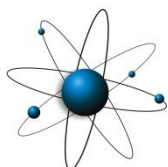


## **APPENDIX 1: EAP CURRICULUM VITAE**



**EScience Associates**  
**9 Victoria Road, Oaklands**  
**Johannesburg, 2192**  
**Tel: +27 (0)11 718 6380**

**Curriculum Vitae:**

**Abdul**  
**Ebrahim**

**Surname:** Abdul Ebrahim  
**Date of birth:** 07 December 1977  
**Country of Residency:** Republic of South Africa  
**Position:** Director  
**Key Qualifications:** BEng (Hons) Environmental, BEng (Hons) Mechanical  
**Registrations:** ECSA, EAPASA

#### Contact details

☎: 011 7186380  
☎: 072 268 1119  
✉: abdul@escience.co.za

#### Abstract

Abdul Ebrahim is a director of EScience Associates, an environmental consultancy specialising in waste and waste recovery, effluent, atmospheric emissions and air quality, as well as cleaner and renewable energy. EScience Associates caters for a diversity of industries and economic sectors and has forged strong relationships with other specialists, and specialist agencies, allowing the company to deal with complex and contentious environmental problems.

Abdul Ebrahim holds a BEng (Hons) in both Mechanical and Environmental Engineering disciplines. He specialises in air quality management, hazardous waste management and cleaner production, as well as their related environmental authorisation and licensing processes. His work experience includes numerous environmental impact assessments, cleaner production, waste recover-recuse-recycling, hazardous waste management assessments, and air quality impact management projects in power generation, manufacturing, minerals processing, and mining industries. His interests range from atmospheric modelling and wind energy, to the beneficial use of industrial wastes and effluents.

He is a certified Environmental Assessment Practitioner (EAP) and member of amongst other professional organisations: Engineering Council of South Africa (ECSA), and the National Association of Clean Air (NACA).

Abdul has provided Honours level lecturing at the University of Pretoria, UNISA, Cape Town University of Technology and various private training institutions in the fields of Environmental Compliance Enforcement, Environmental Impact Assessment, Cleaner Production and Air Quality Management since 2005.

His work experience includes:

- Environmental strategic, legal, and technical compliance advisory services
- Environmental Permitting - Environmental Authorisation, Waste Management Licensing, Atmospheric Emissions Licensing, Mine Environmental Management Programme development, and their relating environmental impact assessment and stakeholder engagement processes.
- Air quality management and Air Quality Management Plan development – Emissions quantification; meteorological and air quality modelling and impact assessment; development of emissions abatement and management strategies;
- Waste management consulting - classification, landfill assessment, mine residue liner risk assessments, development of waste minimisation treatment & recycling strategies;
- Development of specialist training courses (including EIA Administration and Review, Environmental Enforcement, Environmental Compliance Achievement for Industry).
- Environmental Due Diligence – due diligence assessment to inform purchase or ownership transfer of existing going concerns or proposed new establishments.

Abdul has 20 years post graduate experience of which four years are in industry, and the remainder in consulting.

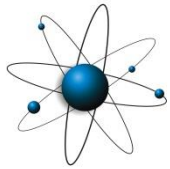
#### Education

**BEng (Hons) Mechanical Engineering**  
**BEng (Hons) Environmental Engineering**

#### Languages

**English** (excellent speaking and writing)

Limited French and Portuguese



### **Experience**

Personal work experience includes:

- Cleaner and renewable energy strategy development, plan and project development;
- Technical and environmental due diligence – industrial and energy projects
- Waste management (classification, handling, storage, and disposal requirements;
- Development of waste minimisation treatment & recycling strategies);
- Air quality management and emissions inventorying, development of abatement and management strategies;
- Environmental Impact Assessment and Permitting
- Development and dissemination of specialist training for government and the private sector at NQF level 7 (honours degree).

Abdul's work experience in a wide diversity of economic sectors and industries and provides him with a good understanding of both small scale and large scale impacts of waste and pollution, as well as keeping up to date with various management alternatives available and their individual advantages and disadvantages, both locally and internationally implemented and pilot scale. Various waste streams have been dealt with to determine the most applicable disposal methods and impacts on the environment, from various industries:

- Metallurgical processes
- Power generation
- Food processing
- Waste recovery, reuse, and recycling and waste to energy
- Mining
- Cement manufacturing
- General Commercial – General waste management from various industries

### **Professional Registration**

Environmental Assessment Practitioner (EAP)  
Engineering Council of South Africa (ECSA)

### **Hourly Rate**

### **Nature of expertise offered**

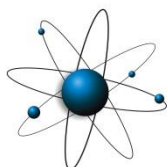
- Ability to interpret and analyse technical material on wide range of subjects
- Engineering expertise in energy, waste, air quality and multi-disciplinary subjects
- Ability to undertake technology feasibility studies, technical and financial due diligence
- Understanding of the green economy and technologies, ICT and agricultural and agro-processing sectors
- Ability to undertake a market research and investigation into the industry
- Proposal evaluation expertise

### **Experience and relevant projects**

#### **1. AIR QUALITY MANAGEMENT:**

##### **1.1 Government & Regulatory**

- Vaal Triangle Air-shed Priority Area - Air Quality Management Plan review, development of emissions inventory and Ambient Air Quality Impact Assessment.
- Highveld Priority Area Air Quality Management Plan – development of emissions inventory, and mitigation strategies.
  - Reference: Dr Thulile Mdluli



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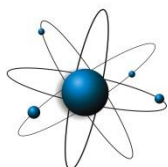
**Curriculum Vitae:**

**Abdul**  
**Ebrahim**

- Tel: 012 310 3436
- Email : tmdluli@environment.gov.za
- Ekurhuleni Metropolitan Municipality - Development of an Air Quality Management Plan (AQMP)
  - Reference: Mr Edmund van Wyk
  - Tel: 011 999 2470
  - Email: Edmund.vWyk@ekurhuleni.gov.za
- Nkangala District Municipality - Development of an Air Quality Management Plan (AQMP)
  - Reference: Mr Vusi Mahlangu
  - Tel: 013 249 2164
  - Email: Mahlangumv@nkangaladm.gov.za
- North West Province - development of provincial emissions inventory (PM, NO<sub>x</sub>, SO<sub>2</sub> etc)
- Development of National Air Quality Officers Companion Guide for the Republic of South Africa
- Development of the atmospheric emissions licensing department for Nkangala District Municipality
- EThekweni Municipality (Durban) - Greenhouse gas emissions quantification
- Newcastle Local Municipality - Development of an Air Quality Management Plan (AQMP)
  - Reference: Mr Phelelani Ntshingila
  - Tel: 034 328 3300
  - Phelelani.Ntshingila@newcastle.gov.za

## **1.2 Industrial and Mining**

- A large variety of major industrial and mining operation across the Highveld and Vaal Triangle as part of Highveld Priority Area and Vaal Triangle Air-shed Priority Area AQMP projects.
- Lanxess CISA Chrome Chemicals Plant Expansion, CO<sub>2</sub> generation, Power Generation and hazardous waste treatment and recovery
- Samancor Chrome Proposed Chrome Chemicals plant
- Karbochem (Synthetic Rubber Manufacture) proposed Power Generation Plant
- PPC Cement Slurry Cement Plant Expansion
- PPC Cement Jupiter Cement Plant Expansion
- PPC Cement PE Cement Plant Expansion
- PPC Cement Dwaalboom waste heat recovery
- PPC Cement De Hoek, PE, Slurry, and Dwaalboom postponement applications
- Afrisam Cement - Dudfield Environmental Management Programme update.
- ClinX Medical Waste Incineration plant expansion
- Goedemoed organic waste incineration
- AWPP pyrolysis of organic waste
- Interwaste Waste Recovery, Waste to Energy and Waste Incineration plant
- Eskom power generation emissions off-setting
- Hayes Lemmerz SA Aluminium Wheel Manufacturing
- Evraz Highveld Steel and Vanadium proposed Powered Generation - Furnace Off-Gases
- Assmang Ferrochrome and Ferromanganese plants Powered Generation - Furnace Off-Gases
- Resource Generation Proposed Boikarabelo Power Station – coal fired
- Weir Minerals Africa (Isando, Alrode and Heavy Bay Foundries)
- Goedemoed Prison proposed Waste incineration and Landfill
- Consolidated Wire Industries Expansion
- Sylvania Proposed Open Cast PGE Mine and Processing Plant
- Assmang Black Rock proposed manganese mine expansion and sinter plant
- Assmang machadodorp proposed smelter plant expansion and cross-over to manganese



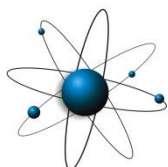
- Dwarsrivier Chrome Mine
- Nkwe proposed Platinum Mine
- Agricultural Research Commission hazardous and infectious waste incineration
- Sephaku Aganang proposed use of AFR's in cement manufacture
- Idwala Phalaborwa atmospheric emission licence for magnetite drying
- Mandini Wealth (Pty) Ltd tyre pyrolysis air quality health risk assessment
- Johnson Tiles a Division of Norcross Sa (Pty) Ltd Air quality health risk assessment
- Lanxess CISA (Pty) Ltd Air quality health risk assessment
- Namakwa Sands, South Africa – Tronox
- Devon Valley Landfill expansion
- Groblersdal limestone mine

## **2. WASTE CLASSIFICATION, HAZARD RISK ASSESSMENT AND MANAGEMENT**

- Weir Minerals Africa
- Heavy Bay foundry Port Elizabeth
- Lafarge Gypsum
- Consolidated Wire Industries
- BPB Gypsum
- PG Bison melamine plant
- ABBW Electrical manufacturing plant
- CBI copper and fibre optical cable manufacture
- Holcim Cement
- Lanxess Chrome Chemicals
- Assmang Chrome
- Assmang Manganese
- Hayes Lemmerz SA Aluminium Wheel Manufacturing
- Auto industrial group (Pty) Ltd
- CBI Electrical
- Various mining residues

## **3. ENVIRONMENTAL IMPACT ASSESSMENT:**

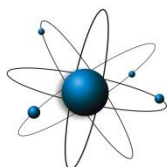
- Assmang Black Rock Mine expansions, tailings facilities, water treatment facilities
- Highveld Steel furnace off-gas power generation
- Lanxess CISA chrome chemicals plant expansion and hazardous waste landfilling
- Samancor chrome chemicals plant development
- Herculon Ferrochrome power generation from furnace off-gases
- Kanhym Biogas project
- Alumicor secondary aluminium recovery rotary salt furnaces
- Hays Lemmerz Aluminium smelters, furnace and alloy die casting
- Agricultural Research Commission hazardous waste incineration plant
- Darkling Metal Industries
- Idwala Lime Danielskuil asbestos waste disposal
- Plettenburg Polo Estates
- PG Bison Decorative Panels
- British Aerospace Land Based OMC Systems
- BPB Gypsum phosphogypsum plant
- Extrupet HPDE and PET recycling plants
- Assmang BRMO



- Assmang Machadodorp
- Interwaste waste recovery and waste to energy plants
- PPC Cement expansions, electricity generation, use of alternative fuels and resources
- Sephaku cement use of alternative fuels and resources
- ClinX Healthcare Risk Waste Management
- Turfontein Race Course night racing

**4. ENVIRONMENTAL LEGAL COMPLIANCE ASSESSMENT & RECTIFICATION PLANNING:**

- SASOL Synfuels
- NATCOS Petrochem
- Dwarsrivier Chrome Mine
- Angloplatinum Base Metals Recovery
- Samancor Hotazel Manganese Mines
- PG Bison (Pty) Ltd MDF manufacturing
- Samancor Manganese Division Samancor Metalloys Meyerton
- Holcim SA (Pty) Ltd Cement Plants:
  - DUDFIELD
  - ULCO
  - ROODEPOORT
- Natal Portland Cement Plants:
  - NEWCASTLE
- Consolidated Wire Industries
- South African Airways (Pty) Ltd Technical Division
- TWK forestry strategic environmental legal compliance assessment
- Inergy Automotive Systems(Pty) Ltd
- Consolidated Wire Industries
- Mittal Steel Vereeninging and Dunswart plants – specialist assistance to DEAT environmental management inspectors
- Assmang Black Rock Mining Operations
- ClinX Medical Waste Management
- Extrupet PET and HDEP recycling plants
- Scaw Metals High Chromium Ball Plant
- Unilever waste recovery, recycling, and zero waste-to-landfill
- Numerous waste recycling facilities
- Oilflow
- The Smart Company
- Darkling Industrial Metals CC
- Unilever waste recovery, recycling, and zero waste-to-landfill
- Central Waste
- AT Packaging
- EWaste Africa
- Mpact Recycling
- Wasteplan
- Fine Metals
- Living Earth
- Industrial Plastic Recyclers
- SA Paper Mills
- Interwaste
- Matchem
- TGS
- Verigreen



- SB Boxes
- Drumpal
- Oscars Meat
- FOSECO South Africa (Pty) Ltd
- 

**5. GREENHOUSE GAS QUANTIFICATIONS AND ASSESSMENTS**

- PPC Riebeeck
- Lafarge Lichtenburg
- Ilangabi Investments coal mining
- Lanxess CISA (Pty) Ltd
- Consolidated Wire Industries
- ClinX Waste Management
- ArcelorMittal Newcastle
- Development of emission factors for ferrochrome smelting

**6. CLEANER PRODUCTION AUDITS, WASTE TO ENERGY, ENERGY RECOVERY, WASTE RECOVERY AND RELATED PROJECTS:**

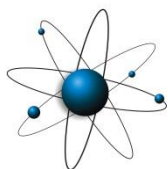
- Tuffy Plastics
- Proplas plastics
- WHS Distribution
- Premier Foods Pretoria Wheat Mill
- Alfred Nzou municipality
- Lanxess chrome chemicals residue recovery
- Karbochem power generation ash to bricks project
- Cement kilns alternative fuels and raw materials assessment for South Africa
- Kanhym Estates Biogas Generation from piggery effluent
- British American Tobacco:
- Tobacco Processors Zimbabwe
- Souza Cruz Brazil

**7. ENVIRONMENTAL MANAGEMENT SYSTEM DEVELOPMENT & IMPLEMENTATION:**

- British American Tobacco (full system development from scratch – ISO 14001 and ISO 9001)
  - Weir Minerals Aspects Identification, Rating, Assessment and Development of EMPs
  - Lafarge Gypsum Aspects Identification, Rating, Assessment and Development of EMPs
  - Environmental Aspects Identification, rating and formulation of EMPs for Samancor Metalloys Meyerton
  - Environmental Aspects Identification, rating and formulation of EMPs for DMS Powders.
  - Holcim Slagment development & implementation of EMS components including waste and air quality management
  - Holcim Roodepoort development & implementation of EMS components including waste and air quality management
  - Consolidated Wire Industries Environmental Aspects Identification, rating and formulation of EMPs and operational control procedures.
  - Samancor Metalloys Ferro Silicon Manganese and FerroSilicon production
  - DMS FeSi dense media production

**8. ISO14001 AUDITING:**

- Debswana Orapa and Letlhakane Mines
- Ingwe Colliery



- Arnot Colliery
- FOSECO South Africa (Pty) Ltd
- Lafarge Gypsum
- CWI

**9. SPECIALIST TRAINING COURSE DEVELOPMENT & PRESENTATION**

- 2011 Training of Atmospheric Emissions Licensing Authorities – air quality management, emissions quantification, regulation and enforcement.

- 2007-2015 Training of Authorities for EIA review and permitting

Responsible for development of NEMA EIA Review Course and Administrators EIA Review Manual, theoretical and practical training material, and training of Government Officials responsible for EIA Review - responsible for the whole manual other than Law applicable to EIA Review. As at May 2013 approximately 1000 officials from National, Provincial and Local Government.

- 2005&6 Bridging Training for Environmental Management Inspectors and Enforcement

ESA was part of a consortium selected to develop and conduct the EMI Training. More than 2000 officials and university students have completed the training.

- University Of Pretoria Specialist Lecturer

- Environmental Legal Compliance inspections and investigations (RSA)
- Environmental Legal Compliance achievement (RSA)
- Environmental Legal Compliance inspections and investigations (Africa)

- University Of South Africa Specialist Lecturer

- Environmental Legal Compliance inspections and investigations (RSA)

- Training for industry and mining

Development and presentation of training material for environmental impact identification and management in terms of South African environmental law for the SABS and other training institutions.

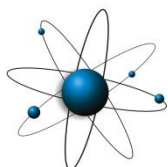
**10. SOIL AND GROUNDWATER CONTAMINATION ASSESSMENT:**

- Weir Heavy Bay Foundry
- Lafarge Gypsum
- Kanhym Estates
- SABAT (Pty) Ltd Johannesburg – investigation of heavy metal contamination of soils and groundwater
- Chemiphos SA (Pty) Ltd – investigation of phosphate and heavy metal contamination of soils and groundwater
- Castrol Lubricants Zimbabwe

**11. ENVIRONMENTAL DUE DILIGENCE AUDITS, INCLUDING ASSESSMENT OF ENVIRONMENTAL AND CLOSURE LIABILITY:**

- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of smelting operations for Highveld Steel & Vanadium operations:





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**Curriculum Vitae:**

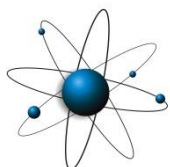
**Abdul**  
**Ebrahim**

- HIGHVELD IRON AND STEEL WORKS
  - VANCHEM
  - TRANSALLOYS
  - RAND CARBIDE
  - MAPOCHS MINE
- 
- Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of smelting operations for TransAlloys
  - Determination and quantification of financial provision for the environmental rehabilitation and closure requirements of mining operations for Samancor Chrome:
    - MIDDELBURG FERROCHROME
    - FERROMETALS
    - TUBATSE FERROCHROME
    - WESTERN CHROME MINES
    - EASTERN CHROME MINES
  - Determination of critical environmental liability associated with the purchase of Xmeco Foundry by Weir Minerals Africa, and subsequent legal compliance achievement programme

**12.**

#### **Possible timelines to commit to the assignment**

- Available for assignments over the next two years
- Not available during the December holiday period - from 15 December until 3 January – due to company's closure for the festive season



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**9 Victoria Road, Oaklands**  
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**Tel: +27 (0)11 718 6380**

**Curriculum Vitae:**

**Sam Leyde**

**Surname:** Leyde

**Name:** Sam

**Date of birth:** 25 November 1985

**Nationality:** RSA

**Position:** Environmental Consultant

**Key Qualifications:** BSc(hons) Mechanical Engineering

#### Contact details

☎: 011 7186380

✉: sam@escience.co.za

#### Abstract

Sam Leyde is an employee of EScience Associates, an environmental consultancy specialising in waste and waste recovery, effluent, atmospheric emissions and air quality, as well as cleaner and renewable energy. EScience Associates caters for a diversity of industries and economic sectors and has forged strong relationships with other specialists, and specialist agencies, allowing the company to deal with complex and contentious environmental problems.

Sam Leyde holds a BSc (Hons) in Mechanical Engineering. He specialises environmental authorisation and licensing processes. His work experience includes numerous environmental impact assessments, , waste recover-recuse-recycling, waste disposal and classification assessments, and air quality impact management projects in the manufacturing sector.

Sam has 8 years post graduate experience of which 7 years are in industry, and the remainder in engineering.

#### Education

**BSc (Hons) Mechanical Engineering**

#### Languages

**English** (excellent speaking and writing)

#### Experience

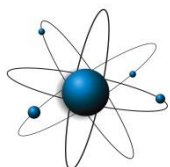
Personal work experience includes:

- Environmental Authorisation, Waste Management Licensing, Atmospheric Emissions Licensing, Environmental Management Programme development, and their relating environmental impact assessment and stakeholder engagement processes.
- Waste management (classification, handling, storage, and disposal requirements, development of waste minimisation treatment & recycling strategies);
- Air Quality Impact Assessments;
- External Environmental Auditing – due diligence assessment to inform purchase or ownership transfer of existing going concerns or proposed new establishments.

#### Experience and relevant projects

##### 1. ENVIRONMENTAL IMPACT ASSESSMENT:

- EIA for Sephaku Aganang proposed use of AFR's in cement manufacture
- EIA for PPC Cement Slurry Cement Plant Expansion
- Extrupet HPDE and PET recycling plants
- Assmang Machadodorp Reverse Osmosis Plant and Stormwater Upgrades;
- Interwaste Waste Recovery and Waste to Energy Plant
- ClinX Healthcare Risk Waste Management



**Experience and relevant projects**

- EIA for proposed Refuse Derived Fuel Energy Recovery Facility, Athlone, Cape Town;
- EIA for proposed pyrolysis of organic/abattoir waste – Square Root Trading Seven, Kroonstad;
- EIA for Interwaste proposed Waste to Energy and Waste Incineration plant;
- EIA Sylvania Proposed Open Cast PGE Mine and Processing Plant;
- EIA for Assmang Machadodorp proposed water treatment plant;
- Basic Assessment for Assmang Machadodorp Storm Water management upgrades;
- Water Use License Application for Assmang Machadodorp Storm Water management upgrades and water treatment facility;
- Water Use Licence for SA Dorper Leather Tannery;
- Oilflow oil blending facility
- The Smart Company Copper melting facility
- Darkling Industrial Metals CC – Scrap Metal Recovery Facility

**2. ENVIRONMENTAL LEGAL COMPLIANCE AUDITING & RECTIFICATION PLANNING:**

- FFS Refiners, Storage facility Evander 2013 and 2019
- Assmang Black Rock Mining Operations
- ClinX Medical Waste Management
- Extrupet PET and HDEP recycling plants
- Scaw Metals High Chromium Ball Plant
- Oilflow oil blending facility
- The Smart Company Copper melting facility
- Darkling Industrial Metals CC – Scrap Metal Recovery Facility

**3. AIR QUALITY MANAGEMENT:**

- AQIA for Sephaku Aganang proposed use of AFR's in cement manufacture
- AQIA for PPC Cement Slurry Cement Plant Expansion
- Lanxess CISA Chrome Chemicals Plant Expansion, CO<sub>2</sub> generation, Power Generation and hazardous waste treatment and recovery
- ClinX Medical Waste Incineration plant expansion
- Interwaste Waste Recovery, Waste to Energy and Waste Incineration plant
- Weir Minerals Africa (Isando, Alrode and Heavy Bay Foundries)
- Sylvania Proposed Open Cast PGE Mine and Processing Plant
- Agricultural Research Commission hazardous and infectious waste incineration
- Johnson Tiles a Division of Norcros Sa (Pty) Ltd Air quality health risk assessment
- Proposed pyrolysis of organic/abattoir waste – Square Root Trading Seven, Kroonstad;

**4. WASTE CLASSIFICATION, HAZARD RISK ASSESSMENT AND MANAGEMENT**

- Weir Minerals Africa
- Wispeco Aluminium