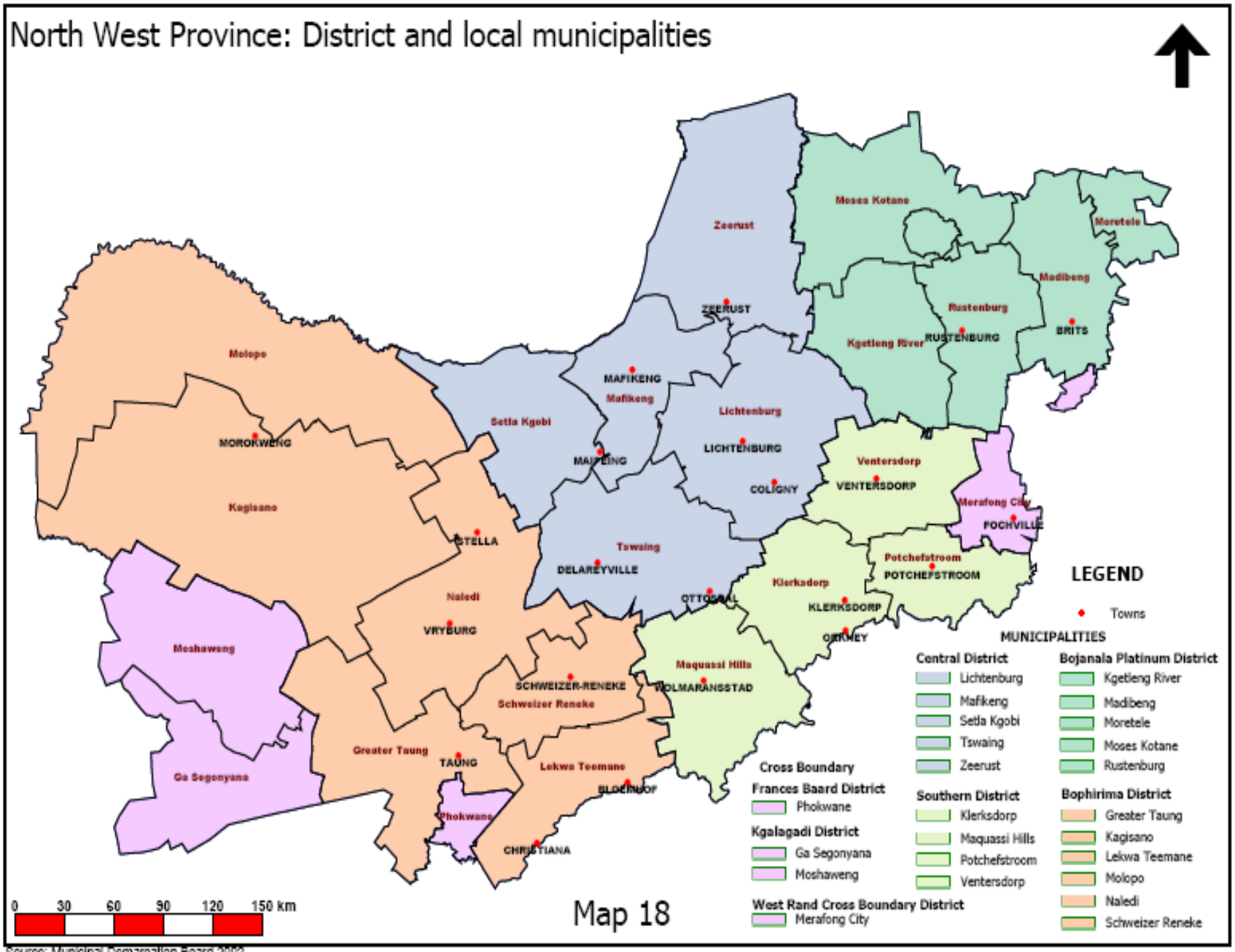
ILMANSUOJELUA NORTH-WEST PROVINCESSA, ETELÄ-AFRIKASSA

Ilmanlaadun mittaajatapaaminen Raumalla 15.4.2015

Ympäristöjohtaja Matti Lankiniemi, Porin kaupunki



Source: Municipal Demarcation Board 2002

PAHIMMAT ILMANSUOJELUONGELMAT NW PROVINSSISSA JA ETELÄ-AFRIKASSA

- KAIVOKSET, SIVUKIVIEN VALTAVAT KASAT JA NIIDEN PÖLYÄMINEN, PÖLYN SISÄLTÄMÄT HAITALLISET METALLIT
- SULATTOJEN LÄHELLÄ SO2, NOKI, HÄKÄ, RASKASMETALLIT
- LANNOITETEOLLISUUDEN AMMONIAKKI
- SEMENTTITEOLLISUUDEN PÖLY
- KÖYHIEN ASUINALUEILLA ERITYISESTI TALVIAIKOINA (LÄMPÖTILA VOI LASKEA POHJOISISSA OSISSA USEITA ASTEITA PAKKASELLE) SAVU JA HÄKÄ, PUUN/JÄTEPUUN/RISUJEN POLTTO LÄMMITYKSESSÄ JA RUUANLAITOSSA
- JÄTTEEN POLTTO. JÄTELAVAT JA KAATOPAIKAT

SUURKAUPUNKIEN LIIKENNE
KESKI- JA ETELÄOSISSA HIILEN POLTTO VOIMALOISSA
ENERGIAN HAASKAUS, UUSIUTUMATTOMIEN HUONO HYÖDYNTÄMINEN

Figure 23: Topographical influence on dispersion of pollutants.

Figure 24: Temperature inversions increase ground level concentrations of pollutants.


BOJANALA
DISTRICT
RUSTENBURG
MUNICIPALITY

NATIONAL ENVIRONMENT MANAGEMENT: AIR QUALITY ACT 39 OF 2004

(English text signed by the President)

[Assented To: 19 February 2005]
[Commencement Date: To be proclaimed]

ACT

To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.

PREAMBLE

WHEREAS the quality of ambient air in many areas of the Republic is not conducive to a healthy environment for the people living in those areas let alone promoting their social and economic advancement;

And whereas the burden of health impacts associated with polluted ambient air falls most heavily on the poor;

And whereas air pollution carries a high social, economic and environmental cost that is seldom borne by the polluter;

And whereas atmospheric emissions of ozone-depleting substances, greenhouse gases and other substances have deleterious effects on the environment both locally and globally;

And whereas everyone has the constitutional right to an environment that is not harmful to their health or well-being;

And whereas everyone has the constitutional right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -

(a) prevent pollution and ecological degradation;

(b) promote conservation; and

(c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development;

Department of Agriculture,
Conservation, Environment and Tourism

ATMOSPHERIC POLLUTION PREVENTION
ACT 45 OF 1965

Provisional Registration
Certificate
Concerning Scheduled Process

Company name

is authorised to continue with the processes listed below, as detailed in the document

number NWPG/DACET/

on the premises known as **Company Physical Address**

..... **PROCESS** **Process ... of the Second Schedule**

Expiry Date

Certificate Number: **NWPG/DACET/**

CHIEF AIR POLLUTION CONTROL OFFICER Date:

Table 4.1: Scheduled Processes in the North West Province

Company	Registered Scheduled Processes (refer Appendix 2: Scheduled Processes, for description)	Information	Included
ATC	6	Refer Chapter 4: Section 3	Yes
Autocast-Brits	30	Refer Chapter 4: Section 3	Yes
Bridgestone SA	64	Refer Chapter 4: Section 3	Yes
Fluoro Pack	21, 24	Refer Chapter 4: Section 3	Yes
Hernic Ferrochrome	50	Refer Chapter 4: Section 3	Yes
NECSA	21, 24	Refer Chapter 4: Section 3	Yes
Robert Bosh	Information not available. Certificate to be issued.		*No*
Vametco	60	Refer Chapter 4: Section 3	Yes
Xstrata-Rhovan	60	Refer Chapter 4: Section 3	Yes
HOLCIM	22	Refer Chapter 4: Section 3	Yes
Lafarge	22	Refer Chapter 4: Section 3	Yes
PPC Slurry	22	Refer Chapter 4: Section 3	Yes
Zeerust Hospital	39	Information not available.	*No*
AngloGold, Orkney	1, 27	Refer Chapter 4: Section 3	Yes
BP Africa Limited, Klerksdorp	Information not available. Certificate to be issued.		*No*
Bulk Mining Explosives	Information not available. Certificate to be issued.		*No*
International Ferro Metals	Information not available. Certificate to be issued.		*No*
Kynoch Fertilizer	1, 2, 42, 43	Refer Chapter 4: Section 3	Yes
North West Medical Waste	39	Refer Chapter 4: Section 3	Yes
ODI Hospital	39	Information not available.	*No*
Potchefstroom City Council	39	Information not available. Certificate to be revised.	*No*
Vryburg Abbatoir	39	Information not available.	*No*
Wilco Rendering	Information not available. Certificate to be issued.		*No*
Anglo Platinum - BMR	29(b)	Refer Chapter 4: Section 3	Yes
Anglo Platinum - PMR	4, 6, 7, 21, 27, 39	Refer Chapter 4: Section 3	Yes
Anglo Platinum - Waterval smelter	1, 27	Refer Chapter 4: Section 3	Yes
Basic Organics	Information not available. Certificate to be issued.		*No*
BP Africa Limited, Rustenburg	Information not available. Certificate to be issued.		*No*
Brits Pale	Information not available. Certificate to be issued.		*No*
Impala Platinum	1, 27	Refer Chapter 4: Section 3	Yes
Lonmin Platinum	27, 23	Refer Chapter 4: Section 3	Yes
Omnia Fertilizer	2, 5, 42, 43	Refer Chapter 4: Section 3	Yes
Rainbow Farms	69	Refer Chapter 4: Section 3	Yes
Reclam Chemicals	Information not available. Certificate to be issued.		*No*
Rustenburg Abbattoir	69	Refer Chapter 4: Section 3	Yes
Rustenburg Local Municipality	39	Information not available. Certificate expired.	*No*
Syngenta	39	Refer Chapter 4: Section 3	Yes
Xstrata - Merafe	50	Refer Chapter 4: Section 3	Yes
Xstrata - Rustenburg	50	Refer Chapter 4: Section 3	Yes
Xstrata - Wonderkop	50	Refer Chapter 4: Section 3	Yes

CORPORATE SERVICES

CITY COUNCIL OF KLERKSDORP

☎ (018) 464 8443 | (018) 464 1780 ▢ PO Box 99 Klerksdorp 2570
E-Mail: records@klerksdorp.org Website: www.klerksdorp.org

Our Ref: 17/8/3/1

Enquiries: Mrs J van Rensburg/cj(547)

28 February 2006

The Manager
North West Medical Waste
P O Box 5257
KOCKSPARK
2523

Attention: George Fourie
Fax: (018) 293-1593

Sir

APPLICATION TO LEASE GROUND:
1 KLERKSDORP LANDFILL SITE, AND
2 5 HECTARES GROUND ADJACENT TO THE NEW PROPOSED GLB DUMPING SITE AT DAWKINSVILLE

With reference to your applications for the lease of the above-mentioned ground, I have to inform you that the applications were considered by the Council and approved as follows on 20 February 2006, (Mayco 164/2006):

"(a) That cognizance be taken of the conditions, requirements and regulations contained in the permit that was issued to North West Medical Waste Company by the Department of Water Affairs and Forestry (DWAF) and that the same document be attached as annexure to the lease agreement between the Council and North West Medical Waste Company.

(b) That approval be granted to North West Medical Waste for:

i) the dumping of medical waste ash at the Klerksdorp Landfill Site, subject to the following conditions:

(a) Conditions and requirements determined by the Department of Water Affairs and Forestry (DWAF).

(b) All regulations determined by DWAF shall be complied with.

(c) That the area used for the disposal of waste ash shall be fenced off.

(d) Access control to the disposal area shall be enforced.

(e) The contents from the incineration plant (ash) in the trenches shall be covered on a daily basis.

(f) The approval shall be applicable until the new dumping site is in operation.

ii) the lease of approximately 5 hectares ground adjacent to the new proposed GLB dumping site at Dawkinsville with effect from 1 March 2006 or other date to be

Department of Agriculture, Conservation, Environment and Tourism

ATMOSPHERIC POLLUTION PREVENTION ACT 45 OF 1965

Registration
Certificate
Concerning Scheduled Process

North West Medical Waste (Pty) Ltd

thorised to continue with the processes:

WASTE INCINERATION PROCESS - Process 39 of the Second Schedule
CLASS 2B - 1 INCINERATOR

n premises known as: **Municipal Waste Dump, Dawkinsville, Klerksdorp** as set in the document number:

NWPG/DAC&E/NWMW/SP39-2B-1/10Aug06

ry Date: **n/ap**

ificate Number: **NWPG/DAC&E/NWMW/SP39-2B-1/10Aug06**

IEF AIR POLLUTION CONTROL OFFICER

Date: **10 August 2006**

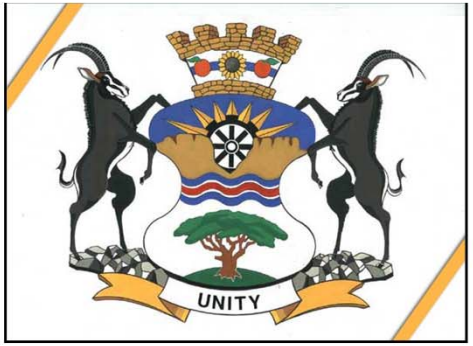
To companies **30.11.06**

Referring to new Air Quality Act 39 of 2004 (AQA) NW province informs companies which have scheduled Processes about following changes:

1. Earlier Chief Air Pollution Control Officer (CAPCO) has retired and new provincial air quality officer is Mr. Tsepo ? Contact person in air quality affairs is Mrs ?? (phone, e-mail, address)
2. Province asks licenced companies with from this date monthly Air quality reports in electronic form by email to Ms ?
3. Province asks licenced companies with Sheduled Process to send Air Quality Report in electonical form by email to Ms ? not later than 15.11.2006
4. Province asks companies to send information of contact persons (name, position, phone, email and address) and information of emission control officers if not the same than contact person not later than 15.11.2006

North West Province also informs companies, that new persons of province will contact companies as soon as possible and arrange visitings to companies to negotiate air quality matters.

LOCAL MUNICIPALITY AIR QUALITY MANAGEMENT PLAN
DRAFT 2.11.06 /Matti Lankiniemi



Rustenburg Local Municipality Air Quality Management Plan

December 2005

Authors: Stuart Piketh, Martin van Nierop, Claire Rautenbach, Nicola Walton, Kristy Ross, Shan Holmes, Tony Richards

GONDWANA ENVIRONMENTAL SOLUTIONS (PTY) LTD

P.O Box 117, 2160
343 Surrey Avenue, Randburg
Tel: +27 11 781 0480
Fax: +27 11 781 8944
E-mail: rustenburg@gesza.co.za

Environmental Science Projects (Pty) Ltd

PALACE CONSULTING ENGINEERS (Pty) Ltd.

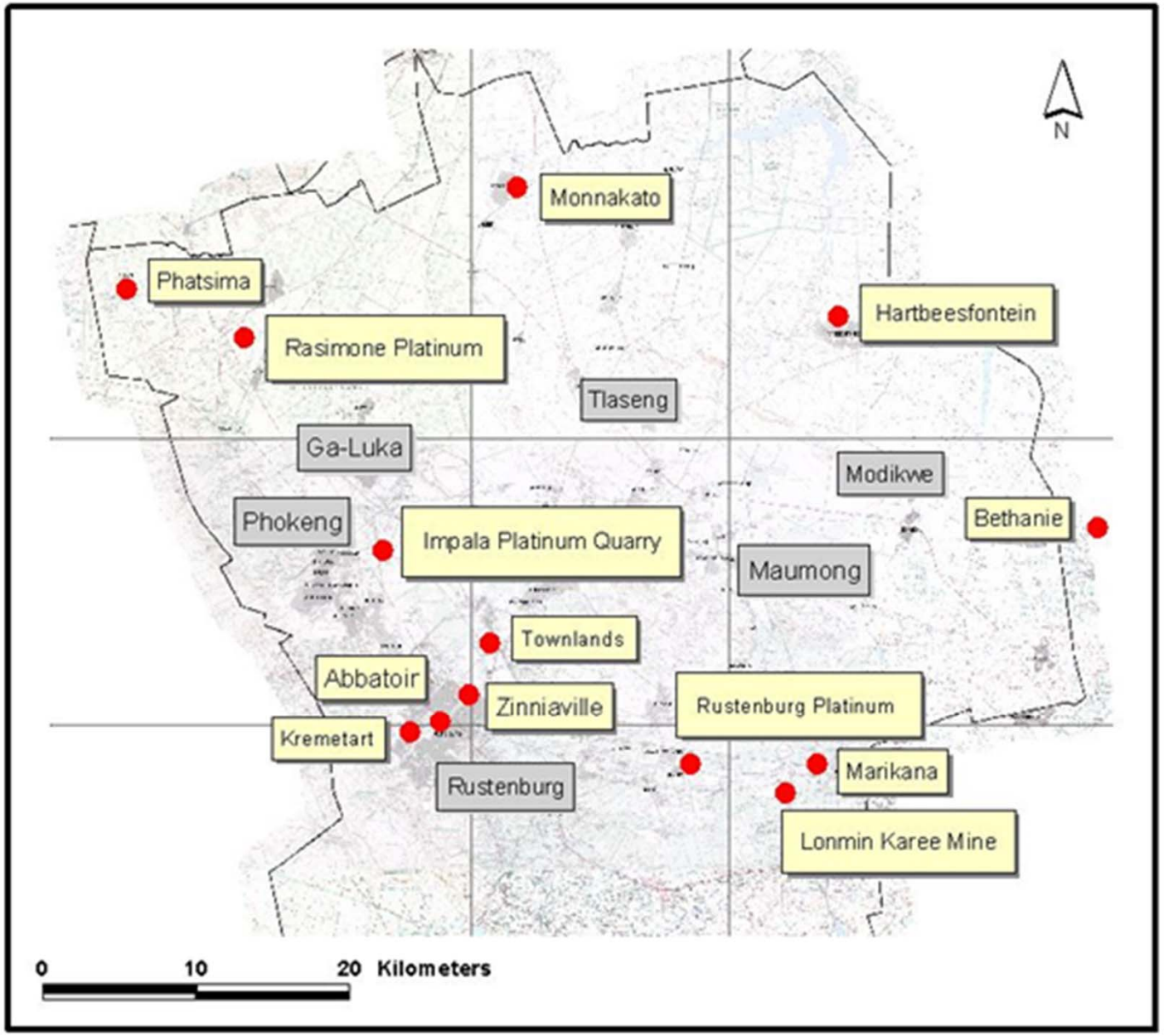


Figure 37: Spatial distribution of landfill sites in the RLM.

pollutant emitted. The following graphs indicate the improvements achieved.

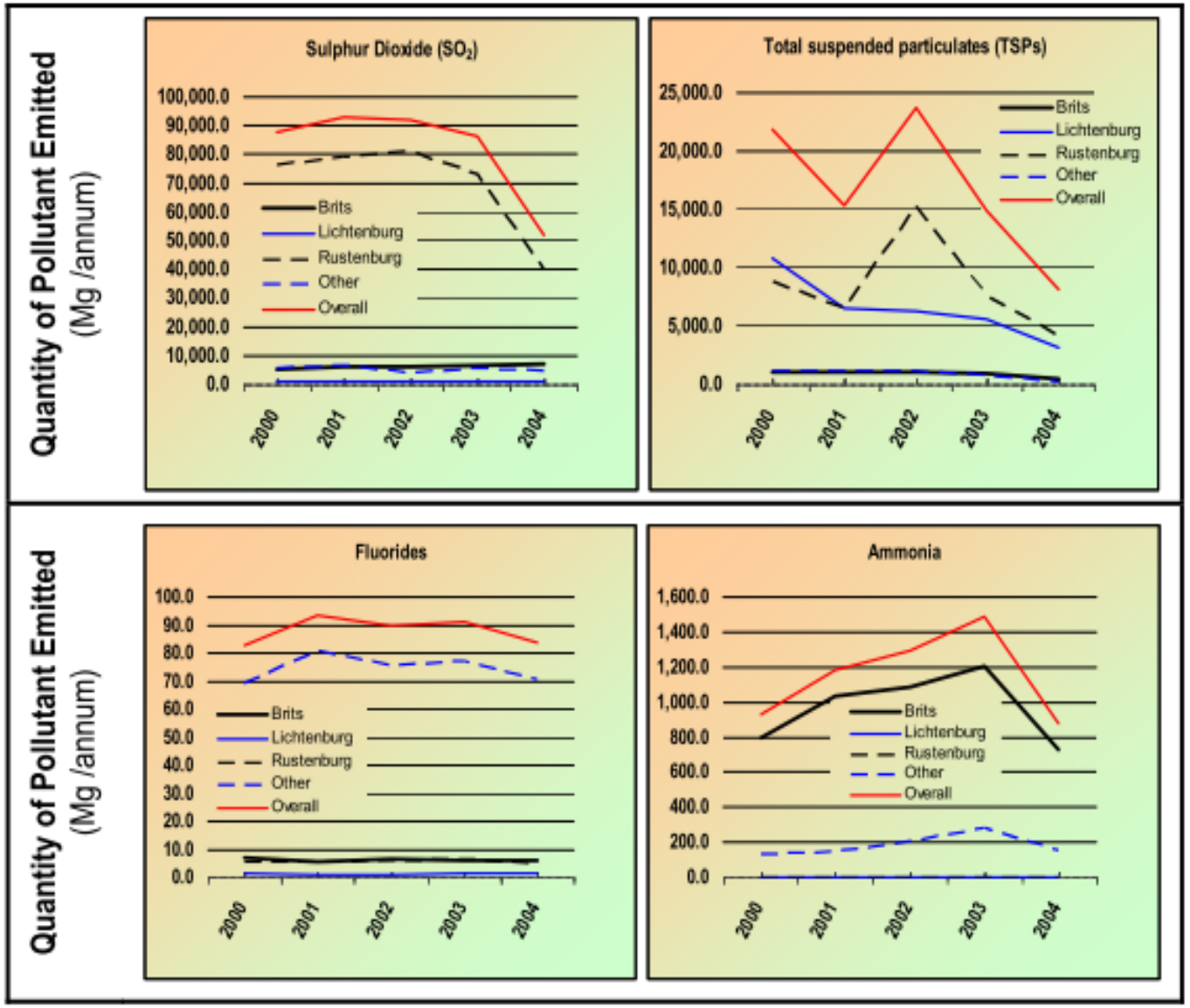


Figure 4.3: Change in estimated quantity of pollutants emitted from OPSP in the North West Province

6.5 Air Quality Monitoring Network

6.5.1 Ambient Air Quality Monitoring Programme

Describe ambient monitoring system; stations operated by industry (location, measured pollutants, equipment, also mobile stations etc.). Stations and measurements done by municipality, surveys done in munipality

6.5.2 Air Quality Monitoring programme Development

Although the new Air Quality Act makes provision for the protection of both human health and long-term environmental degradation, it is envisaged that emphasis will be placed on the protection of human health in the initial implementation of the law. With this as the point of departure it is recommended in this plan that ambient air quality monitoring be undertaken in regions with high population densities and vulnerable nature conservation areas. Human health will be the area of focus. The short and long-term objectives of an integrated Ambient Air Quality Monitoring Network are:

Short-term objectives

Describe municipality initiatives to improve monitoring system in short term

Long-term objectives

Describe municipality initiatives to improve monitoring system in long term

1. **AIR POLLUTION PREVENTION AND EMISSION REDUCTION STRATEGY; DEVELOPMENT AND IMPLEMENTATION**

Appendix 6. Ambient air quality standars according to National Environment: Air Quality Act,
No.39 of 2004

Ambient air quality standards

1. Ambient concentrations of ozone (O3) may not exceed

(a) an instant peak of 0.25 parts per million measured at 25ºC and normal atmospheric pressure; or
(b) a one-hour average of 0.12 parts per million measured at 25ºC and normal atmospheric pressure.

2. Ambient concentrations of the oxides of nitrogen (NOX) may not exceed

(a) an instant peak of 1.4 parts per million measured at 25ºC and normal atmospheric pressure;
(b) a one-hour average of 0.8 parts per million measured at 25ºC and normal atmospheric pressure;
(c) a 24-hour average of 0.4 parts per million measured at 25ºC and normal atmospheric pressure and the 24-hour limit may not be exceeded more than three times in one year;
(d) a one-month average of 0.3 parts per million measured at 25ºC and normal atmospheric pressure; or
(e) an annual average of 0.2 parts per million measured at 25ºC and normal atmospheric pressure.

3. Ambient concentrations of nitrogen dioxide (NO2) may not exceed

4. **Ambient concentrations of sulphur dioxide (SO2) may not exceed**

(a) a ten-minute average instant peak of 0.191 parts per million measured at 25ºC and normal atmospheric pressure;
(b) an instant peak of 500 micrograms per cubic meter (µg/m3) measured at 25ºC and normal atmospheric pressure;
(c) a 24-hour average of 0.048 parts per million or 125 micrograms per cubic meter (µg/m3) measured at 25ºC and normal atmospheric pressure;
(d) an annual average of 0.019 parts per million or 50 micrograms per cubic meter (µg/m3) measured at 25ºC and normal atmospheric pressure.

5. **Ambient concentrations of lead (Pb) may not exceed** a one-month average of 2.5 micrograms per cubic meter (µg/m3).

6. **Ambient concentrations of particulate matter with a particle size of less than 10 microns (µ) in size (PM10)** may not exceed -

(a) a 24-hour average of 180 micrograms per cubic meter (µg/m3) and the 24-hour limit may not be exceeded more than three times in one year; or
(b) an annual average of 60 micrograms per cubic meter (µg/m3).

7. **Ambient concentrations of total suspended solids may not exceed**

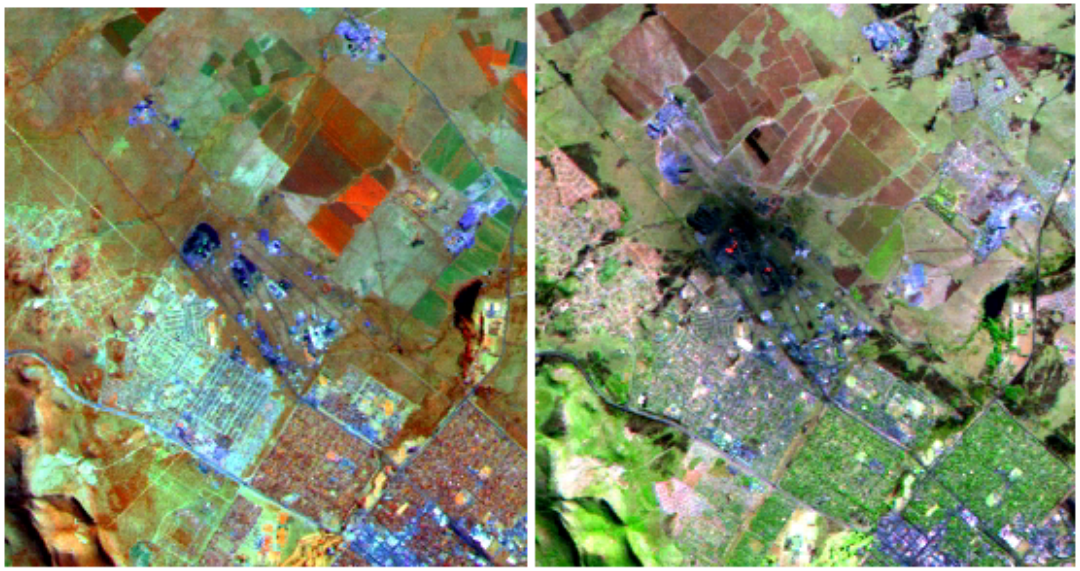


Figure 4. Left Landsat TM5 image from April 1991, right Landsat TM5 from June 2004. Notice the dense settlement in the neighbourhood of a dark halo in the later image in Lat = 25° 38'S, Long =27°13'E around the chromium smelter. Width of the halo is about 2.5 km. Trend of land-use is visible.

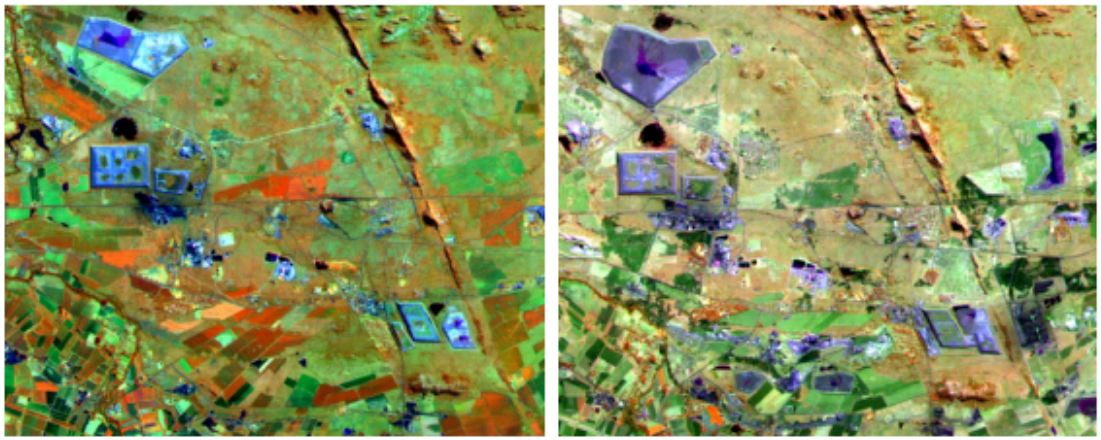
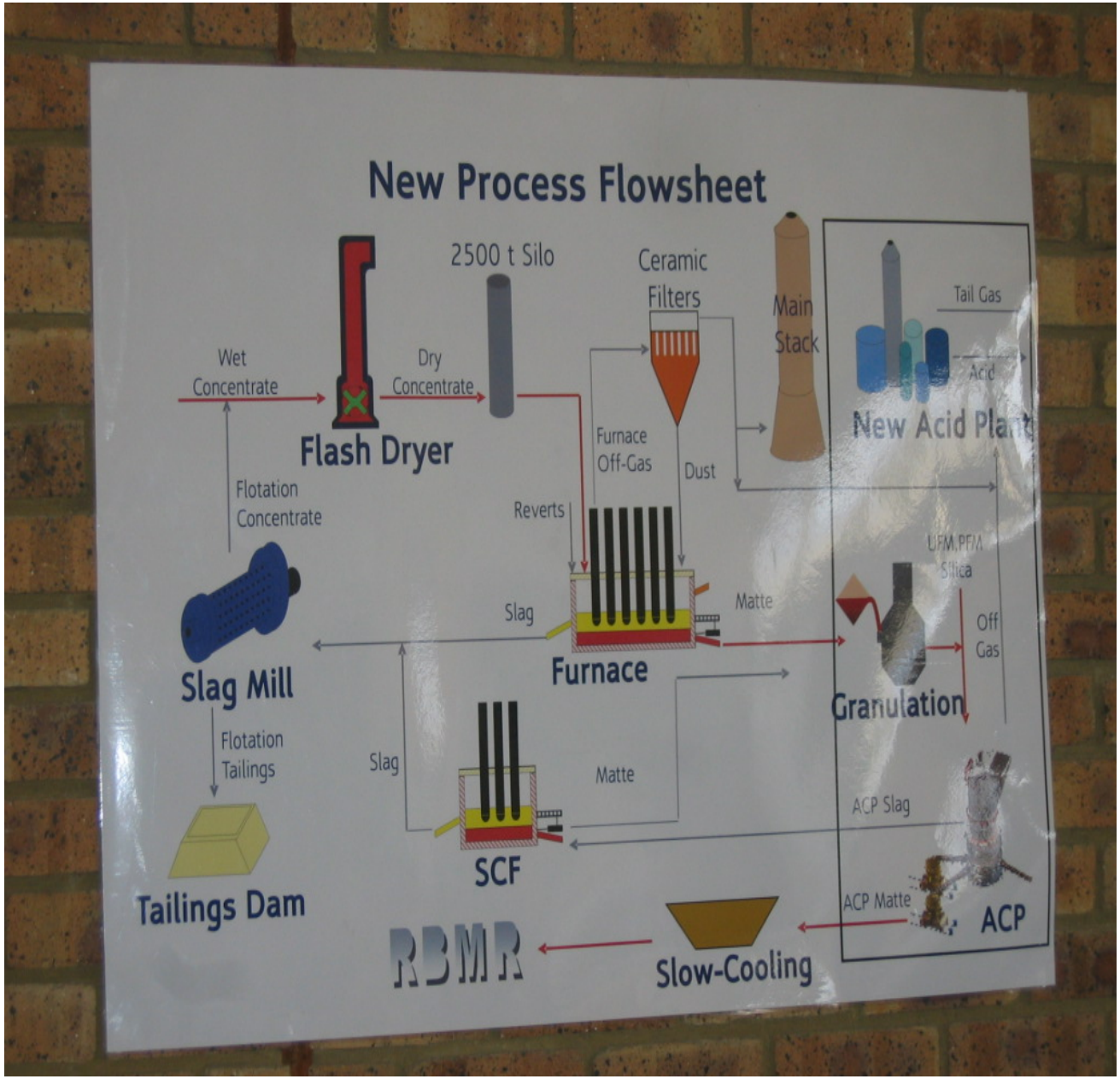


Figure 5. Smelter area with an environmental halo effect. Left Landsat TM5 1991, right Landsat TM5 2004. Trend of land-use is visible. Lat = 25°41'S, Long = 27° 20'E.


RUSTENBURG
AIR QUALITY
AWARENESS WEEK
23 - 27 October 2006
ROAD TO CLEAN AIR
IMPLATS
Distinctly Platinum
ANGLO
PLATINUM

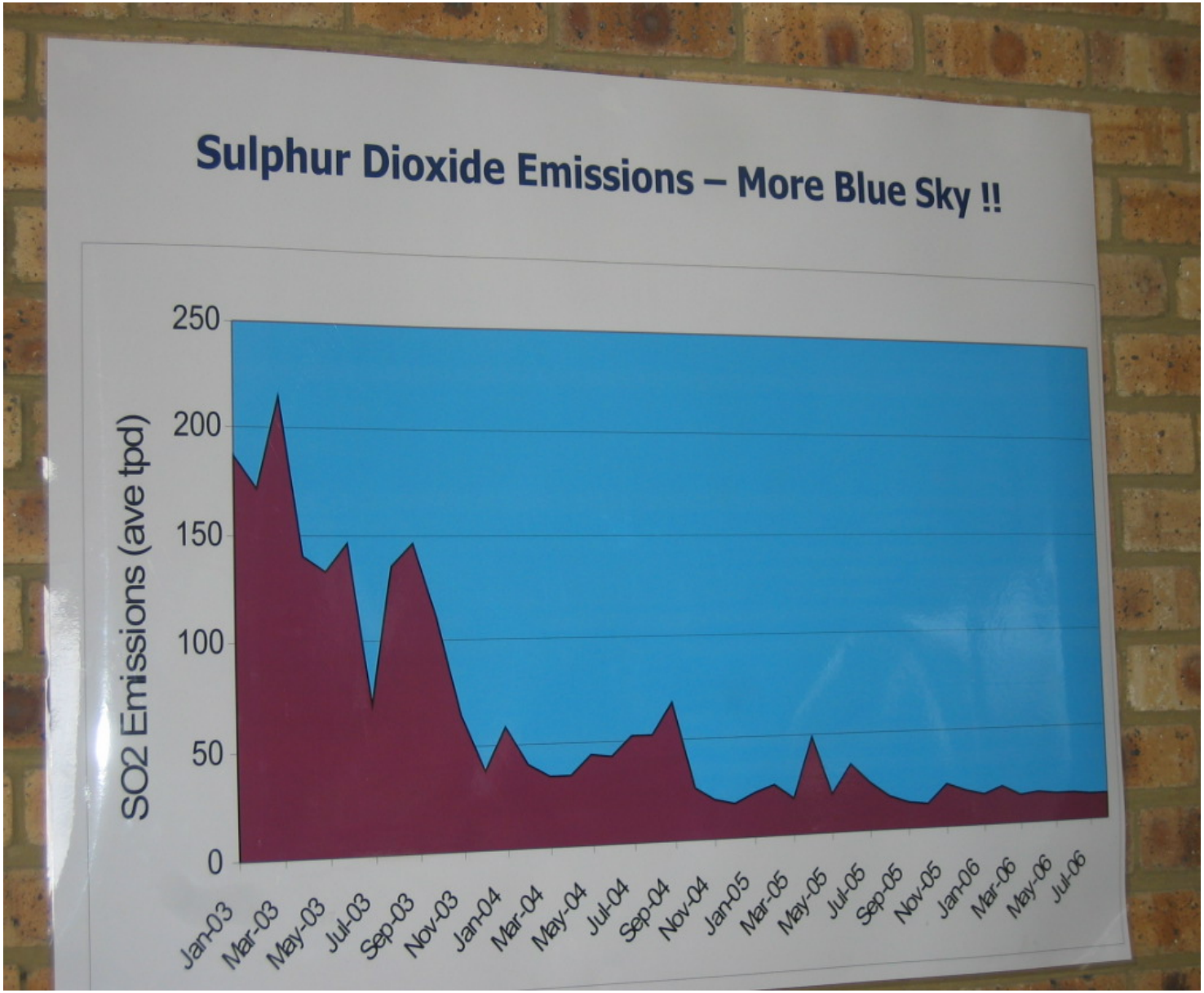

New Process Flowsheet
2500 t Silo
Ceramic Filters
Main Stack
Tail Gas
Acid
New Acid Plant
Wet Concentrate
Dry Concentrate
Flash Dryer
Furnace Off-Gas
Dust
Flotation Concentrate
Reverts
Slag
Matte
Slag Mill
Furnace
Granulation
Off Gas
Flotation Tailings
Slag
Matte
SCF
ACP Slag
Tailings Dam
ACP Matte
ACP
RBMR
Slow-Cooling

Liekkisulatus on Suomessa kehitetty kuparin sulatusmenetelmä. Menetelmää käytetään myös lyijyn ja nikkelin valmistamiseen. Periaate tunnettiin jo vanhastaan, mutta se kehitettiin teolliseen käyttöön vasta Outokumpu Oy:n Harjavallan tehtailla vuosina 1945-1949.

Liekkisulatus tarkoittaa malmin tai rikasteen oman palamislämmön käyttämistä prosessin energiana. Ulkopuolelta tarvitaan vain hapella väkevöityä ilmaa, jota puhalletaan liekkisulatusuuniin. Saatavasta kuparikivestä vähennetään vielä epäpuhtauksia konvertteriuunissa. Anodiuunikäsittelyn jälkeen kupari puhdistetaan elektrolyysillä 99,99-prosenttiseksi.

Tarve menetelmän kehittämiseen ja käyttöönottoon syntyi Suomessa sodan jälkeen vallinneen energiapulan myötä. 1930-luvulla oli siirrytty sähkösulatukseen, mutta se tuli nyt aivan liian kalliiksi. Energian hinta oli noussut, kun huomattava osa vesivoimaloista jäi Neuvostoliitolle luovutetuille alueille. Menetelmää kehittämässä olleista insinööreistä tunnetaan erityisesti Petri Bryk, jota pidetäänkin liekkisulatuksen isänä.

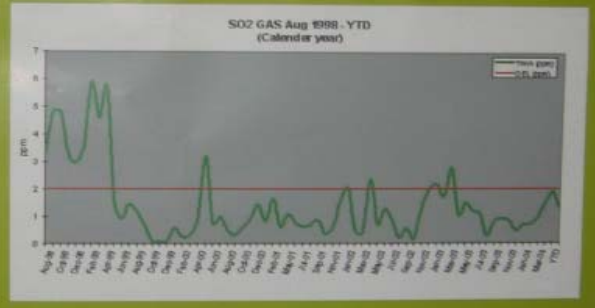
Menetelmä myytiin ensimmäisenä Japaniin 1950-luvulla. Sen jälkeen Outokumpu on myynyt lisenssin yli 50 maahan. 1970-luvulla se nousi maailmalla erittäin suosituksi energiakriisin myötä. Myös tiukentuneet ympäristömääräykset vaikuttivat asiaan, koska liekkisulatus on huomattavasti puhtaampi menetelmä sähkösulatukseen verrattuna. Nykyään yli 50% maailman kuparista tuotetaan liekkisulatusteknologialla.


Sulphur Dioxide Emissions – More Blue Sky !!
SO2 Emissions (ave tpd)
250
200
150
100
50
0
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06

IMPALA PLATINUM AIR QUALITY MEASURED IMPROVEMENTS

This graph illustrates the increased sulphur capture, thus reduced sulphur dioxide emissions to less than 20 tons per day (within permit requirements).

This graph illustrates the improved working conditions for the Impala Smelter employees.



This graph illustrates the increased acid production due to the improved capturing of sulphur dioxide from the converter off gas.

IMPALA


Funnel Vision
REDUCE
RE-USE
RECYCLE
TREAT
DISPOSE
Prevent
Minimise
Repair
Restore
Recover
Compost
Chemical
Physical
Landfill

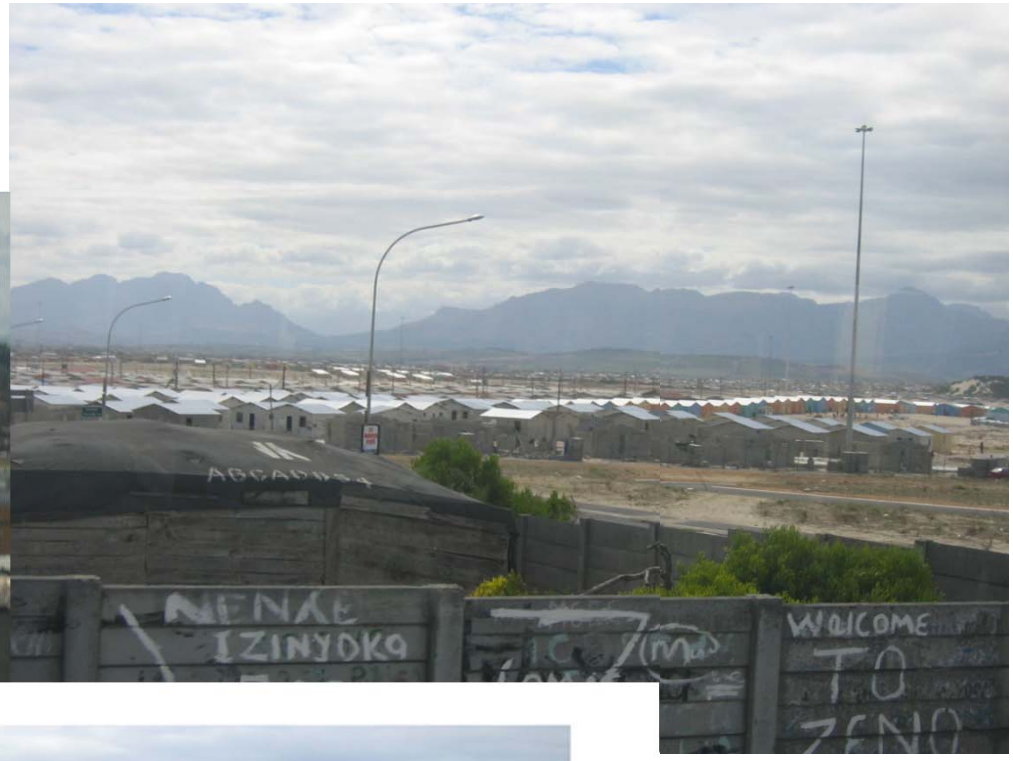

St Lucia
Dumping Site
No dumping
in drive ways
Garden refuse
Scrap metal
Garden refuse
Building rubble

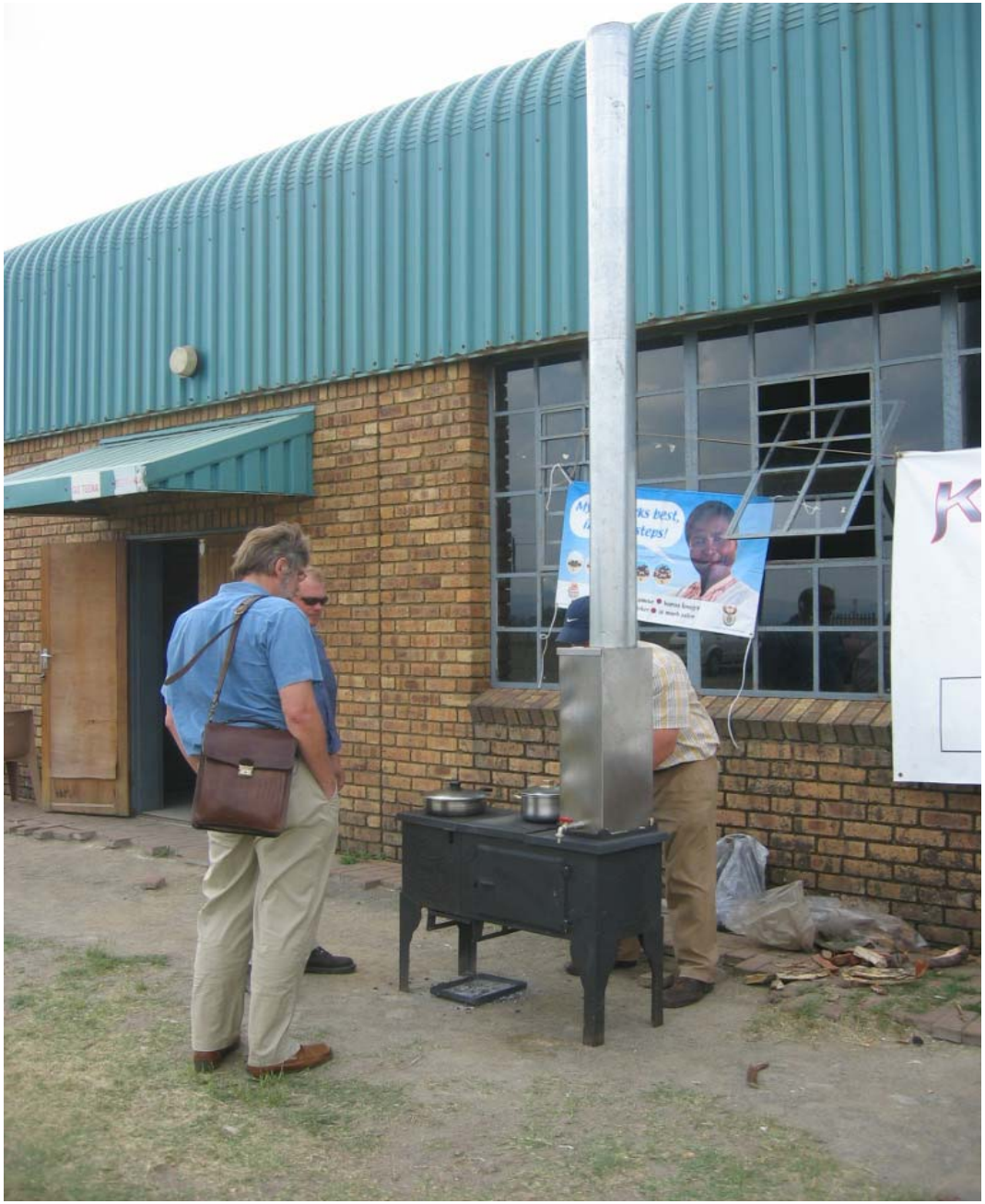

54%
and other amenities with
energy efficient devices
such as CFL light bulbs.
ORITY 2%
hange Strategy addres
measures and projects.
evelopment context needs to be sustainable and
CFL energy saving light bulbs use 80% less
electricity and last up to 6 times longer than
traditional light bulbs.


My fire works best, in 5 easy steps!
1
2
3
4
5
Basa njengo Mogogo
Spare the environment. Spare your health.
gives less smoke
burns longer
Heats quicker
is much safer
The Department of Minerals and Energy


2

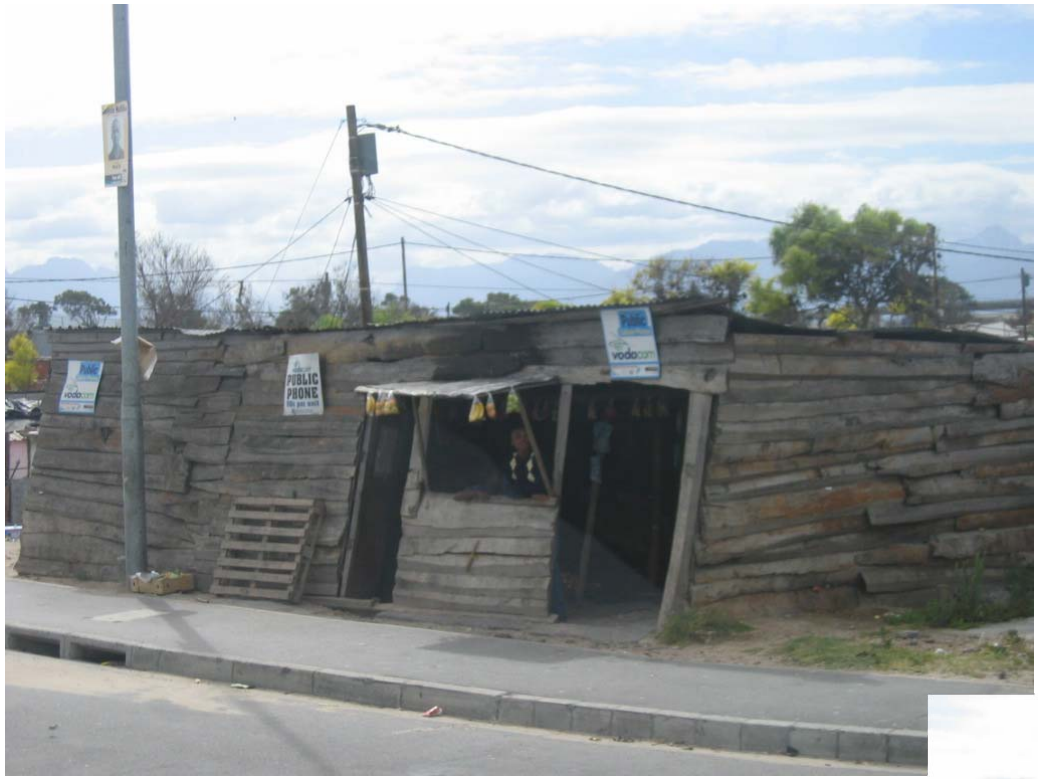

2840


MENÁ
IZINYOKO
WELCOME
TO




GHETTO
SALONS
COSMETICS
Welcome
Hair
Salon
Dark
Lovely


Nokulunga
Cash Store
Nokulunga
Cash Store
HUNTERS
GOLD


PUBLIC
PHONE
vodacom


STOP