excess capacity through environmentally damaging coal-fired power stations. At peak in 1990, Eskom produced three-quarters of the African continent's electricity, and its capacity was being extended to more than 37 000 MW at a time peak demand was less than 25 000 MW.<sup>38</sup>

Eskom's power plants continued providing artificially cheap electricity to large, energy-intensive corporations and white households, including a new wave of subsidised white commercial farmers during the 1980s. Since the loans were guaranteed by the state it meant that all taxpayers, regardless of whether they benefited from the expansion of infrastructure or not, paid the bill. The World Bank's \$100 million in Eskom loans from 1951–67, and subsequent bond purchases by international banks, should be investigated as 'Odious Debts', at a time when victims of apartheid seek reparations in US and European courts for profits the banks earned from Eskom, while black South Africans suffered without electricity.

Even though industrial users do provide a small cross-subsidy to household consumers, Eskom supplies the large firms with the cheapest industrial electricity in the world. While in other countries, domestic consumers are charged twice as much as large industry, Eskom charges industry prices that are as little as one seventh the domestic price.<sup>39</sup> As a result, the University of Cape Town's Energy for Development Research Centre (EDRC) confirms that generation of cheap electricity in South Africa still relies on the extremely wasteful burning of low-grade coal, which has a worsening impact on the environment not just through emissions but also in requiring vast amounts of coolant water. Indeed, Eskom is the single largest consumer of raw water in South Africa. While industry benefits from cheap electricity as a competitive

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38. James Clarke, *Back to Earth: South Africa's Environmental Challenges* (Johannesburg: Southern Book Publishers, 1991), p.33.

39. Glynnis Leslie, "Social Pricing of Electricity in Johannesburg," Masters research report submitted to the Faculty of Management, University of the Witwatersrand, Johannesburg, 2000.

advantage, the negative social and environmental effects of electricity production have never been internalised into the cost.

One EDRC study concedes that South Africa:

- is 'the most vulnerable fossil fuel exporting country in the world' if the Kyoto Protocol is fully extended, according to an International Energy Agency report;
- scores extremely poorly 'on the indicators for carbon emissions per capita and energy intensity';
- has a 'heavy reliance' on energy-intensive industries;
- suffers a 'high dependence on coal for primary energy';
- offers 'low energy prices' to large corporate consumers and high-income households, which in part is responsible for 'poor energy efficiency of individual sectors'; and
- risks developing a 'competitive disadvantage' by virtue of 'continued high energy intensity' which in the event of energy price rises 'can increase the cost of production'.<sup>40</sup>

In short, the existing levels of environmental degradation caused by coal mining, electricity generation, lack of access by the majority of low-income people, hydropower and nuclear energy are formidable. Not including net exports of greenhouse gas pollutants – since South Africa is the world's second largest exporter of coal after Australia – the energy sector contributed 78 per cent to South Africa's share of global warming and more than 90 per cent of all carbon dioxide emissions in 1994. These ratios have probably increased since. By 1998, South Africa emitted 354 million metric tonnes of carbon dioxide, equivalent to 2 291 kilograms of carbon per person (a 4 per cent increase from 1990 levels). South Africa is amongst the worst emitters of CO<sub>2</sub> in the world when corrected for both income and population size, worse than even the United States, *by a factor of 20*. South Africa took no action to reduce emissions over the period 1990-98, and indeed allowed them to increase from 2 205 to 2 291 kilograms of carbon per person.<sup>41</sup>

### Table 1: Energy sector carbon emissions, 1999<sup>42</sup>

40. A.Spalding-Fecher, "The Sustainable Energy Watch Indicators 2001", Energy for Development Research Centre, University of Cape Town, Cape Town, November 2000.

41. International Energy Agency, "CO<sub>2</sub> Emissions from Fuel Combustion, 1971-1998," Paris, 2000; International Energy Agency, "Key World Energy Statistics from the IEA," Paris, 2000.

42. Source: International Energy Agency data, with final column calculated by the author. Because Purchasing Power Parity estimates by the IEA are dubious (e. g. , Zimbabwe's GDP is US\$32.7 billion), the actual GDP figures are used. However, at the time, South Africa's was far less than \$164

Area	Population (mns)	CO <sub>2</sub> / person	GDP (\$bns)	CO <sub>2</sub> /GDP (kg/\$bn)	CO <sub>2</sub> (kg)/ GDP*pop
S.Africa	42	8.22	\$164	2.11	0.0501
Africa	775	1.49	\$569	1.28	0.0016
USA	273	20.46	\$8,588	0.65	0.0023
OECD	1116	10.96	\$26,446	0.46	0.0004
World	5921	3.88	\$32,445	0.71	0.0001

NOTE: The tonnes of carbon dioxide (CO<sub>2</sub>) emissions are those measureable through fuel combustion.

The 1986 *White Paper on Energy Policy* set the framework for the marketisation of the electricity sector. It called for the 'highest measure of freedom for the operation of market forces', the involvement of the private sector, a shift to a market-oriented system with a minimum of state control and involvement, and a rational deregulation in energy pricing, marketing and production.<sup>43</sup> As electricity provision became increasingly politicised during the 1980s, in part because of township payment boycotts, a joint National Energy Council/Eskom workshop held in 1990 called for deregulation of the supply industry. The workshop also put forward proposals to adopt a market-oriented approach to distribution, including large, restructured distributors that would purchase power from a broker. The introduction of specific tariffs would separate generation and transmission, and transmission and distribution functions (the seeds of ring-fencing). Notably, the workshop called for supply to be run on business lines.<sup>44</sup>

By the time of South Africa's liberation, because of heavy mining and industrial usage, per capita electricity consumption soared to a level similar to Britain, even though black – African – South Africans were denied domestic electricity for decades. Today, most poor South Africans still rely for a large part of their lighting, cooking and heating energy needs upon paraffin (with its burn-related health risks), coal (with high levels of domestic and township-wide air pollution) and wood (with dire consequences for deforestation). Women,

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billion, so the ratios indicating South Africa's high carbon/GDP emissions are actually quite conservative.

43. Charles Anderson Associates, *National Electricity Policy Synthesis Study, Vol 1*. Report submitted to the Dept of Mineral and Energy Affairs, 12 August 1994, pp.12-13.

44. Charles Anderson Associates, *op cit*, pp.15-17.

traditionally responsible for managing the home, are more affected by the high cost of electricity and spend greater time and energy searching for alternative energy. Ecologically-sensitive energy sources, such as solar, wind and tidal, have barely begun to be explored, while the main hydropower plant that supplies South Africa from neighbouring Mozambique is based on a controversial large dam, and two others on the Zambezi are proposed for construction.

Nevertheless, Eskom claims to be one of the New South Africa's success stories, having provided electricity to more than 300 000 households each year during the 1990s. Black residents were denied Eskom's services until the early 1980s due to apartheid, and the townships were, as a result, perpetually filthy because of coal and wood soot. From 1990 to the end of 2001, Eskom and the municipalities had together made nearly four million household connections, including farm workers, at a cost to Eskom of R7,72 billion.<sup>45</sup> The percentage of households with access to electricity infrastructure increased to 70 per cent at the end of 2000. In urban areas, the percentage of households with electricity infrastructure was 84 per cent, with rural areas lagging behind at 50 per cent.<sup>46</sup>

Critics argue that regulation of Eskom and the municipal distributors has not been successful, from the standpoint of mass electricity needs.<sup>47</sup> This is not only because of an extremely weak performance by the initial National Electricity Regulator – Xolani Mkhwanazi, who subsequently became, tellingly, chief operating officer for BHP Billiton Aluminium Southern Africa – but also because government policy has increasingly imposed 'cost-reflective tariffs', as a 1995 document insisted. The 1998 *White Paper* was an improvement on previous versions, allowing for 'moderately subsidised tariffs' for poor domestic consumers. But it too made the counterproductive argument that 'Cross-subsidies should have minimal impact on the price of electricity to consumers in the productive sectors of the economy'.<sup>48</sup> That philosophy remained intact during Phumzile Mlambo-Ngcuka's reign as energy minister until 2005.

This raises the crucial question of the price charged to these 'productive sectors', namely a tariff regime inherited from the apartheid era extremely generous to minerals/metals smelters and other large electricity consumers. The man responsible for Eskom's late-apartheid pricing – Mick Davis – left the

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45. Department of Minerals and Energy, "Re-appraisal of the National Electrification Programme and the Formulation of a National Electrification Strategy," 1997, [www.dme.gov.za/energy/RE-APPRAISAL.htm](http://www.dme.gov.za/energy/RE-APPRAISAL.htm).

46. National Electricity Regulator, *Annual Report 2000/01*, Johannesburg, 2001, p.14.

47. Harold Winkler and J. Mavhungu, "Green Power, Public Benefits and Electricity Industry Restructuring," Report prepared for the Sustainable Energy and Climate Change Partnership, EDRC, Cape Town, 2001, p.6.

48. Department of Minerals and Energy, *White Paper on the Energy Policy of the Republic of South Africa*, Pretoria, 1998, Part Three.



parastatal's treasury to become the London-based operating head of Billiton, once former finance minister Derek Keys gave permission for Gencor to expatriate vast assets to buy the firm from Shell (after apartheid ended, Keys tellingly became chief executive of Billiton). Ten years later, the deals which gave Billiton, Anglo American and other huge corporations the world's lowest electricity prices came under attack by Alec Erwin, minister of public enterprises. It seemed like progress finally, because the package Davis had given Billiton for the Alusaf smelters at Richards Bay Hillside and Mozal in Maputo during the period of Eskom's worse overcapacity, had resulted in ridiculously cheap electricity – often below R0,06/kiloWatt hour (kWh) – when world aluminium prices fell. Creamer's Engineering News reported in June 2005 that, 'following the introduction of new global accounting standards, which insist on "fair value" adjustments for all so-called embedded derivatives... Eskom admits that the sensitivities are substantial and that the volatility it could create is cause for concern.' Public enterprises minister Alec Erwin reportedly insisted on lower 'financial-reporting volatility' – every time the Rand changes value by 10 per cent, Eskom's wins or loses R2 billion - and he gave 'guidance that the utility should no longer enter into commodity-linked contracts and that management should attempt to extricate the business from the existing contracts'. Mkhwanazi replied that any change to the current contracts could be 'a bit tricky for us... We would adopt a pragmatic approach and, who knows, perhaps there will even be some sweeteners in it for us.'<sup>49</sup>

How did that new approach play out in terms of the vast subsidies promised at Coega, where Erwin as trade and industry minister from 1996-2004 had led negotiations for a new aluminium or zinc smelter? The answer was clear within two weeks, as a long-awaited \$2,5 billion deal with Canada's Alcan came closer to completion. According to the chief executive of the parastatal Industrial Development Corporation (IDC), Geoffrey Qhena, 'The main issue was the electricity price and that has been resolved. Alcan has put a lot of resources into this, which is why we are confident it will go ahead.' Meanwhile, however, to operate a new smelter at Coega, lubricated by at least 15 per cent IDC financing, Alcan and other large aluminium firms were in the process of shutting European plants that produce 600 000 metric tonnes between 2006-09, simply 'in search of cheaper power', according to industry analysts.

A Coega plant would generate an estimated 660 000 tonnes of CO<sub>2</sub> a year. For the purpose of complying with Kyoto Protocol obligations, Europe will be able to show reductions in CO<sub>2</sub> associated with the vast energy intake needed – representing a third of a typical smelter's production costs – while South Africa's

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49. Creamer's Engineering News, 'Eskom will seek to Cancel Commodity-Linked Tariff Deals', 29 June 2005.

CO<sub>2</sub> will increase proportionally. Indeed, as a result of the sweeteners offered to Alcan, Eskom will more rapidly run out of its excess electricity capacity, resulting in raised prices to poor people, more coal generation, and a more rapid turn to objectionable power sources such as nuclear reactors and two proposed Zambezi River megadams.<sup>50</sup>

The contrast with the government's treatment of low-income people is stark. While Eskom was offering billions of rands worth of 'sweeteners' to the aluminium industry, the Department of Provincial and Local Government's *Municipal Infrastructure Investment Framework* supported only the installation of 5-8 Amp connections for households with less than R800 (US\$110) per month income, which does not offer enough power to turn on a hotplate or a single-element heater. (In turn, without a higher Ampage, the health and environmental benefits that would flow from clean electricity instead go up in smoke.) The 1995 energy policy also argued that 'Fuelwood is likely to remain the primary source of energy in the rural areas'. Eskom did not even envisage electrifying the nation's far-flung schools, because 'It is not clear that having electricity in all schools is a first priority.'<sup>51</sup> Moreover, Eskom economists had badly miscalculated rural affordability during the late 1990s, so revenues were far lower than were considered financially sustainable. Because of high prices, consumption of even those with five years of access was less than 10 kWh per month, resulting in enormous losses for Eskom. Paying as much as R0,40 (\$0.06) per hour (compared to a corporate average of R0,06 (\$0.01) and bigger discounts for Alusaf), rural women used up their prepaid meter cards within a week and can't afford to buy another until the next pension payout. This was the main reason demand levels are so low that Eskom's rate of new rural electrification connections ground to a standstill.<sup>52</sup>

The state's electricity subsidy was insufficient to make up the difference, even when the ANC government introduced its free basic services policy in mid-2001. Eskom refused to participate for several years, waited until a new national subsidy grant became available, and still today has not fully rolled out the promised 50 kWh per household per month lifeline supply. With merely an hour's use of a standard hotplate consuming 25 kWh, the amount Eskom and the municipalities offer is pathetically inadequate.

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50. Steve Bailey, "Alcan Will Probably Build \$2,5 Bln Smelter, IDC Says," Bloomberg News, 13 July 2005.

51. Department of Minerals and Energy, *South African Energy Policy Document*, Pretoria, 1995, pp.96,66.

52. Another reason for low consumption is that people may not be able to afford the cost of appliances required to increase electricity use. A suggestion that has some support from electricity suppliers is the provision of a 'starter pack' when households are connected, providing the household with a hot plate or a kettle for free. See Leslie, *op cit*, p.69. Johannesburg council never followed up on such proposals.

Politicians and municipal managers defend the system notwithstanding these many problems. The leading Durban city official, Mike Sutcliffe, justifies the inadequate 50 kWh/household/month allocation:

The amount of 50 kWh was developed at national level in consultation with Eskom where 56 per cent of their residential customer base currently use less than 50 kWh a month and this includes many customers in colder climates than Durban. The average consumption of all our prepayment customers (160 000) is 150 kWh a month and not all of them are indigent. South Africa does not have sufficient experience in the provision of free energy services to conclude whether 50 kWh a month is adequate or not. The amount of 50 kWh would appear to be a reasonable level to start with on a nationwide basis using the self targeted approach. If the self targeting works and the country can afford to increase the free service it could be reviewed in the future. There are more than 7 million electrified households in SA and for every 1 million indigent households receiving 50 kWh free the loss in revenue is R17,5 (\$2.5) million a month. The proposal of a flat rate has proven to result in considerable wasted energy as users are unaware of their usage and consume far more than that which could be purchased for R50 (\$7). Even if a current limit of only 10A is imposed these flat rate users could consume well over 1 000 kWh a month. South Africa can ill afford to waste energy, the generation of which not only depletes our fossil fuel reserves but has a considerable impact on water resources used in the generation process and air pollution as 80 per cent of SA's generation is from coal.<sup>53</sup>

It is not at all unusual for wealthy South Africans – perhaps suffering from a 'culture of privilege' - to advocate that poor people should consume less electricity or water because they 'waste' these state services (it may be irrelevant, but Sutcliffe earns a far greater income than president Mbeki). Uniquely, though, Sutcliffe here also implies the poor are responsible for depleting the vast South African coal reserves, even though household electricity consumption by low-income families in South Africa is still less than 5 per cent of the national total.

Misleading or wildly inaccurate information from state officials – relating to, for example, AIDS, arms deals, crime, adult education and municipal services - is an epidemic in South Africa, a country also overpopulated by gullible journalists. Witness South African Press Association coverage (reprinted in the *Mail&Guardian*) of a Statistics South Africa services survey in March 2005: 'The best-performing municipalities on average were in the Free State, where 91,5 per cent of households had free water and 90,3 per cent had free electricity' [sic].

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53. Mike Sutcliffe, "South Africa Cannot afford to Waste Energy," *The Mercury*, 27 February 2003.

Conveniently, it would apparently be impossible to verify these amazing claims, because 'Stats SA said although it is able to release provincial data, it cannot in terms of the Statistics Act release unit information - that of individual municipalities in this case - without their express permission. "Municipalities do need to be protected by the Act because they may want to apply to certain organisations for grants, and poor performance figures could harm them, or there may arise situations where they face punitive measures from the ruling party in their areas"' according to Stats SA head Paddy Lehohla.<sup>54</sup>

For very different reasons, some in national government periodically concede that low-income South Africans do not, in fact, receive sufficient free electricity. In November 2004, prior to taking over as deputy president from Jacob Zuma, energy minister Mlambo-Ngcuka alleged, according to SABC, that 'municipalities are botching up government's free basic electricity initiative to the poor... However, there is another bureaucratic dimension to the problem. Eskom, a state owned enterprise, is struggling to recoup its money from the Treasury for the free electricity it provides and Mlambo-Ngcuka says even when Eskom does get the money from them, it is always insufficient.' Indeed, the Treasury's 2004 grant of just R200 (\$28) million to cover free basic electrification subsidisation is grossly inadequate. But Mlambo-Ngcuka's own ministry was mainly to blame. Her staff had obviously overruled the 2000 ANC election promise of free basic services through a rising block tariff, for they apparently remained committed, instead, to 'cost-reflective' pricing of electricity (not counting the sweetener deals with the aluminium industry.)<sup>55</sup>

Relatedly, when the World Bank came under pressure in 2004 for its sweet financing of extractive industries, Mlambo-Ngcuka again revealed her loyalties, making it clear to senior Bank staff in February 2004 that they should oppose 'green lobbyists', as reported by the UN news agency IRIN. Instead of the Extractive Industries Review provisions for a phase-out of Bank fossil-fuel investments, Mlambo-Ngcuka promoted the African Mining Partnership within the neoliberal New Partnership for Africa's Development. According to her spokesperson, 'We are already implementing sustainable development programmes.'<sup>56</sup>

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54. L.Mahlangu, "Most South Africans Receive Free Water, Electricity," SAPA, 17 March 2005.

55. SABC News, 1 November 2004. Mlambo-Ngcuka partly blamed the 'universal' entitlement which meant that in some cases, all municipal residents received their first block free. Yet this was not only good public policy in view of the consistent failure of means tests, but conforms to her own party's 2000 campaign promise: 'ANC-led local government will provide all residents with a free basic amount of water, electricity and other municipal services, so as to help the poor. Those who use more than the basic amounts will pay for the extra they use.'

56. [http://www.irinnews.org/report.asp?ReportID=39413&SelectRegion=Southern\\_Africa&SelectCountry=south%20africa](http://www.irinnews.org/report.asp?ReportID=39413&SelectRegion=Southern_Africa&SelectCountry=south%20africa).

The energy system Mlambo-Ngcukca oversaw was anything but sustainable for its many victims. By pricing electricity out of reach of the poor, the state officials, economists and consultants who design tariffs together refuse to recognise 'multiplier effects' that would benefit broader society, were people granted a sufficient free lifeline electricity supply. One indication of the health implications of electricity supply disconnections that resulted from overpriced power was the recent upsurge in TB rates. Even in communities with electricity, the cost of electricity for cooking is so high that, for example, only a small proportion of Sowetans with access to electricity use it, favouring cheaper fuels.<sup>57</sup> The gender and environmental implications are obvious.

The result of unaffordable electricity and inadequate state subsidies was an epidemic of disconnections. Electricity cutoffs were widespread by 2001. At that point, the Department of Provincial and Local Government's Project Viability reports and Eskom press statements together indicate an electricity disconnection rate of around 120 000 households per month. These are likely to be higher since not all municipalities responded to the DPLG survey, and the Eskom statements focus on Soweto, where resistance was toughest. But even using this base, and making a conservative estimate of six people affected by every disconnection (since connections are made to households which often have tenants and backyard dwellings), upwards of 720 000 people a month were being disconnected from their access to electricity due to non-payment, meaning *that there were several times as many households losing access to electricity every month as were gaining access*. A survey of Soweto residents found that 61 per cent of households had experienced electricity disconnections, of whom 45 per cent had been cut off for more than one month. A random, stratified national survey conducted by the Municipal Services Project and Human Sciences Research Council found 10 million people across South Africa suffered electricity cuts.<sup>58</sup>

Even higher numbers could be derived using municipal disconnection statistics available through Project Viability, a national accounting of municipal finances whose last data set was analysed by the Department of Provincial and Local Government in December 2001. During the last quarter of 2001, 174 municipalities disconnected electricity to 296 325 households due to non-payment. Of those, 152

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57. Reaching the same conclusion, various mid- and late-1990s studies are reviewed in Jo Beall, Owen Crankshaw and Sue Parnell, *Uniting a Divided City: Governance and Social Exclusion in Johannesburg* (London: Earthscan, 2002), Chapter Nine.

58. David McDonald, "The Bell Tolls for Thee: Cost Recovery, Cutoffs and the Affordability of Municipal Services in South Africa," Municipal Services Project Special Report, 2002, [http://qsilver.queensu.ca/~mspadmin/pages/Project\\_Publications/Reports/bell.htm](http://qsilver.queensu.ca/~mspadmin/pages/Project_Publications/Reports/bell.htm). Government initially contested these figures as wild exaggerations, but by mid-2004 the country's lead water official, Mike Muller, admitted in the *Mail & Guardian* (24 June) that in fact, according to a new government survey, 275 000 households were disconnected during 2003, which equates to 1.5 million people – so the MSP estimates were 50 per cent 'wrong' – but too generous to government.

291 households were able to pay a sufficient amount to assure reconnection during the quarter, leaving 144 034 families – 4,3 per cent of the total population connected - without electricity at Christmas in 2001. If, very conservatively, half a million people were adversely affected during this quarter – a time when December bonuses should have permitted bill arrears payments – then, multiplying by four quarters, roughly two million people would, cumulatively, have had their power disconnected for substantial periods (on average 45 days) throughout 2001.

Moreover, since Eskom supplies more than half the low-income township population directly, and since self-disconnecting pre-paid metered accounts are not included in these statistics, the numbers of people who lost power would logically be far higher. Hence the electricity attrition rate – i. e. , the percentage of those who were once supplied with electricity but who could not afford the high prices and lost access due to disconnections – must be, using these indicative statistics, scandalously high for South Africa as a whole. Indeed, the ongoing lack of electricity supply to low-income people is invariably blamed, in part, for the upsurge in municipal protests since the early 2000s.

Rising electricity prices across South African townships already had a negative impact during the late 1990s, evident in declining use of electricity despite an increase in the number of connections. According to Statistics South Africa, the government's official statistical service, households using electricity for lighting increased from 63,5 per cent in 1995 to 69,8 per cent in 1999. However, households using electricity for cooking declined from 55,4 per cent to 53,0 per cent from 1995 to 1999, and households using electricity for heating dropped from 53,8 per cent in 1995 to just 48,0 per cent in 1999. Although comparable data are not available for the subsequent five years, in 2001 Stats SA conceded a significant link between decreasing usage and the increasing price of electricity and there is no reason to believe that this trend was subsequently reversed.<sup>59</sup> The implications for women and children are most adverse, given the inhalation of particulates that they suffer during cooking and heating with coal, wood or paraffin. The implications for social unrest cannot yet be quantified, although the SA Police Service has at least recorded the number of protests it monitored during a 12-month period in 2004-05: 5813. It is the highest rate of per capita social protest (i.e. not including roadside incendiary devices) in the world that I know of, even outranking China's 87 000 protests over the same time period.

## Conclusion

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59. Statistics South Africa, *South Africa in Transition: Selected Findings from the October Household Survey of 1999 and Changes that have Occurred between 1995 and 1999*, Pretoria, 2001, pp.78-90.

Several important factors converge when we consider the nature of South African energy and climate policy, that put Sajida Khan's apparently lost cause against the Bisasar Road dump and carbon trading into proper context:

- South Africa, already amongst the most unequal countries in the world in 1994, became substantially more unequal since, as a million jobs were lost during the late 1990s due largely to the stagnant economy, the flood of imports and capital/energy-intensive investment - and these trends have enormously negative implications for the ability of low-income citizens to afford electricity;
- billions of Rands in state subsidies are spent on capital-intensive energy-related investments such as new smelters, where profit and dividend outflows continue to adversely affect the currency;
- the price of electricity charged to mining and smelter operations is the lowest in the world;
- a pittance is being spent on renewable energy research and development, especially compared to a dubious nuclear programme;
- the dangers of nuclear energy are now widely understood, in the wake of damaging reports on the Koeberg power plant showing systemic maintenance problems that should result in the plant's decommissioning, yet the state is committed to a vast expansion of nuclear energy supply;
- greenhouse gas emissions per person, corrected for income, are amongst the most damaging anywhere, and have grown worse since liberation;
- electricity coverage is uneven, and notwithstanding a significant expansion of coverage, millions of people have had their electricity supplies cut as the state provider moves towards commercialisation and privatisation;
- the possibilities of improving gender equity through access to free lifeline electricity are vast, and for people suffering from the recent upsurge in TB, and indeed for 6,4 million HIV-positive South Africans, the public and personal health benefits of replacing coal, wood or paraffin with electricity are crucial as well – yet these are never calculated into social cost/benefit considerations when electricity is priced by Eskom or municipalities; and
- there are other important environmental, segregation-related and economic benefits that flow from clean electricity as a replacement for traditional fuels, which are at present not incorporated into social and financial decision-making, especially when it comes to pricing electricity.

From these sorts of problems, it is not hard to discern the vast forces that promote non-solutions to the climate crisis, in South Africa and across the world. Hence in October 2004, the Durban Declaration on Carbon Trading was signed by environmental justice organisations and concerned citizens who had spent the prior week in South Africa analysing carbon trading, before rejecting the

strategy. That very week, DEAT's National Climate Change Response Strategy declared 'up-front that CDM primarily presents a range of commercial opportunities, both big and small.' And simultaneously, wars raged in townships over the price of electricity connections, while energy-guzzling aluminium smelters left the carbon intensity of the South African economy roughly twenty times worse than that of the United States.

To propose 'commercial opportunities' associated with carbon trading and, simultaneously, the intensification of South Africa's world-record CO<sub>2</sub> emissions, provides a coherent logic. It is the logic of an immature, greedy society led by calculating, corrupt politicians and neoliberal technocrats. The Durban Declaration on Carbon Trading rejected the claim that this strategy will halt the climate crisis. It insisted that the crisis has been caused more than anything else by the mining of fossil fuels and the release of their carbon to the oceans, air, soil and living things.

The Durban Declaration suggested that people need to be made more aware of carbon trading threat, and to actively intervene against it. By August 2005, inspiring citizen activism in Durban's Clare Estate community forced the eThekweni municipality to withdraw an application to the World Bank for carbon trading finance to include methane extraction from the vast Bisasar Road landfill (instead, the application was for two relatively tiny eThekweni dumps). But the heroic battle against Bisasar's CDM status was merely defensive. Community residents have a proactive agenda, to urgently ensure the safe and environmentally sound extraction of methane from the Bisasar Road landfill, even if that means slightly higher rubbish removal bills for those in Durban who are thoughtlessly filling its landfills, without recycling their waste.

As a tribute to Sajida Khan's life, justice would require that the apartheid-era dump that killed her should now finally be closed, a decade after originally promised. Simultaneously, good jobs and bursaries should be given to the dump's neighbours, especially in the Kennedy Road community, as partial compensation for their long suffering. Their fight for housing and decent services has been equally heroic; the current handful of toilets and standpoints for six thousand people should shame Durban municipal officials, whose reprehensible response was to mislead residents into believing dozens of jobs will materialise through World Bank CDM funding. A commitment is also needed to a zero waste philosophy and policies by Durban and all other municipalities in South Africa. In Bellville, Western Cape, solidarity is needed for the many residents who are also victims of apartheid-dumping, and who may also be victimised by the Bellville Landfill's status as a CDM project.

Allies are needed in South African, African and international civil society. In



October 2004, only cutting-edge environmental activists and experts understood the dangers of carbon trading. Others – including many well-meaning climate activists – argued that the dangers are not intrinsic in trading, just in the rotting ‘low hanging fruits’ that represent the first and easiest projects to fund, at the cheapest carbon price. Since then, however, numerous voices have been raised against carbon colonialism. These voices oppose the notion that, through carbon trading, Northern polluters can continue their fossil fuel addiction, drawing down the global atmospheric commons in the process. The voices are so insistent that even the business press can no longer ignore the malfeasance associated with carbon trading.

Rather than foisting destructive schemes like expansion of the cancerous Bissard Road dump on the South, the North should consider how to repay its vast ecological debt. For playing the role of ‘carbon sink’ alone, political ecologist Joan Martinez-Alier and UN climate change commissioner Jyoti Parikh calculate that an annual subsidy of \$75 billion is provided from South to North.<sup>60</sup> Many advocates of environmental justice signed the Durban Declaration and sponsored debates within their own organisations and communities. In October 2004, the Durban Group also noted that the internal weaknesses and contradictions of carbon trading are likely to make global warming worse rather than ‘mitigate’ it. This case is ever more convincing in South Africa, partly because in mid-2005, a leading official of state-owned Sasol publicly conceded that his own ambitious carbon trading project is merely a gimmick, without technical merit (because he cannot prove what is termed ‘additionality’). The ‘crony’ character of the CDM verification system may allow this travesty to pass into the market, unless our critique is amplified.

In October 2004, the Durban Group worried that ‘giving carbon a price’ would not prove to be any more effective, democratic, or conducive to human welfare, than giving genes, forests, biodiversity or clean rivers a price. In subsequent years, the South African government’s own climate change strategy has been increasingly oriented itself to the ‘commercial opportunities’ associated with carbon. Worse, as South Africa often does in Africa, the government’s agenda appears to be legitimisation of neoliberalism. As environment minister Martinus van Schalkwyk commented in September 2006 in preparation for the Nairobi Conference of Parties to the Kyoto Protocol, ‘To build faith in the carbon market and to ensure that everyone shares in its benefits, we must address the obstacles that African countries face’.<sup>61</sup> This was the second of his three main priorities for

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60. Joan Martinez-Alier, “Ecological Debt - External Debt,” Quito, Acción Ecológica, 1998; J.K. Parikh, “Joint Implementation and the North and South Cooperation for Climate Change,” *International Environmental Affairs*, Vol. 7, No. 1, 1995.

61. Marthinus van Schalkwyk, “Speech by the Minister of Environmental Affairs and Tourism, Marthinus van Schalkwyk, on the occasion of the opening of the final lead authors meeting of

'action' in Nairobi, along with adaptation and stronger targets for emissions reductions – while South Africa continues its own irresponsible trajectory of energy-intensive, fossil-fuelled corporate subsidisation.

Real solutions are needed, and with its world-leading CO<sub>2</sub> emissions, South Africans must be at the cutting-edge of progressive climate activism, not partners in the privatisation of the atmosphere. That, in turn, will require resolution of another vast challenge: the lack of synthesis between the three major citizens' networks that have challenged government policy and corporate practices: environmentalists, community groups and trade unions. More work is required to identify the numerous contradictions within both South African and global energy sector policies/practices, and help to synthesise the emerging critiques and modes of resistance within progressive civil society. Only from that process of *praxis* can durable knowledge be generated about how to solve the climate and energy crises in a just way.