#### Wasting CO2:

Preliminary Reflections on the Remarkable Success of a Climate Governance Failure

Or: On the Efforts of Linking International Financial Flows with Waste Flows in South Africa

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### 3. Internationalization of waste finance

Different forms of financialization (access to capital) from international markets, e.g., Clean Development Mechanism (CDM), to fund waste infrastructure projects.









"Offsetting [CO2 and green house gas emissions] is worse than doing nothing. It is without scientific legitimacy, is dangerously misleading and almost certainly contributes to a net increase in the absolute rate of global emissions growth."

#### Kevin Anderson, climate scientist, Tyndall Centre, 2012.

"As noted, landfill projects have sizeable carbon 'credits' (or offsets) associated with them—from the conversion of methane gas to CO2 and the offset of fossil fuel electricity production. However, to date the route of carbon financing has proved costly, inefficient and unproductive for South African landfill gas to energy projects. Unless the price of carbon is very good, the costs of verification may often be significantly more than the value of the credits themselves"

#### Report on South African CDM experience 2017 (p. 188-189)

# Overview of presentation

- 1. Urban Ecological Modernization and Global Climate Change Instruments
- 2. CDM: The remarkable success of a failure
  - The global story (1995-2012 to today)
  - Implementation of CDM in SA
- 3. South-Africa's Urban Waste to CERs Initiatives
  - Two examples and field notes.
- 4. Reflection: Wasting CO2
  - How can a failure be a success?
  - Anti-politics machines, privatization



#### 1. Urban Ecological Modernization and Global Climate Change Instruments

#### a. Urban waste as a significant urban greenhouse gas emissions

"The human contribution to climate change or anthropogenic climate change by the disposal of wastes in landfill sites is significant, for example in the case of Durban (South Africa), in excess of 25% of the City's greenhouse gas emissions are attributed to landfill sites" (UN 2006: 8).

# b. Urban ecological modernization through climate-sensitive waste management

"We want to be the cleanest city in the world', waste, in my view, is the best place to start," mayor of Durban, Obed Mlaba, motivating the Durban Landfill Gas to Energy project. (Cited in Bond and Sharife 2012)

"The proposed Durban Landfill Gas to Energy Project will contribute towards the city's sustainable waste management" (p. 2) (World Bank 2006: 2)

## c. Waste-to-value projects as major node in forging urban socio-ecological 'sustainability'

"The landfill site [Durban] has won numerous awards, including the Dubai International Award for Best Practices to Improve the Living Environment (2008); the Honorary Energy Globe Award for Sustainability (2009); and several conservancy and green energy awards in South Africa. In addition, the project made KPMG's list of "100 most innovative and inspiring urban infrastructure projects in the world." (World Bank 2015)

## 2. CDM: The Remarkable Success of a Failure

- a. Clean Development Mechanism (CDM) as Trojan Horse for Waste-to-Value projects
  - CDM: a market-based instrument to produce <u>transferable permits to pollute</u> in one place by saving on Carbon emissions in another—flexibility mechanisms of Kyoto Protocol to assist 'sustainable' technological transformation in Annex-2 (developing) countries (Started in 2008).
  - Pricing 'Carbon Saved' as means to enhance financial feasibility of a project (that would otherwise not happen)

# 2. CDM: The Remarkable Success of a Failure

b. Carbon Financing (CERs – Certified Emission Reduction Certificates) as Financialized Rents

- 1 CER = 1 tons of CO2-equivalent
- Complex institutional arrangement that produces a tradable 'permit to pollute': saving 1 ton in one place permits emitting one ton elsewhere
- It constitutes the production of 'climate rent' (Felli 2014) through permitting pollution
- CERs (just like "payment for ecosystem services") is a "pseudo-commodity" (Polanyi) where the State (and international bodies) play a major role in creating the commodity and its price through and conditioned by capital.
- Average cost of a project to go through uncertain validation process: 20,000 to 30,000 US\$ (those validating through UNFCCC needs in turn to be validated, favoring big international consultancy firms)
- CER is a privately owned entitlement that can be traded on 'the market' for a market-based price

# 2. CDM: the remarkable success of a failure

c. CERs as linchpin for legitimizing financial viability of waste-to-value projects – the particular value of waste dumps

- Waste Dumps emit Methane (CH4). Methane is offically 23 times more potent as a greenhouse gas then CO2
- Burning CH4 produces CO2 and H2O. Each ton of CH4 burned offers in theory 22 ton of CERs
- Waste gas-flaring or Waste-to-energy projects are great sources of potential Carbon Credits
- Flaring waste gas or waste-to-energy projects require 'ENCLOSING' and 'PRIVATIZING' the COMMONS of waste. This has lead to social unrest and conflict/labour displacement/disputes. See waste-pickers protests against Waste-to-Energy or Gas-Flaring Projects in Durban.

#### Put bluntly:

Landfill-to-gas/value projects could be seen as functioning as **geographical-discursive proejcts** through which knowledge systems are enrolled, "solutions" are projected, and *imaginaries* of what is possible is filled up—i.e., crowding out alternative possibiliteis.

It is in this sense that a failure to really fight climate change (and climate injustice) can become a success for capital that cannot support radical action and thus tries to stop it.



Source: www.sendeco2.com



#### **Time line**

- 1997 The Kyoto Protocol adopted.
- 2005 The Kyoto Protocol entered into force.
- 2012 Post-Kyoto agreement. ETS/CER market collapses (from 9.96 Euro/CER on average during 2011 and 0.45 Euro/CER and lower since December 2012.

The Kyoto Protocol commits states to reduce greenhouse gas emissions, based on the scientific consensus that (i) global warming is occurring and (ii) it is extremely likely that human-made CO2 emissions have predominantly caused it.

Currently 192 parties to the protocol. Canada withdrew effective December 2012. USA is a signatory but has not ratified post-2012

# 2b. CDM process (from an SA implementer's perspective)

- Phase 1, 2005-2007: Introduction of CDM (promoting, "awareness rising")
- <u>First turning point</u>, 2007/2008 SA electricity crisis (electricity prices went up, more interest in landfill-toenergy projects)
- Phase 2, 2008-2012: Growth of CDM (increasing number of projects registering and trying to become validated)
  - Creeping change: CER-heavy projects from China and India "floods" the market and lowers the CER price
- <u>Second turning point</u>, 2012: Post-Kyoto uncertainties (Canada didn't sign; USA has not
- Phase 3, 2013 -- today: New landscape without CDM, with collapsed CERs. Efforts to build a national/local market, "domesticating CDM" through the SA Carbon Tax...





Interview with Designated National Authority (DNA), late 2017

# 2c. CERs as linchpin for legitimizing financial viability of waste-to-value projects – the particular value of waste dumps

- CERs are crucial for financial feasibility of proposed projects:
  - "As such, the sale of the CERs is often considered to be a critical part of the project design. Without the sale of the CERs the projects are often not economically viable for project developers" (Varughese, 2012: 27-28)
- As the project managers of the Durban Bisasar Road gas-to-electricity project put it:
  - "Effectively, there is a shortfall to project viability of 100%. The injection of the carbon finance, derived from a CDM project undertaking, is essential to allow landfill gas utilization projects in South Africa to be viable" (UN 2006: 8)
- All interviewees confirmed that the initial project financing plans included a significant input from climate finance as the financial planning rested fundamentally on two income streams, i.e. the sale of electricity and carbon finance. It is these anticipated returns that provided the economic rationale, while the socio-ecological benefits sustained the political rationale for supporting the project.
- **Cape Town** project had a different version; saying today that CER as "cherry on top". More empirical work needed (reports etc.)

# 2. CDM: the remarkable success of a failure

## d. The silent death of the CDM...

- CER Prices collapsed: CDM at a standstill
- Anticipated returns did not materialize
- Public finance needs to make up for shortfall (see Cape Town project)

### e. ...still persistence of urban ecological modernization

- Waste-to-energy projects endure
- Urban ecological modernization projects embedded in urban-local process
- See also: Sarah Bracken's critical report on the constitution of the Climate Green Fund between Dec 2011 to May 2014; big capital controls through "firewall" (blocking evidence) or threat of "non-participation" from capital in the fund)

## 3. South-Africa's Urban Waste to CERs Initiatives

- 10 CDM Waste-to-Energy or Waste-Flaring Projects Examined
- 7 Registered and Approved
- 1 Rejected
- 2 Programs of Activities (containing several waste-to-energy/flaring projects)

3. South-Africa's Urban Waste to CERs Initiatives

# Quote from the South African CDM Projects Portfolio (Up to 12 July 2016)

"To date [or, since 2005/11 years ago], there are **364 CDM projects** submitted to the DNA – 226 Project Idea Notes (PINs) and 138 Project Design Documents (PDDs). Out of 138 PDDs, 90 have been registered (35 Programme of Activities) by the CDM Executive Board as CDM projects (**12 Issued with CER's**), and 48 are at different stages of the project cycle – DNA approval, validation stage and/or request for review."

"The projects submitted to the DNA for initial review and approval cover the following types, bio-fuels, energy efficiency, **waste management**, cogeneration, fuel switching and hydro-power [...]."



Project Name	UNFCC No Reg Date	Private/Publ ic	First Crediting Period (CP)	Ex ante Reduction tCO2e/yr First CP	Total CER's issued first CP	Second Crediting Period	Ex Ante Reductions tCO2e/yr Second CP	Total CERs issued Second CP	Contracts to purchased CDM	Intervie wed
EnviroServ Chloorkop Landfill Gas Recovery Project (1)	0925 27/04/2007	Private	19/01/08- 18/01/15	188380	633696	19/01/15- 18/01/22	73041	223 612 (up to 19/02/15)	Japan Climate Fund Ltd agreed to purchase 1 000 000 CERS (fulfilled agreement buying around 680 000 CERs, withdrew from 2 <sup>nd</sup> CP) - Yes, CERs played a crucial role.	YES
Durban Landfill gas-to-electricity Project Marianhill and La Mercy (2)	0545 15/12/2006	Public	15/12/06 – 14/12/13	Circa 50000	154088	15/12/13 – 14/12/2020	68833	94 599 (up to 30/09/16)	<ul> <li>Contract with World Bank and with BP, UK.</li> <li>Have sold some. Cannot disclose the price.</li> <li>Yes CERs initially played a crucial role.</li> <li>When CERs dropped in price, selling electricity has backed up viability.</li> </ul>	YES
Biasasar Landfill – Durban (3)	1921 26/03/2009	Public	26/03/09 – 25/03/16	342705	1539755	26/03/16- 25/03/25		0	Contract with <b>World Bank</b> and with <b>BP</b> . Have sold some. Cannot disclose the price. - CERS crucial. Electricity backed up	YES
Alton Landfill Gas to Electricity Project (5)	2549 24/08/2009	Private	24/08/09- 23/08/19	25893	Not Issued				"Pilot project to test out and build the SA [CDM] market." No CERs registered or sold.	YES
Joburg Landfill Gas to Energy Project (8)	6797 12/11/2012		12/11/12- 11/11/2019	542495	113722 (up to 31/08/14)				Ecosecurities Group (JP Morgan & Co) but they never bought. Backed out when CER prices dropped in 2012. Climate Neutral Group B.V. (The Netherlands) bought some.	YES
Landfill Gas Utilization Programme of South Africa (Joburg) (9, see 5 and 8)	DNA (PoA) Approved 11/04/2012	Private		48881	Not issued				See 5 and 8, Alton and Joburg. Yes, CERs played a crucial role.	YES
City of Cape Town Landfill Gas Extraction and Utilization Programme of Activities (10)	Project Idea Approved 16/09/2014 10004	Public		34050	Not Issued				No CERs issued. Prices to low. CER was only viewed as "cherry on top". Funded mainly as a city line-project based on municipal loans and reserves. (Contrast.) Plan to generate electricity. Now only "flaring".	YES
Ekurhuleni Landfill Gas Recovery Project (4)	3677 26/10/2010	Public	26/10/10- 25/10/17	282349	62 626 (up to 31/12/12)				ENDESA, Spain	NO
New England Landfill Gas to Electricity Project (6)	3249 20/04/09	Private	Application Rejected						Ecosecurities International Ltd.	NO
Nelson Mandela Bay Metropolitan's Landfill Gas Project (7)	5692 24/05/12	Private	24/05/12- 23/05/22	109473	Not Issued				ETA Energy Ltd. Finland	NO

3. South-Africa's Urban Waste to CERs Initiatives

Reflections from field notes: South-Africa's Urban Waste to CERs Initiatives

- a. Long, complex, expensive and cumbersome application and validation process with many actors involved
- b. Big discrepancy between ex-ante projections of CO2 reductions and ultimately verified ones
- c. Relatively few projects (5) had CERs issued
- d. Only two projects continued the verification in their second crediting period
- e. Large number of varied international partners (states, World Bank, Climate Investment Funds, Industrial Companies
- f. No mentioning by interviewees of protests (not even in Durban)
- g. No mentioning of labour or number of employment opportunities created or removed.

## 3b) Two examples: Durban and Chloorkop

# Chloorkop

- a. Run by private companu EnviroServ
- Ground Work South Africa reported (2013): 300 waste pickers will loose their jobs.
   According to project manager ENER-G) approximate 40 to 45 jobs will be created by the project.
- Japan Climate Fund (JCF) agreed in 2007 to purchase 1 000 000 CERs and paid upfront to build the project. Ultimately bought all the CER's from the first crediting period (Circa 680 000) at a price of 5.95 US\$/CER. (Needed for Japan to achieve Kyoto targets.)
- d. JCF withdrew from second crediting period after 1 jan 2015.
- c. Because of this agreement, project broke even (but no profit)
- d. CERs of second crediting period: Agreement with UK based "Reduce Your Carbon", but this company withdrew from the contract. Interviewee sent an email explaining: *"There was a contract [with Reduce Your Carbon].... The company then just seemed to disappear when we started chasing up on the payment."*
- e. No further verification is undertaken too costly at current CER prices.





- "Financial guarantees had to be in place to ensure that public money would not be put at risk and to do this the project had to be approved by the Designated National Authority (DNA) as a valid carbon offset project to ensure that carbon credits could be accessed as a viable revenue stream." (The South African Local Government Association n.d.: 1).
- "Carbon credit prices were high at the time of the project development - €15/ton of CO2. The project agreement was for the sale of 3.8 million tons of emissions reduction over 21 years. Using these prices, the payback period was estimated to be 5 years. However, the carbon credits' prices have drastically dropped from €15 to a few cents per ton of CO2 and the project has now lost an important revenue stream, affecting financial viability."



- Show Casing (early) CDM: The Durban project (Bisasar Road) was made possible by an agreement to sell 3.8 million tonnes worth of certified emissions reduction credits (CERs) for \$15 million to the Prototype Carbon Facility, a World Bank project funded by industrialised country industries and governments to promote the CDM. (Megan Lidow 2005) (2.77 million USD for 337 000 CERs)
- 2005: **The World Bank backed off** in the face of mounting local socioecological activism against the dumpsite '
- 2006: French Development Agency pledged long-term loans of \$8 million to Durban's landfill gas projects alongside \$1.3 million extended by South Africa's Department of Trade and Industry." (Bond and Sharife 2012)
- 2008: The investment company Trading Emissions replaced World Bank and bought the right to purchase 1 000 000 CERs (reduction credits). The firm's investment advisor Simon Shaw termed Bisasar and the other two landfills: "an important project, it is operational, it has a long term future and we anticipate registration shortly. These credits will be a useful addition to our portfolio." (Bond and Sharife 2012)

- "Electricity generated from waste was expected to generate huge profits for the eThekwini Municipality, an official said on Thursday. We borrowed R58 million [from the French Development Bank] to start this project. We will be able to pay off the debt in four years and after that it will be a massive profit for the city.
- The R100 million project was funded by the city, the departments of trade and industry and energy, and the French Development Bank which lent R58 million.
- Trading Emissions Plc terminated their [contract buy CERs] ERPA in September 2011 (Trading Emission 2011) as the CER market was collapsing.

Currently, BP is buying CERs from the Bisasar Landfill.

BP approached them for purchase after a call for offer to purchase was published (see Figure ).

The interviewee from the municipality would not disclose the price that BP is buying CERs.

They are also selling electricity.

#### **CALL FOR OFFER TO PURCHASE**

#### CERTIFIED EMISSION REDUCTIONS (CERS)

In mid 2003 the eThekwini Municipality embarked on a ground breaking project to capture landfill gas and to utilise this gas to generate electricity. This project was the first of its kind in Africa. The project was initiated as a Clean Development Mechanism (CDM) under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC). The project was split into two components. Component one consisted of Mariannhill landfill and was registered and commissioned at 1 MW in December 2006. Component two consists of Bisasar Road Landfill which was commissioned at 4MW in March 2008 and subsequently increased to 6,5MW in July 2009. Through the CDM process eThekwini Municipality is able to sell Certified Emission Reductions/Carbon Credits (CER's) to interested parties. eThekwini Municipality has had and is having the credits verified in terms of the requirements of the UNFCCC CDM process under the Kyoto Protocol. These CERs are now on offer for sale. Anyone interested in purchasing the credits can make an offer. A full prospectus is available with the terms and conditions. For further information please contact: Mr. John Parkin, Deputy Head : Plant & Engineering, Department of Cleansing & Solid Waste -DSW, Tel: +27 31 311 8820, Fax: +27 31 263 1119, Cell: +27 83 259 3687 and Email: johnpa@dmws.durban.gov.za

# 4. Reflection/discussion points: Wasting CO2

- Urban Ecological Modernization and 'Sustainability' Projects articulated around socio-technical restructuring.
- Financial Feasibility nurtured through CDM Enclosing Waste Producing Tradable Pollution Entitlements Rent-based re-distribution
- Local-Global articulation of nature-finance nexus through turning CO2 into a liquid monetary asset (the assetization of CO2)
- Despite market failure, there is 'success' in transforming socio-technical systems in the direction of commodification.
- This means that the "transition"/"transformation" to low-carbon society goes through deepening ecological modernization and its semi-market actors and administrative complex.
- Local-global articulation of nature-finance nexus through turning CO2 into a liquid monetary asset the assetisation of CO2

# 4. Reflection/discussion points : Wasting CO2

- Extremely tenuous and 'abstracted' relationship with the physical dynamics of climate change negligible impact on greenhouse gas reduction. (On average a single project sinks 0,0025% of Russia's annual carbon emission (which is 5.4% of total global emissions), or we would need 40 000 *registered and operating* landfill sites (imagine the consultancy time and implementation of these)
- → Great instrument for turn waste and carbon into financial assets (assetization), which deepens marketization and which continues to nurture a market-based urban ecological modernizastion process WHILE affecting socio-technical configurations and with a negligible impact on climate change.
- → Thus, whats looks like a failure in real terms of projects realized, in terms of price of CER etc, might be viewed as a success in terms of deepening a private-capital/market-led response to climate change and in terms of privatizing, in this case, the waste commons.

# 4. Reflection/discussion points : Wasting CO2

- Landfill-to-gas/value projects functions as *geographical-discursive projects* through which knowledge systems are enrolled, "solutions" are projected, and *imaginaries* of what is possible is filled up and "crowding out" alternative possibilities.
- Thus *what becomes possible to do locally and globally,* is still in the hands of private (and some extent) public finance (see report by Sarah Bracking (2015) on Green Climate Fund, "the anti-politics of climate finance")
- These projects has a tendency of "coming from outside", being blind to local/regional intersection of how labour, and social and ecological crisis/intersections. Only address them indirectly.
- Social Conflicts around the 'commons' of waste gets silenced

# 4. Reflection/discussion points : Wasting CO2

- "Thus the "anti-politics" of increasing bureaucratic complexity (Ferguson 1994) is a political strategy deployed in negotiations over foundational dialectical contradictions derived from capitalist accumulation, which acts to conceal politics by depoliticising the process and rendering it technical.
- Ferguson (1994: xiv-xv): "[W]hile failing on their own terms, [development interventions] nonetheless have regular effects, which include the expansion and entrenchment of bureaucratic state power, side by side with the projection of a representation of economic and social life which denies "politics" and, to the extent that it is successful, suspends its effects.

# Thank you!