



*Your complimentary
use period has ended.
Thank you for using
PDF Complete.*

[Click Here to upgrade to
Unlimited Pages and Expanded Features](#)

Joint Baseline Survey of the Orange-Senqu River System

Survey of Persistent Organic Pollutants and Heavy Metals

UNDP-GEF Project

Executed by UNOPS

United Nations Office for Project Services

UNDP-GEF Project Brief

- “ The Trans-boundary Diagnostic Analysis (TDA) of the Basin identified the following needs:
- **Survey and assessment of persistent organic pollutants (POP) in water bodies and riverine sediments;**
 - **Survey and assessment of heavy metals in water bodies and riverine sediments; and**
 - Water demand and yield forecasts, taking into account climate variability and change.

Joint Baseline Survey of the Orange-Senqu River System

- “ The following investigations shall be carried out:
- Sampling and analysis of physical and chemical water quality parameters. To be conducted by the GTZ supported project and ORASECOM member States.
 - Sampling and analysis of bio-indicators. To be conducted by the EU supported project.
 - **Sampling and analysis of POPs and heavy metals in water bodies and sediment. To be conducted by the UNDP-GEF Project.**

SCOPE of POPs/HM Assignment

- “ Conceptualisation and detailed design of a survey of POPs and heavy metals under the umbrella of the ORASECOM baseline survey;
- “ Implementation of the survey in the field;
- “ Supervision of chemical analysis at an accredited laboratory; and
- “ Interpretation of the survey results in a concise scientific report.

Deliverables

- “ Collation of previous studies in the region
- “ Survey Design Report
 - . Detailed planning and logistics for POPs and heavy metal sampling and analysis
- “ Participation in hands-on training at the onset of the baseline survey.
- “ Implementation of field survey, with sampling in the field.
- “ Coordination and supervision of laboratory analysis
- “ Survey Report

NWU-POPT

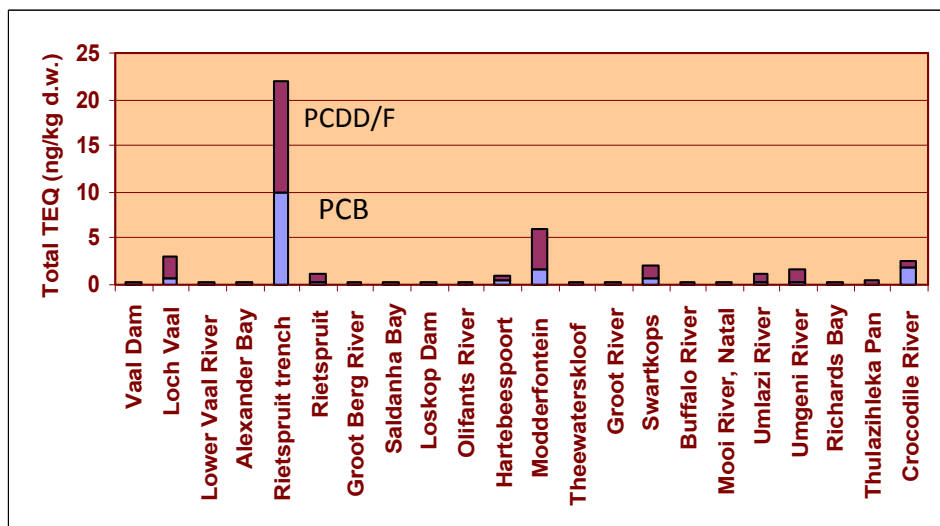
Persistent Organic Pollutants and Toxicants

- “ POPs work since 1981 (started with dioxin analysis)
- “ Well equipped laboratories
- “ Much experience in water body POPT research (e.g.)
 - . 2 WRC POPs projects at NWU
 - . Participate in more WRC projects with others
 - . Crocodile mortality investigations
 - . Endocrine disruption surveys (cell culture laboratory)
 - . Heavy metal activities
- “ Strong international linkages and collaborations with research and analytical institutions (Norway, Sweden, Stockholm Convention, GEF-STAP, etc.)
- “ 51 Peer reviewed publications
- “ 10+ in preparation

Click Here to upgrade to Unlimited Pages and Expanded Features

Inventory of chlorinated dioxin and furan sources and releases in Potchefstroom, South Africa

Laura P. Quinn*, Ilse Jordaan*, Henk Bouwman^{†‡} and Rialet Pieters*

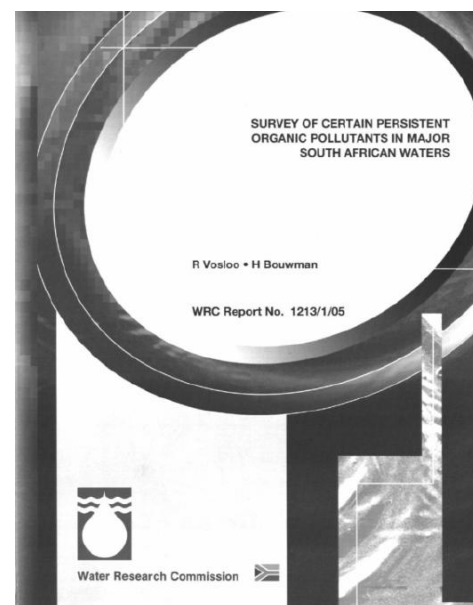


South Africa and the Stockholm Convention on Persistent Organic Pollutants

H. Bouwman*

he
her
dic
(ne
oxi
lin
chi
mc
2,4

Water Research Commission 2005 Report



Chemosphere 73 (2008) 148–154



Available online at www.sciencedirect.com



Minerals Engineering 20 (2007) 191–193

MINERALS
ENGINEERING

This article is also available online at:
www.elsevier.com/locate/mineng

Technical note

The contribution of dioxin-like compounds from platinum mining and processing samples

I. Jordaan^{a,*}, R. Pieters^a, L.P. Quinn^a, J.P. Giesy^{b,c}, P.D. Jones^b, M.B. Murphy^{b,c}, H. Bouwman^a



Contents lists available at ScienceDirect

Chemosphere

journal homepage: www.elsevier.com/locate/chemosphere

Polybrominated diphenyl ethers and HBCD in bird eggs of South Africa

A. Polder^{a,*}, B. Venter^b, J.U. Skaare^{a,c}, H. Bouwman^b

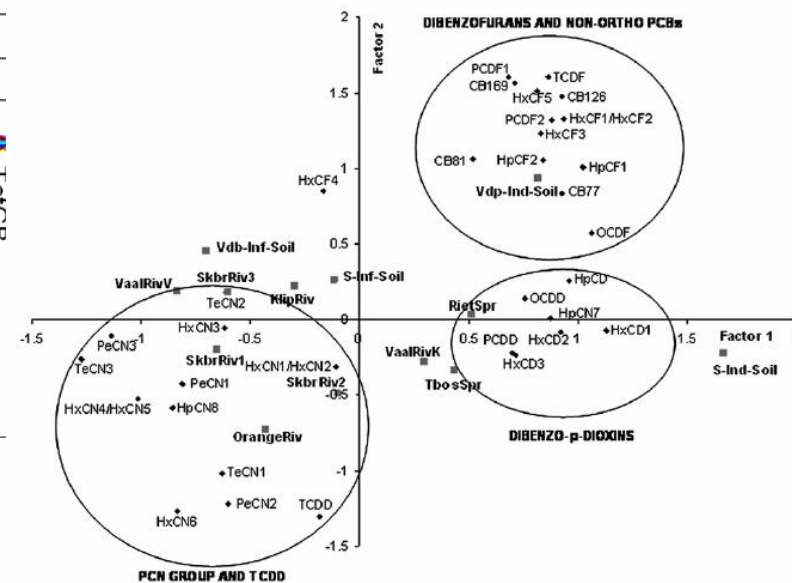
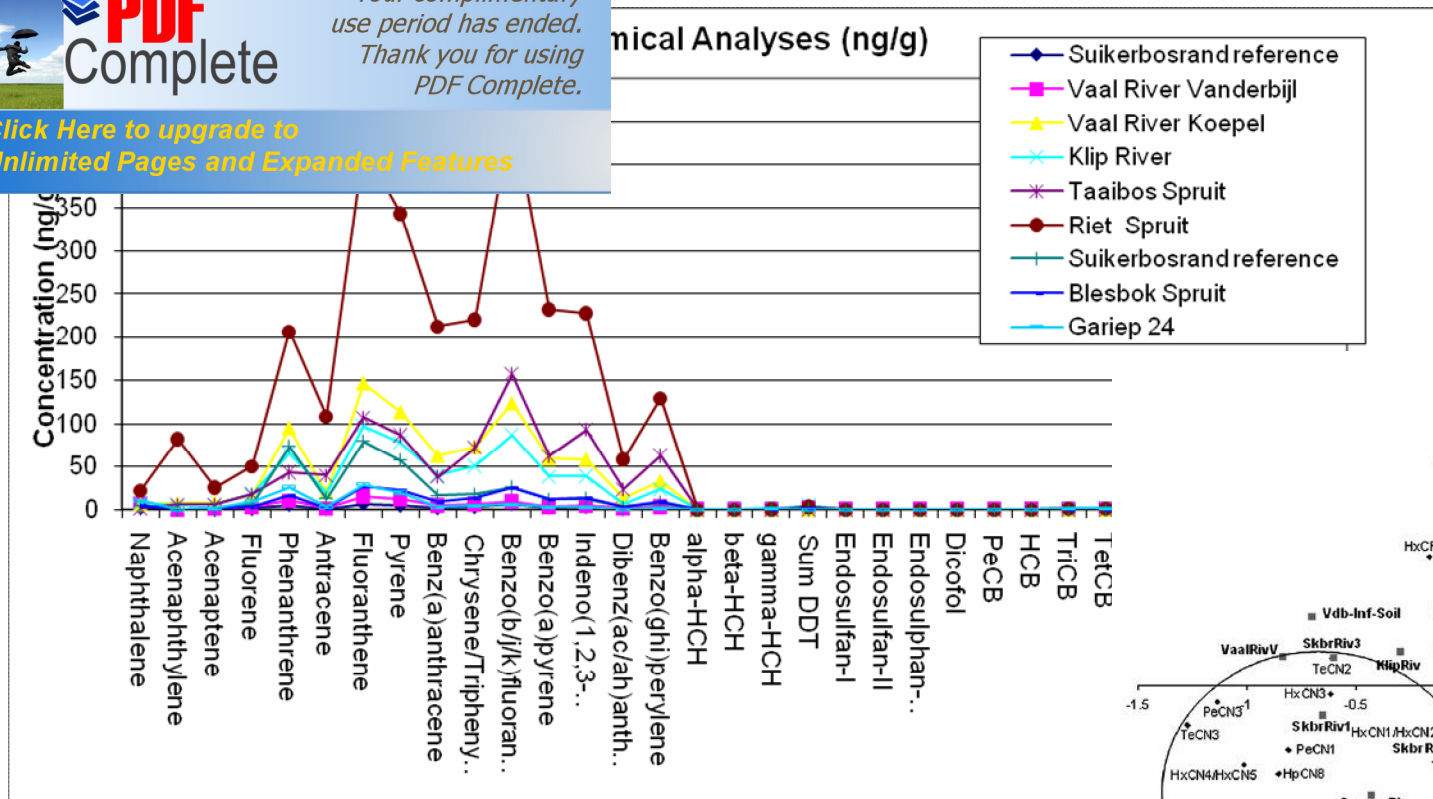


Fig. 3 The same PCA biplot as in Fig. 2, showing only the dioxin-like chemicals.

PAPER 2009

www.rsc.org/jem | Journal of Environmental Monitoring

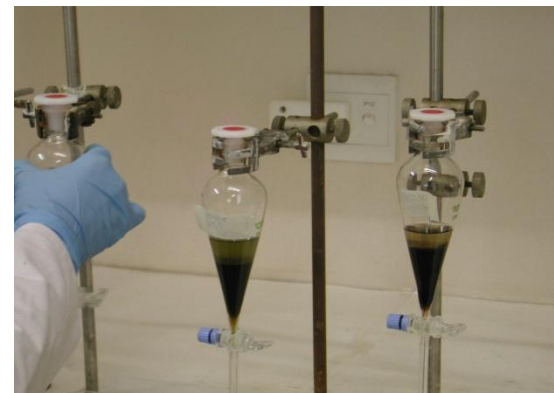
Distribution profiles of selected organic pollutants in soils and sediments of industrial, residential and agricultural areas of South Africa†

Laura Quinn,^{*a} Rialet Pieters,^a Claudine Nieuwoudt,^a Anders Røsrud Borgen,^b Henrik Kylin^c and Henk Bouwman^a

Received 19th March 2009, Accepted 2nd July 2009

First published as an Advance Article on the web 30th July 2009





Dioxin-like chemicals in soil and sediment from residential and industrial areas in central South Africa

Claudine Nieuwoudt^{a,*}, Laura P. Quinn^a, Rialet Pieters^a, Ilse Jordaan^a, Maret Visser^a, Henrik Kylin^{b,c}, Anders R. Borgen^d, John P. Giesy^{e,f,g,h}, Henk Bouwman^a

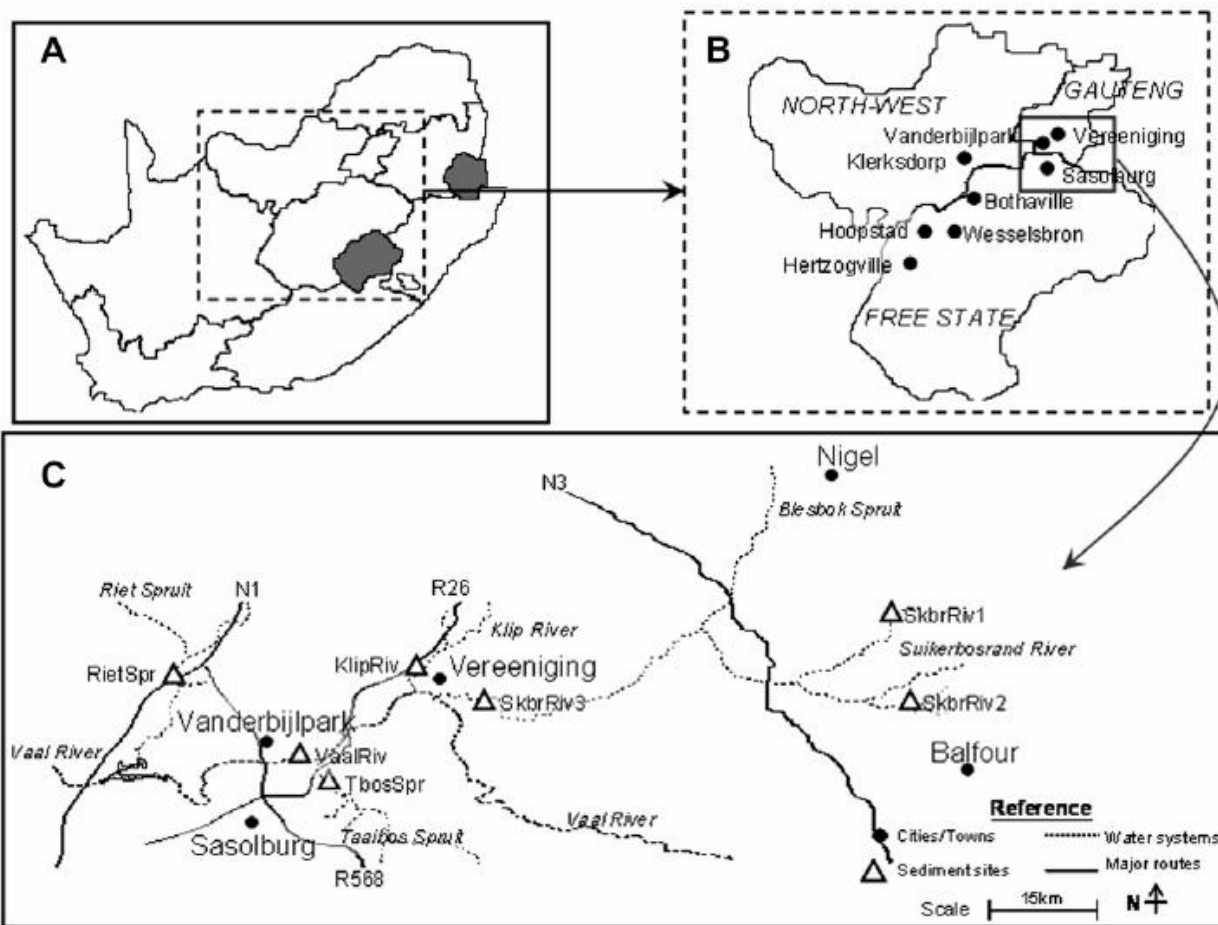


Fig. 1. Map of South Africa (A), indicating the study area in the dotted square (B) and the sediment sampling sites of the industrial region and reference sites are indicated in (C). N1, N3, R26, and R568 indicate major roads.

ent project concept*

- ” Participate in planning and training
- ” Concentrate on sediment samples
 - . Add selected fish tissue samples
 - . Consider aquatic bird egg samples (timing?)
- ” Use same sites as Aquatic Ecological Health Monitoring Programme
- ” Additional sites
 - . River Mouth
 - . Hotspots (Klip River, mining associated tributaries?)
- ” Analyse for heavy metals (ICPMS – in House)
- ” Prepare samples and send for POPs analysis
- ” Analyse and interpret results – report

* To be finalised

POPs

- ” Dioxins, Dibenzofurans, PCBs
- ” Aldrin, chlordane, DDTs, dieldrin, endrin, heptachlor, mirex, toxaphene
- ” Hexachlorbenzene
- ” Pentachlorobenzene
- ” Chlordecone, alpha HCH, beta HCH, gamma HCH (lindane)
- ” Hexabromobiphenyl,
- ” Tetrabromodiphenyl ether, pentabromodiphenyl ether, hexabromodiphenyl ether, heptabromodiphenyl ether
- ” PFOS

New POPs

Heavy metals

- “ Fe, Mn, Hg, Pb, Co, Cu, Zn, Cd, Ni, Cr, Be, Bi, B, Se, U, Ba, Va....*
- “ *To be finalised
- “ No radio-isotope work envisaged in the current project
- “ In house ICP-MS capacity proposed to be used
- “ Previously collected samples not collected for heavy metal analysis, and covers only part of catchment

Logistics

- “ Sediment sampling to be done separately, but coordinated with other activities
 - . Basic water quality data collected (pH, O₂, etc)
- “ Fish tissue sampling by Aquatic Ecological Health Monitoring Programme*
 - . Training and equipment provided by NWU
 - . About 10 pooled samples*
- “ Bird egg sampling – breeding season?

*To be coordinated



*Your complimentary
use period has ended.
Thank you for using
PDF Complete.*

[*Click Here to upgrade to
Unlimited Pages and Expanded Features*](#)

Thank you