

## **QUALIFICATIONS**

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2008: PhD. Biotechnology. Rhodes University, South Africa  
2004: MSc. Environmental Biotechnology. Rhodes University, South Africa  
2003: Environmental Management Training. Received training in Industrial Environmental Management  
1999: BSc. Hons. Biochemistry. Ambrose Alli University, Nigeria (formally Edo State University)

## **MEMBERSHIP**

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- South African Council for Natural Scientific Professions (Environmental Science: 400201/09).
- Water Institute of Southern Africa (WISA) (20783).
- Institution for Chemical Engineers (IChemE, UK) (99904277).
- International Water Association (IWA, UK) (00895495.)

## **PROFESSIONAL EXPERIENCE**

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May 2010 – Present: Senior Environmental Consultant (Coastal & Environmental Services, South Africa).

July 2009 – April 2010: Senior Research Scientist / Post graduate co-ordinator (Institute for Environmental Biotechnology, Rhodes University (EBRU)). Supervised and lead a coal spoils bioremediation land beneficiation research group. Lectured Sustainable Environmental Biotechnology at M.Sc and Honours levels.

January 2008 – April 2009: Post-Doctoral Fellowship / Course leader: Environmental Biotechnology at EBRU.

June 2000 – November 2002: Water quality control analyst (Edo Pharmaceuticals Benin city, Nigeria). Duties included water supply and quality analyst, general wet chemistry analyst, National water quality report compilation and presentation and computer lab manager.

March 1999 – February 2000: Field officer, National Programme on Immunization (NPI) (National Youth Service Corps (NYSC) Kano State, Nigeria). Duties included rural health educator, data collection for the NPI and Implementation of Polio vaccination in rural areas.

## **CONSULTING EXPERIENCE**

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### **Climate change**

- International Training Programme on Climate Change – Mitigation and Adaptation. Swedish International Development Agency Cooperation (SIDA) (October, 2010).
- Effects of the Trident Project on Global Climate Change: Trident Copper and Nickel Project, Sentinel Deposit North Western Province, Zambia (February, 2011).
- Integrated Municipal Solid Waste management: A Potential Waste-to-Energy Project in Nigeria (May, 2011)

### **Environmental Auditing and Compliance**

- IFC Performance Standards deviation assessment and implementation for heavy mineral mining project, Kenmare Moma Mines, Mozambique (2010).

- Kenmare Moma Mine Environmental Completion – Drinking water and Domestic Waste water treatment process (2011).
- Assessment of Infrastructure, Waste and Process Related Issues: Trident Copper and Nickel Project, Sentinel Deposit North Western Province, Zambia (February, 2011).

### **Environmental Impact Assessment And Pre-Feasibility Assessments**

- Scoping Report – Upgrade of the Fishwater Flats Wastewater Treatment Works, Coega Development Zone, Port Elizabeth (February, 2011).
- Basic Assessment Report – Wood Energy Biomass Project, Grahamstown, South Africa (2010).
- Pinedale Eco-Estate Environmental Impact Assessment. Bathurst, Eastern Cape Province South Africa.

### **RESEARCH & TEACHING EXPERIENCE**

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2009 – 2011 Honours and Masters Supervision

- 2010: Characterization and beneficiation of weathered coal-derived humic acid. (Honours)
- 2011: Coal-derived humic acid as a sustainable material for soil amendment. (Honours)
- 2011: The role of *Cynodon dactylon* root exudates in coal spoil rehabilitation. (Honours)
- 2011: Stacked-Heap coal bioreactor process in coal dumps rehabilitation. (M.Sc – Current)

July 2009 – April 2010: Senior Research Scientist (EBRU)

- Supervise and lead the coal dump bioremediation and beneficiation research group and was responsible for its deliverables.
- Lectured Sustainable Environmental Biotechnology at M.Sc and Honours levels.
- Graduated one Honours student and currently supervising a team of two Honours and one M.Sc. students.
- Review scientific papers for The South African Journal of Science.
- Responsible for the safety and health environment of the Institute.
- Responsible for research logistics.

July 2009 – April 2010: Anglo Coal land rehabilitation (FungCoal) project, phase 3 (AngloCoal)  
*Research:* Integrated approach for beneficiating acid mine drainage (AMD) in conjunction with coal spoils and its applications in coal dump rehabilitation strategy that is channeled towards a clean development mechanism (CDM).

*Responsibility:* Supervised and lead the research team and was responsible for its deliverables

*Funder:* Anglo Coal South Africa.

*Outcome:* Ongoing.

May 2008 – January 2009: Flue gas beneficiation (SASOL)

*Research:* The beneficiation of algal sequestered industrial CO<sub>2</sub> (derived from flue gas) for the production of biofuel (Bio-methane and Bio-diesel) and other fine chemicals.

*Responsibility:* Research deliverables.

*Funder:* Sasol.

*Outcome:* Feasibility report submitted to Sasol (2009).

January 2004 – December 2007: Anglo Coal land rehabilitation (FungCoal) project, phase 2 (AngloCoal)

*Research:* The microbial biotransformation of coal materials for coal dump rehabilitation purpose and the beneficiation of coal waste spoils

*Responsibility:* Research deliverables.

*Funder:* Anglo Coal South Africa.

*Outcomes:*

- Patented technology (See Patent & Publications).
- Publications (See Patent & Publications).
- PhD thesis (2007).
- Anglo Coal FungCoal Report, Phase I and II. (See Patent & Publications)
- Secured contract; FungCoal Phase 3: Research grant for 4 year duration.

February 2003 – January 2004: Anglo Platinum wastewater treatment project (AngloPlatinum)

*Research:* Investigating the enzymatic recovery of platinum from platinum waste streams

*Responsibility:* Responsible for the research outcome

*Funder:* Anglo Platinum South Africa.

*Outcomes:*

- MSc thesis (2004)
- Report submitted to Anglo Platinum South Africa (2004)

## **SELECTED PUBLICATIONS AND PATENT**

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2010. Igbinigie, E.E., Mutambanengwe, C.Z. & Rose, P.D. Phyto-bioconversion of hard coal in *Cynodon dactylon*/coal rhizosphere. *Biotechnology Journal*. 5:292-303.
2008. Igbinigie, E.E., Atkins, S., van Breugel, Y., van Dyke, S., Davies-Coleman, M.T. & Rose, P.D. Fungal biodegradation of hard coal by a newly reported isolate, *Neosartorya fischeri*. *Biotechnology Journal*. 3:1407-1416.
2007. Rose, P.D., Igbinigie, E.E., Horan, M.P., Dames, J.F & Mukasa-Mugerwa, T.T. Stacked-Heap Coal Bioreactor. South African Patent Office. ZA 2007/07607.
2007. Rose, P.D., Igbinigie, E.E., Horan, M., Atkins, S., van Dyk, S., van Breugel, Y., Mukasa-Mugerwa, T., Dames, J., Mutambanengwe, C.Z., Bowker, M. & Laubscher, R. Biotechnology of coal biosolubilization and applications in waste coal beneficiation. Anglo Coal FungCoal Report, Phase II. 1-349.
2004. Rose, P.D., Clarke, A. & Igbinigie, E.E. Biotechnology of coal biosolubilization and applications in biological treatment of mine drainage wastewaters and waste coal beneficiation. Anglo Coal FungCoal Report, Phase I. 1-100.
2004. Igbinigie, E.E. The enzymatic use of hydrogenase in sulphate reducing bacteria for the removal of platinum from industrial wastewater. MSc Thesis. Rhodes University.
- Igbinigie, E.E & Cowan, K.A. (In press). An overview of bioprocesses for converting low-grade waste coals and the utilization of coal derived-humic acids in re-vegetation strategies. (Intellectual property embargoed).
- Igbinigie, E.E. & Rose, P.D. (In press). A review of the safety and potential industrial application of *Neosartorya fischeri*. (Intellectual property embargoed).

**Referees provided upon request.**