



Research Database

THE ANNUAL REPORT:
THE DEVELOPMENT OF AN ENVIRONMENTAL RESEARCH
REGISTER (ERR) FOR THE 2018/19 FINANCIAL YEAR



GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Gauteng Department of Agriculture and Rural Development

Postal Address: Private Bag 8769 Johannesburg 2000

Street address: Umnotho House 56 Eloff Street, Johannesburg, Gauteng, South Africa

Tel: +27(0)11 240 2500

Fax: +27(0)86 243 2555

Website: www.gautengonline.gov.za

Drafted by: Neggie Bakwunye; Ndivhudza Nengovhela; Rina Taviv and Basani Ndindani

Disclaimer: No part of this manual may be copied, transmitted or used for any purpose without the
permission of Gauteng Provincial Government.

Table of Contents

1. PURPOSE.....	1
2. BACKGROUND	1
3. DISCUSSION.....	1
 3.1. METHODOLOGY	3
 a) Data Collection	3
 b) Data Management.....	4
 c) Data Quality	4
 d) Data sharing outside the GDARD.....	4
 3.2. FINDINGS	5
 a) Number of studies per economic sector	5
 b) Focus areas.....	6
 c) Area of implementation.....	7
 d) Host institution.....	8
 e) Geographic location.....	9
 f) The output source	10
 g) Output type.....	11
 3.3. WAY FORWARD/ RECOMMENDATION.....	12

1. PURPOSE

This Annual report provides development progress of an Environmental Research Register (ERR) from inception to February 2019. This project is part of Gauteng Department of Agriculture and Rural Development (GDARD)'s Annual Performance Plan for the 2018/19 financial year, under the Environmental Policy, Planning and Coordination (EPPC) Directorate.

2. BACKGROUND

Presently, the Environmental Policy, Planning and Coordination Directorate lacks a reporting tool on the collective number of different types of research projects being undertaken in the Gauteng Province.

The Research and Development unit under the Environmental Policy, Planning and Coordination has embarked on a process of developing the centralised environmental research database.

ERR is intended to serve as a reporting tool that captures data and produces reports on research carried out by various institutions. The ERR can be used to generate customised reports from different institutions or environmental sectors, and to perform gap analysis. This can assist in generating Key Performance Indicators reports and annual reports as well as contributing to departmental media releases.

The process of the creation of the ERR and how the ERR is currently looking is explained below.

3. DISCUSSION

The ERR responds to the lack of centralised information portal for environmental researches conducted in the Gauteng Province. This will not only allow the GDARD officials with easy access to research information but also assist external stakeholders and the general public.

The Environmental Research Register provides greater exposure for researchers and research institutes. This register has the ability to increase the collaboration

and sharing. Reporting can be done on all information that has been captured such as:

- Researcher profile,
- Geographic location,
- Types of source used for disseminating research outcomes,
- The type of outcomes.

The ERR objectives are:

- To establish and maintain a database that can be used as a benchmark for researches conducted in Gauteng province to support government, research institutions, private sectors and Non-governmental organisations (NGOs);
- To provide essential information to decision makers;
- To track information required by different statutory bodies and stakeholders;
- To provide annual progress reports to the entire provincial government department regarding the number of environmental research projects undertaken;
- Ensure that the research data and reports are saved on the departmental server and accessible to all stakeholders; and
- Facilitate research collaboration between various research institutions and provincial government.

The information captured on the ERR (see attached Annexure 2) is as follows:

- Project title;
- Names of researcher(s);
- Year of publication;
- Contact details (i.e. telephone number, fax and or email);
- Research objectives;
- Economic sector (i.e. standardised economic sectors as per the National GDP);
- Focus Areas (i.e. Agriculture, Air Quality, Disaster management, Ecological research: Biodiversity, Ecological research: Ecosystems, Energy, Environment, GIS, Health, Industries, Infrastructure, Mining, Transport, Waste, Water)
- Area of implementation;
- Host institution;

- Geographic area (i.e. The municipality in which the project/study focused on);
- Status (i.e. completed, ongoing or discontinued);
- Accessibility of the project (i.e. yes or no);
- The output source (i.e. Journal, Institution's online library, Map, Government publications, forum/ seminar/ conference, other website/ online source);
- Output type (i.e. Paper in Journal, Thesis, Government report, Research Report, Conference proceedings, policy/ strategy/framework, survey, paper in website);
- Brief description of output/s (Abstract); and
- Link to abstract or research study/ name of source.

3.1. METHODOLOGY

To date 136 studies have been captured after being screened for relevance and identified to fall within the scope of the database (see attached Annexure 2). The scope was determined in the concept note approved by the HoD on the 13th of December 2018. The process of developing the ERR included the following:

a) Data Collection

Various types of data were collected from the sources such as the NGOs, three spheres of the government, private sectors and academia/research institutions. This was done using the desktop technique. This refers to the use of internet searches with the aim of collecting information. This technique will in future be supplemented by visits to institution's libraries and information hubs in the next financial year.

As part of the data collection process, the objectives and aims were summarised after reading the research report to clearly depict what the study hoped to achieve and avoid ambiguity. A few institutions were contacted to check the validity of contact details of the studies captured.

b) Data Management

Data and relevant records such as research papers and links to the research studies were captured and stored during the register compilation process and have been saved on the GDARD shared folder to enable access after the register has been completed.

c) Data Quality

The Research and Development unit is responsible for updating and maintaining the database. Data collection procedures and quality control measures to ensure data accuracy and integrity are being considered in the development of the ERR. Drafts of the ERR underwent internal reviewing for comments and suggestions for improvement. The improvements include modifying of columns, uniform capturing practices using drop down lists and ensuring user friendliness, e.g. Statistics South Africa (STATSSA)'s standardised economic sector column was added.

Quality checking included verification of collected data and its relevance. The studies that didn't fit within the defined parameters and scope of the database were removed. The report was also circulated for comments and these comments were implemented. Quality check process is continuous and as new information is being captured in the database on regular basis.

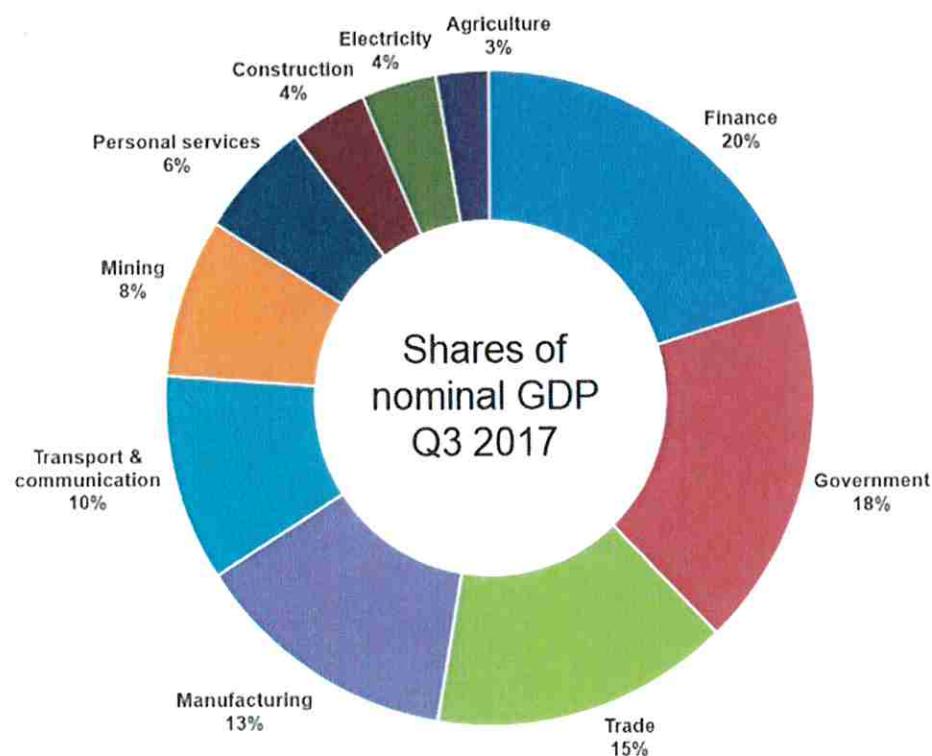
d) Data sharing outside the GDARD

The ERR and approved supporting documents (i.e. manual and annual reports) will be shared with interested individuals, organisations or institutions outside of the GDARD using GDARD website. This will promote collaboration and partnership with other research institutions and will reduce duplications.

3.2. FINDINGS

The results presented below are from 136 studies currently captured in the ERR. Adjustments to the register were continuously made to ensure the register will be user-friendly.

The below chart illustrates the standard definition of economic sectors that make up the Gross Domestic Product (GDP) of South Africa. The reports generated can therefore be used to monitor the amount of research that goes into each standard economic sector that contributes to the GDP.



Source: <https://www.brandsouthafrica.com/investmentsimmigration/business/investing/economic-sectors-agricultural>

a) Number of studies per economic sector

The desktop study determined that government has the highest number of studies captured in the ERR due to most services (e.g. Air Quality, Disaster management,

Health, Waste and Water) being the function of the government sector. The mining sector is second due to the province being heavily mined and mining being one of the drivers to economic development in Gauteng province. Agriculture is third due to importance of food security in this most populous province.

Table 1: Number of studies per economic sector

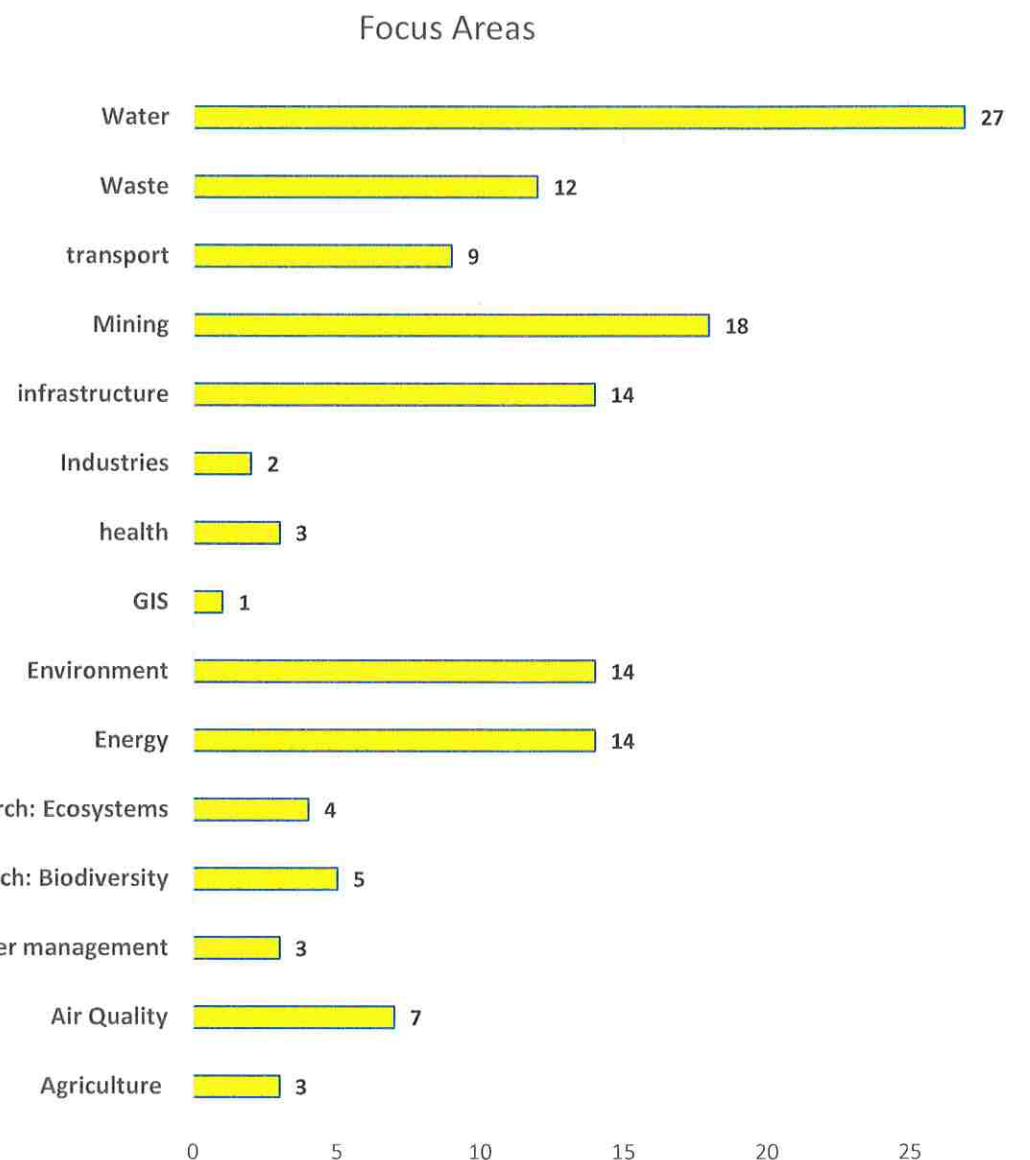
Economic sectors	Number of studies	Percentages	Grading (from highest to lowest)
Agriculture	19	14 %	3
Electricity	16	12 %	4
Construction	14	10 %	5
Personal services	2	1.5 %	8
Mining	20	14.7 %	2
Transport	8	5.8%	6
Communication	0	0%	10
Manufacturing	4	2.9%	7
Trade	1	0.7%	9
Government	50	36.8%	1
Finance	2	1.5%	8
Total	136		

b) Focus areas

The below graph illustrates the focus areas of the studies that are currently captured on the ERR. The below categories are environmental categories used in the ERR.

From the below graph it is evident that most of the studies focus on the water sector. This could be as a result of importance of water because Gauteng is water stressed area dependant on water imports and affected by extreme climate conditions causing both floods and droughts. This is followed by mining due to mining being one of the major economic drivers of the province being mining.

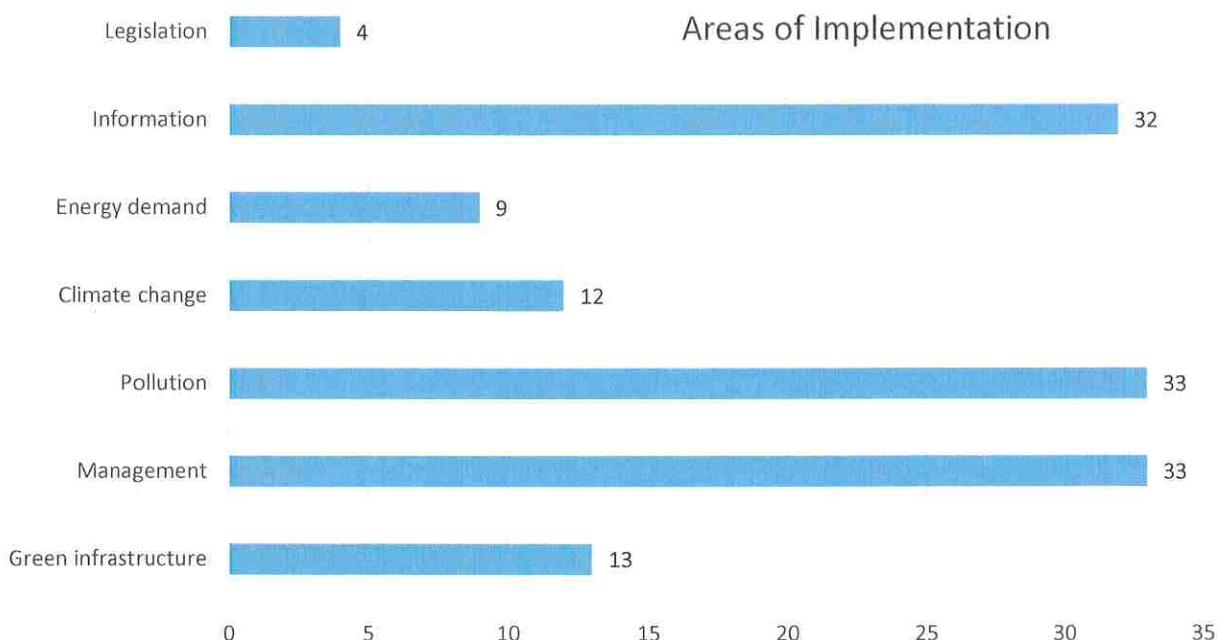
It is noted that there is limited research on health and disaster management. The industrial research looks also very limited but it is possible that this type of research is proprietary and could not be accessed through internet searches.



Graph 1: Focus areas

c) Area of implementation

Each study captured on the ERR was further analysed to check the area of implementation. Since the focus was on environmental research the largest number of studies (33) were either used for sustainability management (referred below as Management) or dedicated to different aspects of Pollution. It is interesting to note that access to information is very important and 32 of the studies were mainly seeking information that can be used for research. This classification is still quite vague and will be improved based on inputs from users of the ERR.



Graph 2: Areas of implementation

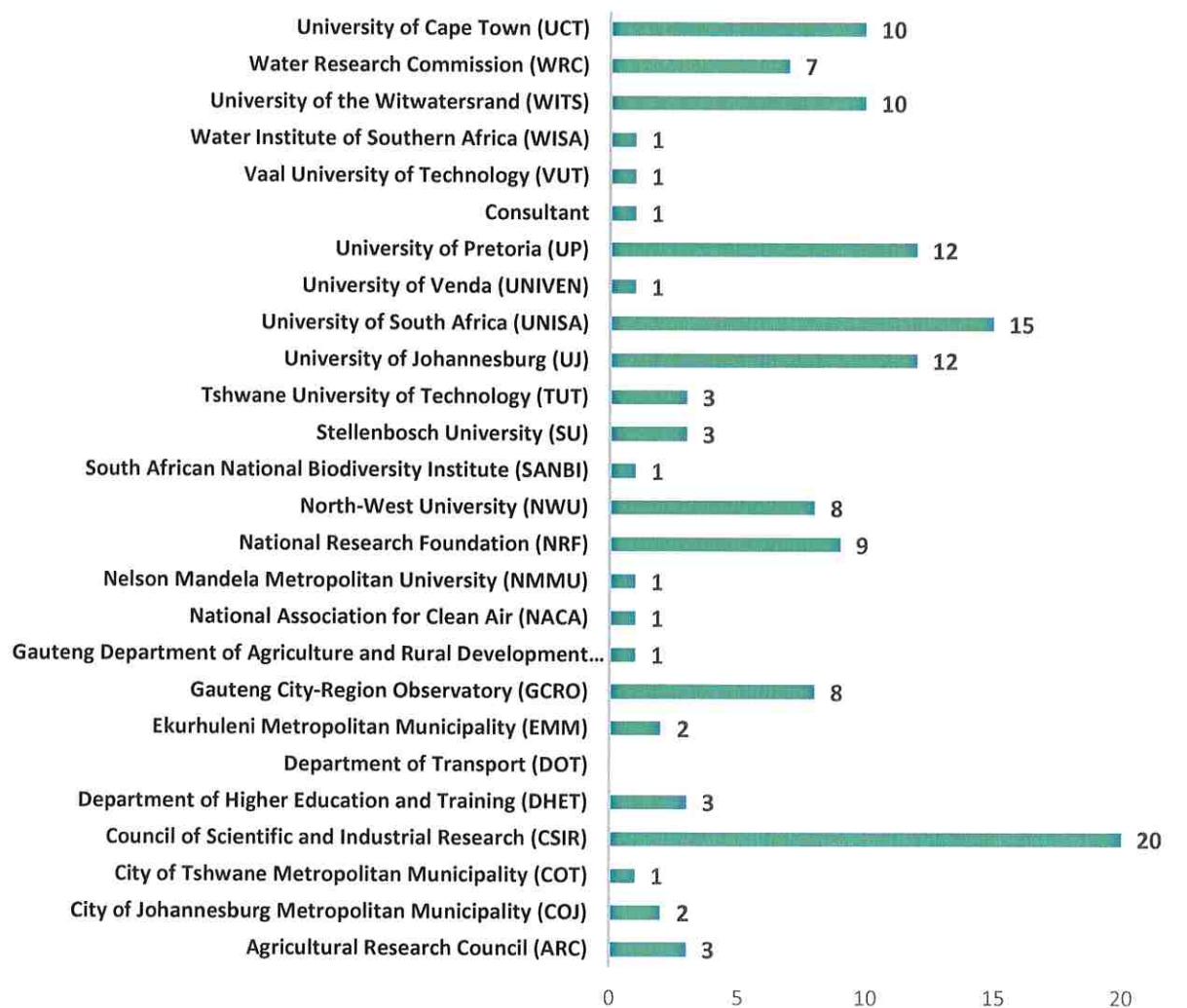
d) Host institution

The below graph illustrates the number of studies captured in the ERR per institution or source. The main aim of the below graph is to show the diversity of the sources of information. It also gives an indication of the possible stakeholders to be contacted for grey data. Grey data refers to the information that is not put on the public domain but can be accessed directly from the institution.

From the graph below the Council of Scientific and Industrial Research (CSIR) as a research institution has the highest number of studies captured, followed by institutions of higher learning such as University of South Africa (UNISA), University of Pretoria (UP), University of Johannesburg (UJ), University of the Witwatersrand (WITS) and University of Cape Town (UCT).

The below graph also shows that even though a number of environmental research projects are produced by the government only a few of them get to be published online and accessible to the public. Hence Batho Pele Principles such as access to information and transparency may be compromised.

HOST INSTITUTIONS



Graph 3: Host institutions

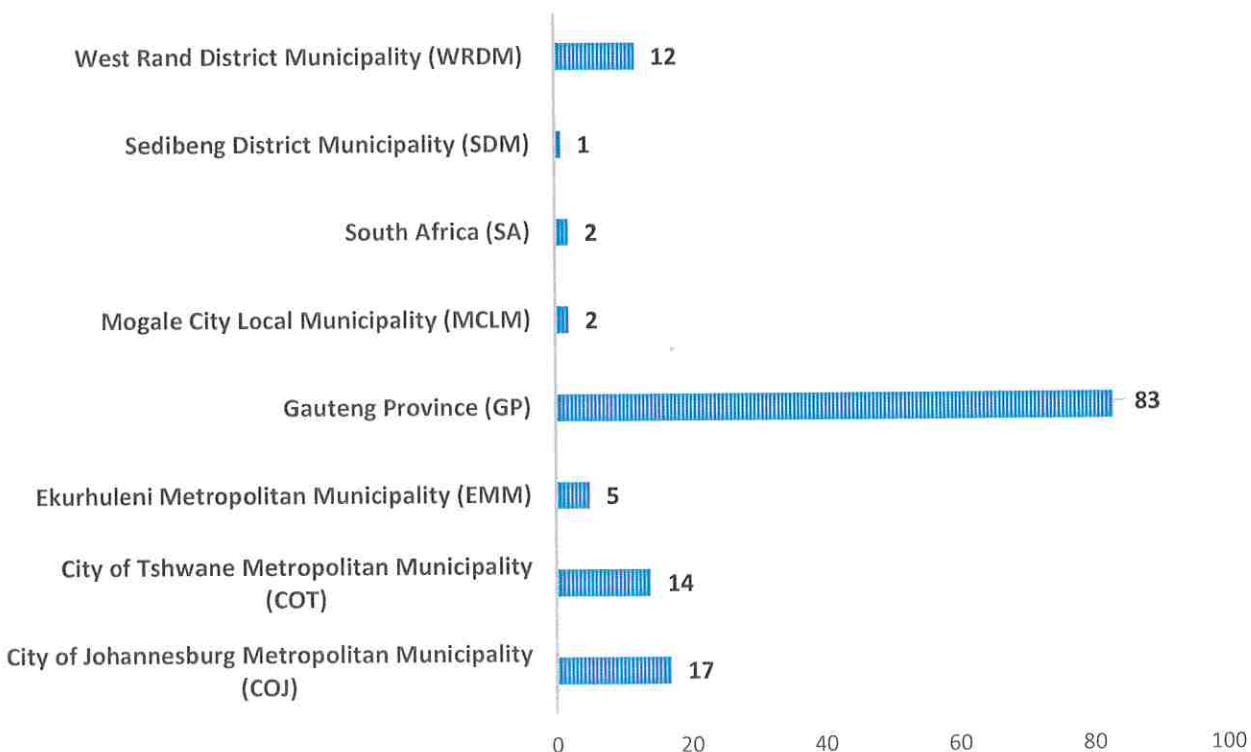
e) Geographic location

The below graph shows the distribution of studies per municipality. The province was used as a study area in cases where the study included more than one municipality. South Africa was also used as a geographic area for studies that had a number of provinces together with Gauteng as a case study.

The results showed that Gauteng province has the highest number of studies captured (83 out of the 136), followed by the City of Johannesburg Metropolitan Municipality with (17 out of the 136 studies) captured.

Important to note in this aspect is that some institutions outside of Gauteng Province had their case studies in Gauteng.

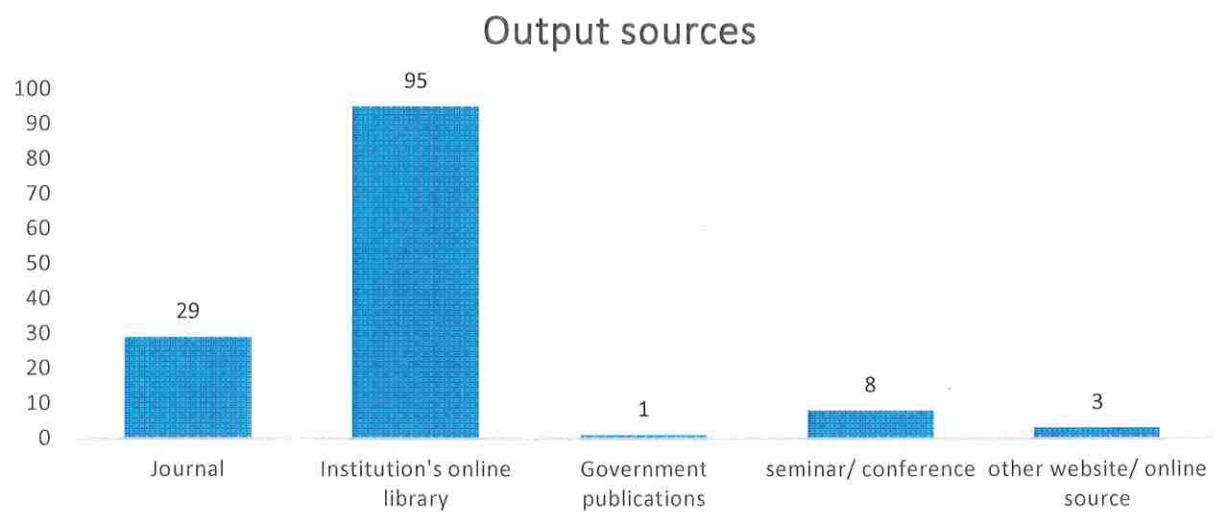
GEOGRAPHIC LOCATIONS



Graph 4: Geographic locations of case studies

f) The output source

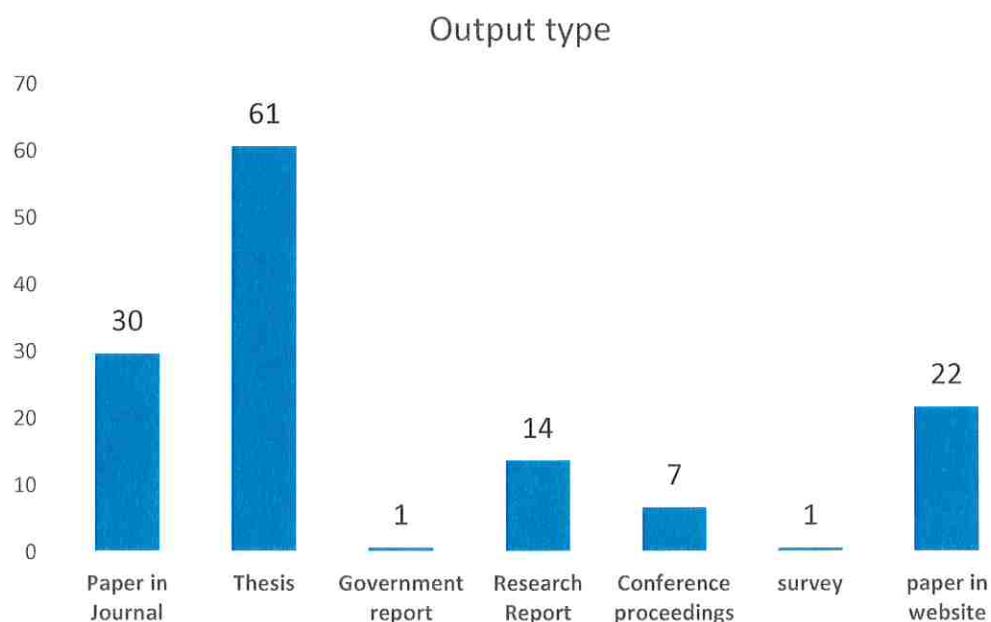
The graph below shows the preferred source of dissemination of research output or studies. As indicated above, most institutions use their online library while some disseminate their information through sources such as journals. It is important to note that while harvesting the information, desktop techniques were used hence the output sources are online sources that were visited.



Graph 5: Output sources

g) Output type

From the below graph, it can be deduced that most of the studies captured on the ERR are produced by universities in form of thesis. The least number of studies captured is government report probably due to the fact that government doesn't publish their outputs online.



Graph 6: Output type

3.3. WAY FORWARD/ RECOMMENDATION

The register and approved reports will be shared with stakeholders outside the departments using GDARD website. This will promote collaboration and partnership with research institutions, hence reduce duplications caused by researchers working in silos.

Annexure 2

Climate change and urban development in southern Africa: the case of Ekurhuleni Municipality (EMM) in South Africa	S.J. Pitketh, C. Vogel, S. Durnmore, C. Culwick, F. Engelbrecht, I. Akoen	2014 Tel: 018 209 1582	The paper provides some lessons learnt when trying to include a climate risk reduction approach into the planning of urban development. Using Climate modelling conducted for this research indicates that it is plausible for an increase in the number of extreme rainfall events to occur over central and eastern South Africa over the next century.	Agriculture	Environment	Climate change	Ekurhuleni Metropolitan Municipality (EMM)	Ekurhuleni Metropolitan Municipality (EMM)	Completed	Yes	Journal	Paper in Journal	https://www.acol.info/index.php?nva=art&nview=10988&id=9824
Challenges facing the implementation of water demand management initiatives in Gauteng Province	R.S. McKenzie, W. Wegelin	2008 Tel: 012 346 3496	The paper will highlight the need for WDM in Gauteng and provide details of the latest investigations into the potential savings that can be achieved. Some of the key problems associated with the implementation of WDM interventions in Gauteng will be discussed and the measures taken to overcome these difficulties will be explained.	Government	Water	Management	Ekurhuleni Metropolitan Municipality (EMM)	Ekurhuleni Metropolitan Municipality (EMM)	Completed	Yes	Journal	Paper in Journal	https://www.acol.info/index.php?nva=art&id=8272
Green growth transitions through a Green Infrastructure approach at the local government level: Case study for the Gauteng City-Region	K. Bobbins, C. Culwick	2015 Tel: 011 717 7280 Fax: 011 717 7280	The report assesses the set of natural and manmade landscape features in the Gauteng City-Region (GCR) and an interrogation into how the services provided by these assets are perceived, understood and valued.	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/outputs/research-reports/
Incorporating Green Infrastructure into Gauteng City-Region Planning: Sustainable Infrastructure Handbook	K. Bobbins, C. Culwick	2008 Tel: 011 717 7280 Fax: 011 717 7280	The paper explores the potential for GI to meet green growth commitments in the Gauteng City-Region (GCR). The research includes a desktop analysis of how the concept of green growth has permeated policy and planning in South Africa and how GI can be used to operationalise green growth concepts.	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/outputs/research-reports/
Incorporating Green Infrastructure into Gauteng City-Region Planning: Sustainable Infrastructure Handbook	K. Bobbins, C. Culwick	2013 Tel: 011 717 7280 Fax: 011 717 7280	The paper explores the potential for GI to meet green growth commitments in the Gauteng City-Region (GCR). The research includes a desktop analysis of how the concept of green growth has permeated policy and planning in South Africa and how GI can be used to operationalise green growth concepts.	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/outputs/research-reports/
State of Green Infrastructure in the GCR	K. Bobbins , G. Gotz, A. Schaffler	2016 Tel: 011 717 7280 Fax: 011 717 7280	This State of Green Infrastructure report is both an assessment of the set of natural and manmade landscape features in the Gauteng City-Region (GCR) and an interrogation into how the services provided by these assets are perceived, understood and valued.	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/outputs/research-reports/
A framework for a green infrastructure planning approach in the Gauteng City-Region, Johannesburg: Gauteng City-Region Observatory	K. Bobbins, & C Culwick	2014 Tel: 011 717 7280 Fax: 011 717 7280	It assembles expert inputs and reflections from collaborative stakeholder discussions in what was known as the Green Infrastructure CityLab to illustrate important considerations for the development of a GI planning approach in the Gauteng City-Region (GCR).	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/media/report/GG_R0_Green_Assets_Report_Digital_version.pdf
A framework for a green infrastructure planning approach in the Gauteng City-Region	K. Bobbins, C. Culwick	2016 Tel: 011 717 1888	A framework for a green infrastructure planning approach in the Gauteng City-Region. GCRO's fourth Research Report, builds on the foundations laid in the State of Green Infrastructure report. It assembles expert inputs and reflections from collaborative stakeholder discussions in what was known as the Green Infrastructure CityLab to illustrate important considerations for the development of a GI planning approach in the Gauteng City-Region (GCR).	Construction	Infrastructure	Green infrastructure	Gauteng City-Region Observatory (GCRO)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Research Report	http://www.gcro.ac.za/media/report/GG_R0_Green_Assets_Report_Digital_version.pdf
Gauteng Province Environmental outlook report	T. Stenkamp, R. Alexandra, J. Lobster, G. van Weele and S. Govender	2017 Tel: 011 240 2500	The report gives an update on the activities that occurred between 2012 and 2016 while also providing a prediction of the likely changes in key environmental elements and the proposed interventions in the Province.	Agriculture	Environment	Management	Gauteng Department of Agriculture and Rural Development (GDARD)	Gauteng Province (GP)	Completed	Yes	Government publications	Government report	http://www.paultons.gov.za/media/Pages/Special.aspx?nva=hpchewtash1065709&id=4672472&170_05&04370912#Page%3DTRUE-0-SpaceDate%3D20170204%5C2022%5C2000%5C400-p_1053022-Page%20Row%3D31
Investigating air quality and air-related complaints in the City of Tshwane, South Africa	C. Wright	2016 Fax: 086 513 7400 Cell:071 683 9770	The quantities and type of fuel consumed. Seasonality, availability, price and cultural aspects all have a bearing on the fuel source choice and the quantity consumed. The most significant temporal observations identified for domestic burning are seasonal ones.	Government	Air Quality	Management	National Association for Clean Air (NACA)	City of Tshwane Metropolitan Municipality (CTM)	Completed	Yes	Institution's online library	Thesis	http://hdl.handle.net/10620/EJC10371
Tracking Gauteng thunderstorms using crowdsourced Twitter data between Soweto and Pretoria	L. Butgereit	2014 Tel: 041 504 1111	This research investigated the possibility of mapping the track of Gauteng thunderstorms by using crowdsourced data from Twitter. The paper describes a model (entitled the Thunder-Cluster Model) and instantiation of that model which extracts data from Twitter, analyses the textual information for thunderstorm information and plots the appropriate data on a map.	Government	Disaster management	Management	Nelson Mandela Metropolitan University (NMMU)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transtd/103/EJC163087?fromSearch=true
Atmospheric thermodynamics and circulation associated with heavy rainfall over the Gauteng Province, South Africa	L.L. Dyson	2013 Tel: 012 481 4016	The primary focus of this thesis is to describe the prevailing atmospheric conditions when heavy rainfall occurs over the Gauteng Province in South Africa. This thesis first describes the characteristics of daily heavy rainfall over Gauteng by defining different heavy rainfall classes and considering the	Agriculture	Environment	Climate change	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3repository.up.ac.za%2263%32926
Effectiveness of state of the environment reporting (SoER) in the Gauteng Province	G.V. Mlangeni	2008 Tel: 012 481 4016	The purpose of this mini-dissertation was to investigate the effectiveness of SoE Reporting within Category A, B and C Municipalities in the Gauteng Province.	Agriculture	Environment	Management	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3space.mvu.ac.za%3A103452F4092
The relationship between planning and environmental management in Gauteng	G.M MacCarron	2009 Tel: 012 481 4016	This study examines the evolution of each of the fields in the South African context.	Agriculture	Environment	Management	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3space.wits.ac.za%3A10539%2F7095
The sustainability of the Botlife ke Botho environmental projects and programmes in Gauteng Province	L.E. Molla	2008 Tel: 011 240 2500	The aim of this study was to describe the status quo of the sustainability of the Botlife ke Botho environmental projects and programmes in Gauteng Province.	Agriculture	Environment	Information	National Research Foundation (NRF)	Mogale City Local Municipality (MCLM)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3A17148
Establishing guidelines for environmental management plans for golf course developments in Gauteng Province	B. De Wet	2008 Tel: 012 481 4016	The main objective of this study was to develop guidelines for Environmental Management Plans (EMP) specifically focused on golf course developments in the Gauteng Province.	Construction	Infrastructure	Legislation	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3A716
Implications of environmental risk in a divided society: the case of acid mine drainage on the West Rand, South Africa, as an example of a risk society	M. Edmiston	2010 Tel: 012 481 4016	Having engendered intense political debate due to the threat it poses to the environment and society and the uncertainty over how to manage it, the contamination on the West Rand must be argued as representing a classic example of a risk society. Using a critical research design, this study aims to examine the truth behind this statement and furthermore, to what degree a unique form of risk society might be emerging.	Mining	Mining	Information	National Research Foundation (NRF)	West Rand District Municipality (WRDM)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3A10539%2F8888
Waste tyre management problems in South Africa and the possible opportunities that can be created through the recycling thereof	M. L. Mahlangu	2009 Tel: 012 481 4016	The research work critically analyzed the factors responsible for imprudent waste tyre management in South Africa.	Manufacturing	Waste	Information	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3int.unisa.ac.za%3A10500%2F159
Feasibility study of in-house treatment of wastewater from a nitrous oxide codie production plant	J.A. Ntuli	2015 Tel: 012 481 4016	A feasibility study into the use of ion exchange technology for in-house treatment of wastewater from a nitrous oxide (NO2) production plant was carried out at the AFROX Northern Operations SOC in Gauteng.	Personal services	Waste	Pollution	National Research Foundation (NRF)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3int.unisa.ac.za%3A10539%2F1729
Evaluation of the impacts of municipal wastewater treatment on the receiving environment : a case study of the Olifantsvlei wastewater treatment plant in the Gauteng Province, South Africa	M. L. Molothwa	2017 Tel: 012 481 4016	This study was conducted to assess the environmental impact that the wastewater effluent has on the Klip River system, the performance of the plant and also to assess the spatial and temporal variations of water quality along the Klip River system.	Government	Water	Pollution	National Research Foundation (NRF)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3int.unisa.ac.za%3A10500%2F2269
Weaknesses in Environmental Action in South Africa: A Historical Glance on the West Rand (Gauteng Province)	E.S. Van Eeden	2008 Elize.vanEeden@nwu.ac.za	This paper aims to provide a historical overview of some weaknesses in the taking of actions (such as environmental management), and the lack of achieving progress after having taken action. The process of environmental conservation in the West Rand, with specific reference to the Maropeng municipal area is discussed. Maropeng is situated in the Gauteng Province.	Government	Ecological research: Ecosystems	Information	North-West University (NWU)	West Rand District Municipality (WRDM)	Completed	Yes	Journal	Paper in Journal	https://www.tandfonline.com/doi/abs/10.1080/07900920820127382
The assessment of variable buffer zones to manage rocky ridges in Johannesburg, Gauteng	I.M.R. Garrett	2008 Tel: 018 299 1582 Fax: 018 299 1582	The key objective of this paper is to suggest the possibility of determining a buffer zone that accommodates the unique environmental aspects of each site.	Government	Environment	Information	North-West University (NWU)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3space.nwu.ac.za%3A10349%2F18
An analytical analysis of the application of S24G provisions of the National Environmental Management Act (NEMA) : the Gauteng Province experience	L.F September	2012 Tel: 012 249 4982	This research presents theoretical and practical perspectives on non-compliance and analyses data collected on S24G applications in Gauteng in order to determine the effect of S24G on compliance.	Government	Environment	Legislation	North-West University (NWU)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.nrf.ac.za/portal?action=view&id=identifier%3Aunion.nrlid.org%3Awp%32Fce%3Awp3space.nwu.ac.za%3A10349%2F848
Threats and opportunities for post-closure development in dolomitic gold mining areas of the West Rand and Far West Rand (South Africa) - a hydraulic view Part 1: Mining legacy and future threats	F. Winde, E.J. Stock	2009 Tel: 018 299 1582 Fax: 018 299 1582	This paper explores examples from a milled-out goldfield west of Johannesburg (West Rand), where consequences of mine closure can currently be observed, as well as from an active goldfield on the Far West Rand. Both areas are linked by the Wonderfontein spruit, a stream drawing much national and international media attention for its high levels of radioactive pollution.	Mining	Mining	Information	North-West University (NWU)	West Rand District Municipality (WRDM)	Completed	Yes	Journal	Paper in Journal	https://www.acol.info/index.php?nva=art&nview=10988&id=9824

Overview of the influences of mining-related pollution on the water quality of the Mool River system's reservoir, using basic statistical analyses and self organised mapping	S. Barnard, A. Venter, C.E. van Ginkel2	2012	Tel: 018 299 2508 209 2370	fax: 018	The aim of this study was to identify any hydro-chemical changes that occurred in the water quality of Klerkskraal, Boskop and Potchefstroom Dams during the period 1995 to 2010. Self-organised mapping (SOM) of the data emphasized the influence of mining-related effluents on the quality of the freshwater resources of the Boskop Dam and Potchefstroom Dam relative to Klerkskraal Dam which is located upstream of mining-related influences and which could therefore serve as a reference site.	Mining	Mining	Information	North-West University (NWU)	West Rand District Municipality (WRDM)	Completed	Yes	Journal	Paper in Journal	https://www.neld.ac.za/index.php?area=article&id=84694
Sustainable transport and intermodal solutions for urban growth and development : a case study of the Integrated Gauteng Transport Master Plan 2025	B. Cornell	2012	Tel: 018 299 1582 299 1582	fax: 018	The main aim of this study is to do a investigate sustainable and intermodal transport to determine whether there is an opening-break for this, and to recognise solutions and opportunities in our current postmodern world, to identify what the future (2025) holds.	Transport	Transport	Information	North-West University (NWU)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adspace.rwu.ac.za%3A10394%2F9108
The application of water poverty mapping in water management	C. Van der Vyver, D.B. Jordaan	2012	Tel: 018 299 1582 299 1582	fax: 018	The aim of this paper is to describe how water poverty mapping as a process can be used to assist the management of our already scarce water resources.	Government	Water	Information	North-West University (NWU)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transf/1/1/EJC1234047fromSearch=true
Emerging invasive alien plant survey for prioritisation in Gauteng protected areas, South Africa	T.P. Jeca , M.A. Kganyo, L. Venter	2010	Tel: 0128435071		This study presents findings of the initial survey of emerging invaders or IAPs for prioritisation in PAs of Gauteng.	Agriculture	Ecological research: Biodiversity	Management	South African National Biodiversity Institute (SANBI)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://www.sciencedirect.com/science/article/pii/S02526262091000940
Household electricity access and consumption behaviour in an urban environment: The case of Gauteng in South Africa	J.K. Musango	2014	Tel: 021 808 9111 3822	Fax: 021 808	Using survey data, household electricity access and consumption behaviour in Gauteng province of South Africa was analysed with respect to some household socio-economic characteristics	Electricity	Energy	Energy demand	Stellenbosch University (SU)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://www.sciencedirect.com/science/article/pii/S0973038214000532
Corridor development in Gauteng	A. Brand	2015	Tel: 021 808 9111 3822	Fax: 021 808	This research showed that the degree to which economic activities are concentrated in the greater Gauteng region; the resulting current or emerging multimodal structural composition; and the flows of economic activities between the various nodes result in the creation of developing corridors that channel and focus economic growth between networks of cities	Transport	Transport	Information	Stellenbosch University (SU)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adspace.sun.ac.za%3A10018.9%2F95783
Solid waste management (SWM) in Johannesburg alternative futures	Solid waste management (SWM) in Johannesburg : alternative futures	2015	Tel: 021 808 9111 3822	Fax: 021 808	Using scenario planning techniques, the research considers implications for policy and management decisions in realising the best possible future in the area of waste management in Johannesburg	Government	Waste	Information	Stellenbosch University (SU)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adspace.sun.ac.za%3A10019.9%2F957454
A zero waste model for the City of Tshwane Metropolitan Municipality	J. Snyman	2009	Tel: 088 110 2421		This study first identified and evaluated technologies available in developed countries for managing the various components of the MSW streams, appropriate to local contexts, as an alternative to landfilling, to ensure that these components will be either reused, recycled or rendered harmless to the environment before disposal.	Government	Waste	Information	Tshwane University of Technology (TUT)	City of Tshwane Metropolitan Municipality (COT)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adspace.tut.ac.za%3A1000870
Influence of physico-chemical and chemical parameters on polychlorinated diphenyl ethers in selected landfill leachates, sediments and river sediments from Gauteng, South Africa	O. I. Oluwunie, I. V. Sibaya, O. J. Okonkwo	2015	OkonkwoOJ@tut.ac.za		In this study, river and landfill sediment samples were collected from selected rivers and municipal solid waste landfill (MSWLF) sites across Gauteng Province in South Africa to determine the levels of common PBDEs (BDE-17, BDE-47, BDE-99, BDE-100, BDE-153, BDE-183 and BDE-209).	Government	Waste	Management	Tshwane University of Technology (TUT)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://link.springer.com/article/10.1007/s11356-014-3443-1
Faecal pollution loads in the wastewater effluents and receiving water bodies: a potential threat to the health of Sedieng and Soshanguve communities, South Africa	Z.G. Teklehalimani, M.A.A. Coetzee; M.N.B. Momba	2014	mombamnb@tut.ac.za		The aim of this study was to determine whether inadequate treatment of wastewater and the faecal pollution load of effluents and receiving water bodies in Sedieng District and Soshanguve peri-urban area of the Tshwane Metropolitan Municipality could be a potential threat to the health of the surrounding communities.	Government	Water	Pollution	Tshwane University of Technology (TUT)	Sedibeng District Municipality (SDM)	Completed	Yes	Journal	Paper in Journal	https://link.springer.com/article/10.1007/s11356-014-2980-y
Energy demand projections and relevance of income dynamics in Gauteng's residential sector	M. Senatla	2011	Tel: 021 650 3134 7469	Fax: 021 688	This paper will reveal how the dynamics of differing income across the residential sector affects total energy demand in the long run. The households in Gauteng are classified into three income categories – high, middle and low income households.	Electricity	Energy	Information	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	seminar/conference	Conference proceedings	https://www.says.org.za/jesa/article/view/3227
Clear sky solar illuminance using visual band irradiance	A. Nurick	2014	Tel: 021 650 3134 7469	Fax: 021 688	The analysis of descriptions of global illuminance with solar elevation were compared with experimental data collected at Johannesburg over both summer and winter clear sky conditions. Correlations of measured and calculated global illuminance data for the method based on extinction of various atmospheric components.	Electricity	Energy	Climate change	University of Cape Town (UCT)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	seminar/conference	Conference proceedings	https://www.says.org.za/jesa/article/view/2853
Determining the impacts of selected energy policies on Gauteng's residential energy consumption and the associated emissions using LEAP as a tool for analysis : implications for sustainable livelihoods for the poor	M. Senatla	2015	Tel: 021 650 3134 7469	Fax: 021 688	This study analyses whether the energy policies in Gauteng can help to steer Gauteng's residential sector toward sustainable use of energy by reducing the energy demand and associated GHG and pollutants emissions. Long range Energy Alternative Planning system (LEAP) was used as a tool for analysis.	Electricity	Energy	Energy demand	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adopen.uct.ac.za%3A11427%2F11518
Economic and environmental analysis of solar water heater utilisation in Gauteng Province, South Africa	E.D Özdemir, S.D. Marathe, J. Tomaschek, A. Dobbins, L. Eltrop	2012	Tel: 021 650 3134 7469	Fax: 021 688	This paper focuses on the energy economics and environmental impacts of solar water heaters (SWH) in the Gauteng Province and compares the results with other technology option for residential water heating with regard to the different income groups.	Electricity	Energy	Energy demand	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Seminar/Conference	Paper in website	https://www.says.org.za/jesa/article/view/3157
Emissions analysis from combustion of eco-fuel briquettes for domestic applications	T.J. Plusa, R.Hughes, E.Muzenda	2013	Tel: 021 650 3134 7469	Fax: 021 688	In this study, the emissions from combustion of eco-fuel briquettes in a ceramic lined stove were investigated. A survey conducted as part of this study also revealed a significant demand for eco-fuel briquettes in many informal settlements in Gauteng Province, South Africa, at a competitive selling price of R2.00/kg.	Electricity	Energy	Energy demand	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Seminar/Conference	Conference proceedings	https://www.says.org.za/jesa/article/view/3143
Energy and transport issues for Gauteng, South Africa	C.J. Cooper	2007	Tel: 021 650 3134 7469	Fax: 021 688	The paper considers the impact of constrained oil supply, and supply infrastructure, on transport	Electricity	Energy	Energy demand	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Seminar/Conference	Conference proceedings	https://www.says.org.za/jesa/article/view/3399
Environmental impact assessment rectification process for Shell fuel storage tanks in Gauteng, South Africa	V. Gbandi	2007	Tel: 021 650 3134 7469	Fax: 021 688	This report is on the Environmental Impact Assessment Rectification Process conducted by Environmental Resource Management (ERM) on behalf of Shell Marketing (Pty) Ltd, for Shell's fuel storage installations within the province of Gauteng, South Africa.	Electricity	Energy	Information	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adopen.uct.ac.za%3A11427%2F7469
The design of a geographical information system for promotion of integrated planning of transport and spatial areas between all spheres of government	L. Burger	2007	Tel: 021 650 3134 7469	Fax: 021 688	This thesis is concerned with the primary responsibility and increased efforts of the Gauteng Department of Public Transport, Roads and Works (GPTRW) to obtain and manage the legally required datasets.	Transport	Transport	Management	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adopen.uct.ac.za%3A11427%2F7469
Applying water footprint assessment with the aim of achieving sustainable water resource management at a large commercial beef cattle feedlot in Gauteng Province	L. Pearce	2014	Tel: 021 650 3134 7469	Fax: 021 688	The purpose of the study was to determine how the application of a WFA would enable an agri-business to transition from an on-site approach to water resources management, to a value-chain systems approach to sustainable water resource management.	Government	water	Pollution	University of Cape Town (UCT)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	http://www.neld.ac.za/portal/?action=view&id=identifier%3Aunion.ndtf.org%3Au%w%2Fcall%3Adopen.uct.ac.za%3A11427%2F3857
Proposed model for the implementation of an environmental management system to reduce gaseous emissions from a base metal refinery	M.H. Fox	2014	Tel: +27 12 643 8600 Fax: +27 12 663 3543		The research was conducted for the following reasons: to ensure competitive advantage by pre-empting customer requirements with regard to responsible environmental management; to provide a safe, healthy working environment for the company's staff.	Manufacturing	Air Quality	Management	University of Johannesburg (UJ)	Ekurhuleni Metropolitan Municipality (EMM)	Completed	Yes	Institution's online library	Thesis	http://journals.co.za/content/transf/10/1/EJC154541fromSearch=true
A series of unfortunate events : how the battle to save an urban wetland was both won and lost	Y. Govender-Raguber, J. Meuwissen, T. Morton McKinley	2014	Tel: 012 643 9500 Fax: 012 663 3543 info@sabinet.co.za		This study explores how and why the fate of this particular wetland was sealed. The study explored the roles of the developer, the professionals in the paid services of the developer and various government officials.	Agriculture	Ecological research: Biodiversity	Information	University of Johannesburg (UJ)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transf/10/1/EJC154541fromSearch=true
An urban biomass energy economy in Johannesburg, South Africa	D. Klemens, H. Annegarn	2011	Tel: 011 559 2637 3956	Fax: 011 559	This study focuses on a section of South African urban society that uses woody biomass as one of their significant sources of energy, both in the household and subsistence economic activities.	Electricity	Energy	Energy demand	University of Johannesburg (UJ)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Journal	Paper in Journal	https://www.sciencedirect.com/science/article/pii/S0973082611000609
Retrofitting hotels: evidence from the Protea Hospitality Group of hotels within Gauteng, South Africa	S. Ismail , J.M. Rogerson	2016	Tel: 011 559 2637 3956 jayne@uj.ac.za	Fax: 011 559	The present article analyses one dimension of the relationship between hotels and sustainable development in South Africa. Specific attention is on issues of the environmental retrofitting in hotels.	Construction	Infrastructure	Green infrastructure	University of Johannesburg (UJ)	Gauteng Province (GP)	Completed	Yes	Institution's online library	paper in website	http://www.ahf.com/uploads/7/1/5/3/71537688/article_10_final_v1_3_final.pdf
The Greening of Urban Hotels in South Africa: Evidence from Gauteng	J.M. Rogerson, S.R. Sims	2012	Rogerson@infodoor.co.za		This paper offers a contribution to the limited existing scholarship dealing with greening of hotels in the developing world. Against a backdrop of international debates on green hotels, the findings are presented from interviews conducted with urban hotels in Gauteng, South Africa.	Construction	Infrastructure	Green infrastructure	University of Johannesburg (UJ)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Journal	Paper in Journal	https://link.springer.com/article/10.1007/s12132-012-9160-2
The environmental Impact of the abandoned Endendale lead mine near Tshwane, South Africa	J.A. Glasse	2011	Tel: 011 559 4603 Fax: 011 559 4603		The study aims to illustrate the impacts of the abandoned Endendale lead mine near Tshwane.	Mining	Mining	Pollution	University of Johannesburg (UJ)	City of Tshwane Metropolitan Municipality (COT)	Completed	Yes	Institution's online library	Thesis	http://hdl.handle.net/20.500.11892/71812
The environmental Impact of the Robinson Deep mine residue deposit, Johannesburg	G. Collister	2011	Tel: 011 559 4603 Fax: 011 559 4603		The objective of this project is to outline the impacts of Robinson Deep mine residue deposits on the environment.	Mining	Mining	Pollution	University of Johannesburg (UJ)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Institution's online library	Thesis	<a href="http://hdl.handle.net

Project title	Researchers	Year of publication	Contact details	Research objectives	Economic sector	Focus area	Area of implementation	Host institution	Metropolitan/District/Local Municipalities	Status	Accessibility	out put source	Output type	Links to abstract or research study / name of source
BIOGAS - Alternative energy for cooking and lighting	Institute for Agricultural Engineering, ARC	2013	Tel: 012 427 9700 Fax: 012 430 5814	The specific objective is to evaluate alternative energy for cooking and lighting using the gas called methane contained in Bio gas.	Electricity	Energy	Energy demand	Agricultural Research Council (ARC)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	http://www.arc.agric.za/arc-ies/news%20articles%20library/BIOGAS%20-%20Alternative%20Energy%20from%20gas%20methane%20lighting
SuDS for managing surface water in Diepkloof informal settlement, Johannesburg, South Africa	A. Hitchett	2017	Anne.hitchett@wits.ac.za	This preliminary study investigated the introduction of SuDS to enhance existing surface-water interventions, as a low-cost feasible approach. Using action research methods, small-scale interventions were designed, constructed and refined by residents and researchers at two sites close to the Jukkele River.	Construction	Infrastructure	Management	City of Johannesburg Metropolitan Municipality (COJ)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Journal	Paper in Journal	https://www.acd.info/index.php?act=article&id=144798
Mitigating climate change by remodelling the carbon footprint and embodied energy of construction materials: A comparative analysis of three South African Bus Rapid Transit (BRT) stations	J. Hugo, H. Stoffberg , A. Barker	2012	Tel: 011 471 3366	This article investigates the role that architecture can play in mitigating climate change by comparing the environmental impact of construction material use in two existing South African Bus Rapid Transit (BRT) stations in Johannesburg and Cape Town and a proposed BRT station for Tshwane.	Construction	Environment	Climate change	City of Tshwane Metropolitan Municipality (CTT)	City of Tshwane Metropolitan Municipality (CTT)	Completed	Yes	Journal	Paper in Journal	https://www.acd.info/index.php?act=article&id=77301
CSIR study finds Annual standards for air pollutants in the Vaal Triangle exceeded	J. John	2016	Tel: 012 841 2911	The CSIR, on behalf of the Department of Environmental Affairs, conducted a study in the Vaal Triangle Air-shed Priority Area to determine if air pollution levels exceed South African air pollution standards.	Mining	Air Quality	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://www.csir.co.za/csi-air-quality-finds-annual-standards-for-air-pollutants-in-the-vaal-triangle-exceeded
Respirable silica dust exposure amongst foundry workers in Gauteng, South Africa: A task-based risk assessment	N.N. Khoza, A. Edwards, M.P. Kekana	2012	Tel: 012 841 2911	This study aims to determine the exposure levels of foundry workers to respirable crystalline silica dust and rank tasks with high exposure.	Mining	Air Quality	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/7067
The application of photochemical modelling for the City of Johannesburg AQMP	M. Naidoo, B.A. Sibya, T. Bird, M. Nekwevileha, J. Nethshandama, M. Mahlatji	2017	Tel: 012 841 2911	This paper presented the various methodologies employed to effectively apply CAMx in CoJ, results and strengths and limitations encountered in the process	Government	Air Quality	Management	Council of Scientific and Industrial Research (CSIR)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/56800
Air quality information system (AQIS) for Gauteng defining best practice	P. Kganyago, I.Taviv, O. Ilomobade	2006	Tel: 012 841 2911	NAIDC (National Air Quality Information System) is aimed for the advancement of the AQIS implementation. A variety of institutions are involved in air quality monitoring and management, but there was no co-ordination of the monitoring efforts. Information is fragmented and not easily accessible. This project was initiated by DEAT.	Government	Air Quality	Pollution	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/1708
Worker exposure to silica dust in South African non-mining industries in Gauteng: An exploratory study	N.N. Khoza, T. Grové	2012	Tel: 012 841 2911	This study aimed to quantify exposure levels of workers to silica dust per industry.	Trade	Air Quality	Pollution	Council of Scientific and Industrial Research (CSIR)	Mogale City Local Municipality (MCLM)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/56417
Natural Hazards in a Changing World: A Case for Ecosystem-Based Management	J.L. Nel , D.C. Le Maitre, D. C. Nel, B. Revers, S. Archibald, B.W. van Wilgen, G. Smith, A.K. Thorpe, P.J. O'Farrell, J.M. Kahinda, F.A. Engelbrecht, W. Kapangawira, L. van Niekerk, L. Barwoll	2014	nel@csir.co.za	This paper aims to quantify the effect of climate change, as well as land cover change, on a suite of natural hazards.	Agriculture	Disaster management	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Journal	Paper in Journal	http://journals.sagepub.com/doi/10.1177/1462600213495942
A CSIR-developed tool to solve problems related to fluid structure interactions	A. Bogers	2016	Tel: 012 841 2911	A CSIR-developed coupling tool that will enable the solution of different types of problems related to the fluid structure interactions, this is done by coupling two or more stand-alone, sub-domain, field-specific codes. The above will allow for the simulation of blood flow, a fluid dynamics software package such as Fluent or OpenFOAM can be coupled with a structural dynamics software package like Abaqus or Calcius. The coupling technology is a black-box coupling which requires no access of modifications to the source code of either of the pre-existing multi-physics sub-domain solvers. The black-box coupling tool therefore enables multi-physics simulations by allowing researchers to re-use, as is, the software packages they already have at their disposal.	Government	Health	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://www.csir.co.za/csi-developed-tool-solve-problems-related-fluid-structure-interactions
The AIRKEM study in Gauteng, South Africa: The role of the airports in an industrial urban environment	A. Cadman , J.F. Dames, P.S. Terblanche, R. Nel	2009	Tel: 012 841 2911	The purpose of the study was to establish the atmospheric incidence, and ascertain the role of these aero-allergens in upper respiratory tract illness (URI) in the area.	Personal services	Industry	Pollution	Council of Scientific and Industrial Research (CSIR)	City of Johannesburg Metropolitan Municipality (COJ)	Completed	Yes	Journal	Paper in Journal	https://www.tandfonline.com/doi/10.1080/09502690902650
Effect of impervious surface area and vegetation changes on mean surface temperature over Tshwane metropole, Gauteng Province, South Africa	A. Adeyemi, J. Betai, R. Abel, F. van der Merwe, P. Tsela	2015	Tel: 012 841 2911	This paper describes how impervious surface area (ISA) or built up areas are classified from Landsat 8 LCDC, 2013, and Landsat 7 ETM+, 2003 images using thematic spectral indices and mean surface temperatures derived from the thermal bands.	Agriculture	Ecological research: Biodiversity	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/8521
Hydrogeological assessment of Acid mine Drainage impacts in the West Rand Basin, Gauteng Province	P.J. Hobbs, J.E. Cobbing	2007	Tel: 012 841 2911	The comparatively short history of acid mine drainage (AMD) in the West Rand Basin (WRB) via mine water decent on the Randfontein Operations property (formerly Randfontein Estates Ltd) of Harmony Gold Mining Company west of Krugersdrift (Figure 1) is reasonably well documented (e.g. JFA, 2006; Coetzee, 2005).	Mining	Mining	Pollution	Council of Scientific and Industrial Research (CSIR)	West Rand District Municipality (WRDM)	Completed	Yes	Institution's online library	Paper in website	http://researchspace.csir.co.za/dspace/article/10204/5348
It's not all about acid mine drainage (AMD) on the West Rand - there is dust too	R. Oosthuizen, M. Matoboane, C. Wright, N. Phala	2012	Tel: 012 841 2911	The West Rand is part of the Gauteng Province and is surrounded by mining activities. There have been several media and scientific reports about acid mine drainage (AMD) in this area. However, AMD is not the only environmental problem faced by the communities in this area; there is airborne dust which is also a serious environmental health issue that needs to be addressed.	Mining	Mining	Pollution	Council of Scientific and Industrial Research (CSIR)	West Rand District Municipality (WRDM)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/281
The role of scientists in acid mine drainage policy response in Gauteng, South Africa: Presentation	N.S. Funke	2012	Tel: 012 841 2911	The focus of this presentation is to understand the acid mine drainage policy in Gauteng, South Africa, and the role that scientists play within this policy.	Mining	Mining	Pollution	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/748
Road freight and the environment	N. Makamo, C. Van Rooyen, K. Venter	2015	Tel: 012 841 2911	This review considers the different environmental links between heavy vehicle transport and the environment. Gauteng is used as an example to highlight the importance that freight plays in the province and highlights the need for adequate freight data to address environmental costs of freight crashes.	Transport	Transport	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://repository.ipr.vu.ac.za/handle/2023/7741
Looking back, looking forward: urban development and transport infrastructure in Gauteng Province	B. Mubiwa, M.T. Mokonyama, H. Annegret	2015	Tel: 012 841 2911	This paper qualitatively and quantitatively assesses one direction of this reciprocal relationship: the influence of transport infrastructure on urban development and mobility. It evaluates past land-use (urban) development patterns in the Gauteng Province of South Africa and have been influenced by road and rail transport networks, including train stations.	Transport	Transport	Pollution	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/2471
Picking at waste facilities – scavenging or entrepreneurship	S.H.H. Oelofse, W.F. Strydom	2010	Tel: 012 841 2911	This paper reports on a few examples of such entrepreneurial activities which are adding value to waste recovery and recycling, and creating jobs as a consequence.	Manufacturing	Waste	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Survey	https://researchspace.csir.co.za/dspace/article/10204/1509
Projection of hospital and clinic health care risk waste generation quantities and treatment capacities for the national waste management strategy implementation project	D.E.C. Rogers, G. S. Molafe, Q. Ouwens, C. Van Den Berg, T. Kristensen, J.D. Otto	2006	Tel: 012 841 2911	This paper addresses the need for quantitative data for planning health care risk waste (HCRW) management from hospitals and clinics.	Government	Health	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/1150
Anaerobic ammonium oxidation in the old trickling filters at Sasolpoort wastewater treatment works	J. Wilsenach, L. Burke, V. Radobe, M. Mashago, W. Stone, M. Mouton, A. Botha	2014	Tel: 012 841 2911	Study was conducted to identify the microbiological processes responsible for this phenomenon and to establish whether anammox bacteria may be involved.	Government	Waste	Management	Council of Scientific and Industrial Research (CSIR)	City of Tshwane Metropolitan Municipality (CTT)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/7495
Estimated risk profiles of titanium dioxide and carbon nanotubes engineered nanomaterials (enanois) in the Gauteng province environment	N. Nota, N. Musee, C. Aldrich	2010	Tel: 012 841 2911	This paper presents findings on the quantification of potential risks posed by TiO2 and CNTs to the aquatic and terrestrial ecosystems	Agriculture	Ecological research: Ecosystems	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Paper in website	https://researchspace.csir.co.za/dspace/article/10204/4520
Estimation of Titanium dioxide and Silver engineered nanoparticles environmental exposure risks in water: a case of Gauteng Province, South Africa	N. Nota, N. Musee, C. Aldrich	2010	Tel: 012 841 2911	the ENPs' potential risks to the aquatic systems have been quantified using modelling approaches within a city, country or continental scales? In this study, modelling results on the potential risk profiles of ENPs in the Gauteng Province (GP) are presented.	Government	Water	Management	Council of Scientific and Industrial Research (CSIR)	Gauteng Province (GP)	Completed	Yes	Institution's online library	Thesis	https://repository.ipr.vu.ac.za/handle/2023/4304
Occurrence of diarrhoeagenic Escherichia coli virulence genes in water and bed sediments of a river used by communities in Gauteng, South Africa	A.L.K. Abia, E. Ubomba-Jaswa; M.N.B. Moniba	2016	eubombajewa@csir.co.za;	The present study sought to investigate the presence of DEC virulence genes in riverbed sediments of the Apies River, a river used by many communities in Gauteng, South Africa.	Government	Water	Pollution	Council of Scientific and Industrial Research (CSIR)	City of Tshwane Metropolitan Municipality (CTT)	Completed	Yes	other website/online source	Paper in website	https://link.springer.com/article/10.1007/s11356-016-0762-6
The threat of mine effluent to the UNESCO status of the Cradle of Humankind World Heritage Site	J.F. Durand, J. Mreevius, M. Fourie	2010	Tel: 012 643 0500 Fax: 012 653 5543 info@sabinet.co.za	The study investigated the mine pollution which is emanating from the mines in the form of acid mine drainage (AMD) to explain the extent in which it is threatening this remarkable resource which has yielded the biggest collection of hominid fossils in the world.	Mining	Mining	Pollution	Department of Higher Education and Training (DHE)	West Rand District Municipality (WRDM)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transdrif/1/EJIC1119017/research/full
Environmental ethics and crime in the water affairs of the Wonderfontein Spruit Catchment, Gauteng, South Africa	E.S. Van Eeden, M. Liefferink, E. Tempelhoff	2008	Tel: 012 643 9500 Fax: 012 653 3543 info@sabinet.co.za	This article provides an analysis of the water history regarding the Wonderfontein Spruit Catchment in the former Far West Rand in South Africa.	Government	Water	Management	Department of Higher Education and Training (DHE)	West Rand District Municipality (WRDM)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transdrif/1/EJIC111887/research/full
The Vaal River Barrage, South Africa's hardest working water way: an historical contemplation	J. Tempelhoff, V. Munnik, M. Viljoen	2007	Fax: 012 663 5543 info@sabinet.co.za	The article forms part of a transdisciplinary research project that is currently conducted at North-West University's Vaal Triangle campus in Vanderbijlpark	Government	Water	Management	Department of Higher Education and Training (DHE)	City of Tshwane Metropolitan Municipality (CTT)	Completed	Yes	Journal	Paper in Journal	https://journals.co.za/content/transdrif/1/EJIC111852/research/full