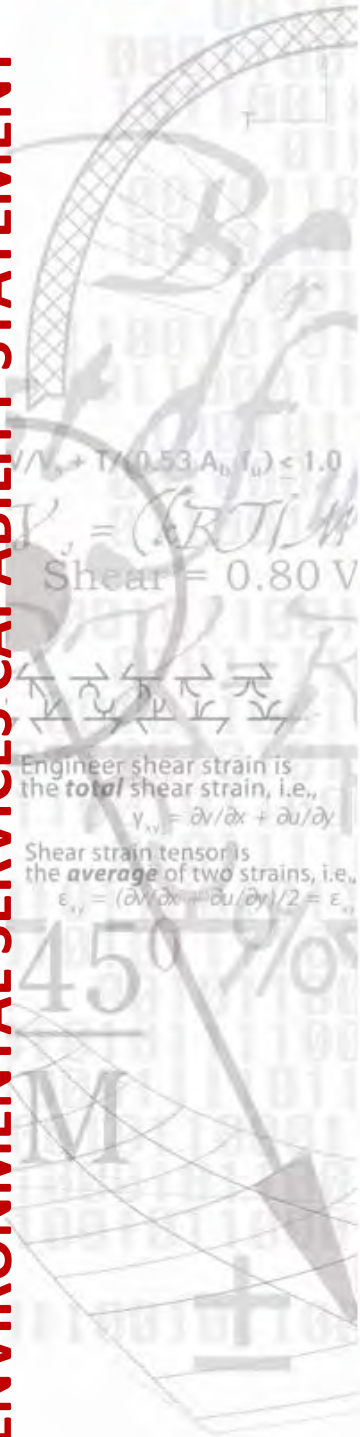




ENVIRONMENTAL SERVICES CAPABILITY STATEMENT



$\gamma_{xy} = \partial v / \partial x + \partial u / \partial y$
Shear = 0.80 V
Engineer shear strain is the total shear strain, i.e.,
Shear strain tensor is the average of two strains, i.e.,
 $\epsilon_{xy} = (\partial v / \partial x + \partial u / \partial y) / 2 = \epsilon_{yx}$





BIGEN AFRICA SERVICES (Pty) Ltd

ENVIRONMENTAL CAPABILITY



South Africa has a comprehensive suite of legislation that governs environmental management. The challenge for organisations involved in environmental management and sustainability projects is to keep abreast of legislative changes to ensure compliance.

Environmental Legislation

Environmental sustainability is a legislative requirement. Section 24 of the Constitution provides South African citizens with a right to:

- an environment that is not harmful to their health and well being, and
- an environment that is protected for the benefit of current and future generations.

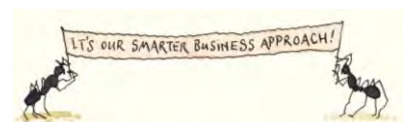
BIGEN AFRICA assists organisations in identifying applicable legislation, understanding the application of legal requirements to given situations and implementing measures to achieve compliance.

Our Services

Environmental Management Systems

Formal and informal environmental management systems form a major part of the operational systems and management practices of organisations today. The widely known ISO 14001:2004 standard, for instance, specifies that an EMS should enable an organisation to develop and implement a policy and objectives that include the legal and other requirements to which the organisation should subscribe. It also provides information about significant environmental aspects.

BIGEN AFRICA recognises that not every organisation needs a formal EMS. WE assist clients in developing new systems or modifying existing systems.





Environmental Risk Assessments

It is essential to assess an organisation’s environmental performance to demonstrate a high level of compliance. An environmental risk assessment covers the risk to all ecosystems, including humans.

The risk assessment process essentially consists of:

- Identifying the hazard
- Identifying the consequences associated with the hazard
- Estimating the magnitude of the consequences
- Estimating the probability of the consequences
- Evaluating the risk significance (the likelihood of the hazard being realised and the severity of the consequences).

Risk assessments can be applied when:

- assessing the potential impact of proposed new developments or site and process alternatives, and
- planning for risk management as a required part of an organisation’s Environmental Management System.

Project Management of Environmental Impact Assessments

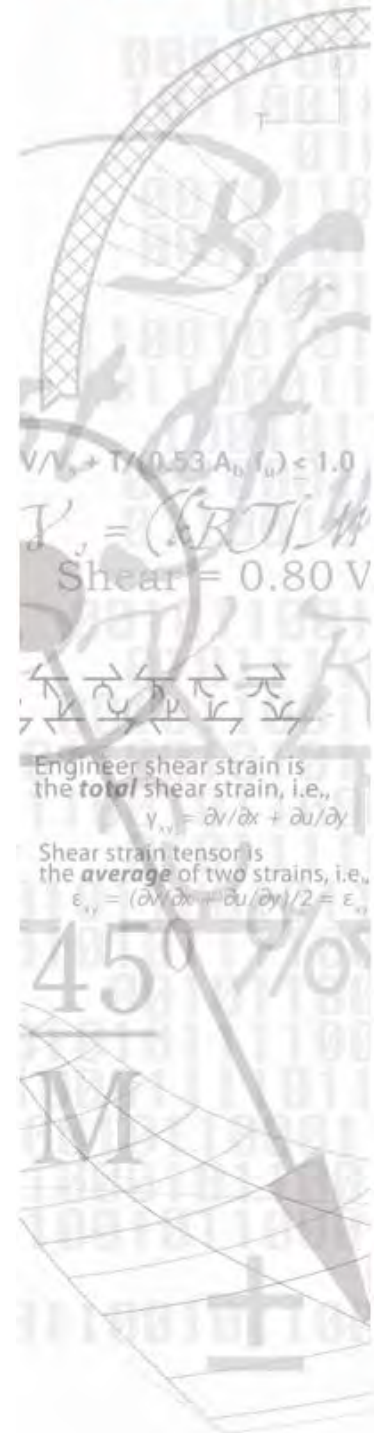
Environmental Impact Assessment (EIA) processes systematically identify the potential positive and negative impacts of proposed activities and feasible alternatives on the environment. This includes consideration of biophysical, social and cultural factors.

BIGEN AFRICA identifies suitable Environmental Assessment Practitioners to conduct EIAs, while we provide clients with project manage and quality control oversight.

Environmental Management Plans

Environmental Management Plans (EMPs) focus on minimising negative impacts and maximising the positive impact of developments or operations on the environment.

In a project management context, EMPs can be done at various project stages and are often associated with listed activities that require a Basic Environmental Assessment or full EIA.





For example, construction and operational EMPs respectively provide specifications for the construction and operational project phases and are submitted to the relevant authority as part of an EIA application. EMPs are developed and monitored by the environmental assessment practitioners appointed to conduct the EIA.

In an operational context, EMPs can be developed by environmentally conscious organisations to manage their environmental footprints. BIGEN AFRICA assists in developing, implementing and monitoring Operational EMPs.

Environmental Training

A lack of communication and training often result in difficulties with the implementation of environmental management measures. Environmental awareness and management training is crucial for the effective management of environmental practices in any organisation. Customised training that meets an organisation's needs and supports its values and culture will also be more effective and sustainable.

BIGEN AFRICA provides tailored environmental training courses, which include the use recognised experts in certain fields according to the training requirements. Our training programmes incorporate aspects of environmental law, best practice, management systems and auditing.

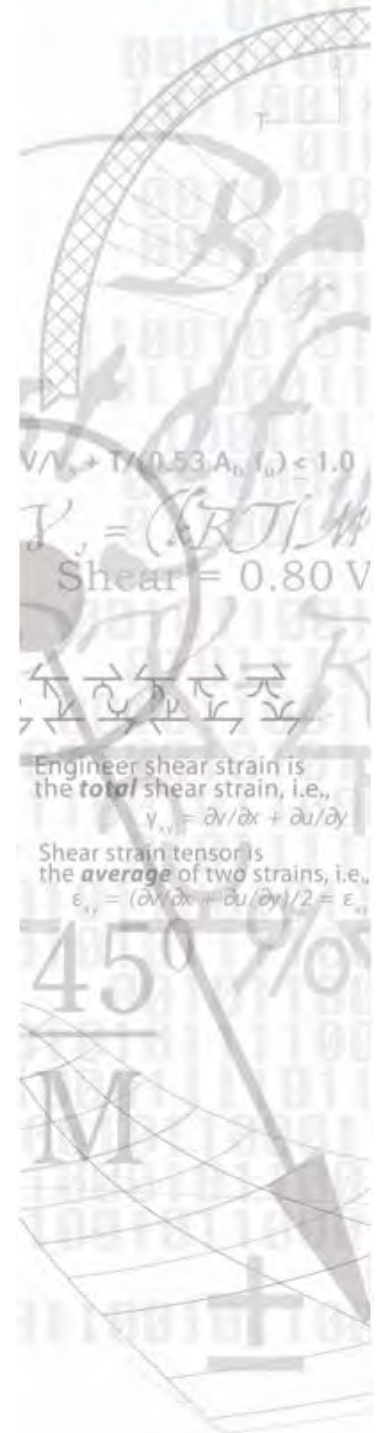
Stakeholder Engagement

The main objective of stakeholder engagement is to ensure that the decisions made by the relevant Authorities are informed, balanced and generally acceptable. While it is often associated with the EIA process, stakeholder engagement can also be conducted as part of other processes to ensure greater public understanding and support for decisions.

Such processes include Strategic Environmental Assessments, Environmental Management Frameworks and State of the Environment Reporting.

BIGEN AFRICA has vast experience in facilitating stakeholder engagement. We include the following key components as part of our effective stakeholder engagement:

- Grouping of stakeholders (Identification and registration of affected and interested stakeholder groups)
- Identification of suitable communication methods and tools





- Facilitation of stakeholder engagements sessions
- Addressing specific issues through focus group meetings
- Addressing general issues after the specific issues have been addressed
- Communication of information through selected communication methods and tools
- Effective record keeping and administration of the entire process.

The Environmental Team

The environmental team has the experience, capability and expertise to provide clients with environmental and other relevant professional services in all aspects of environmental management.

The environmental management services team has access to a network of professionals who provide knowledge and expertise to support the execution of specialized projects.

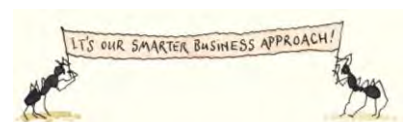
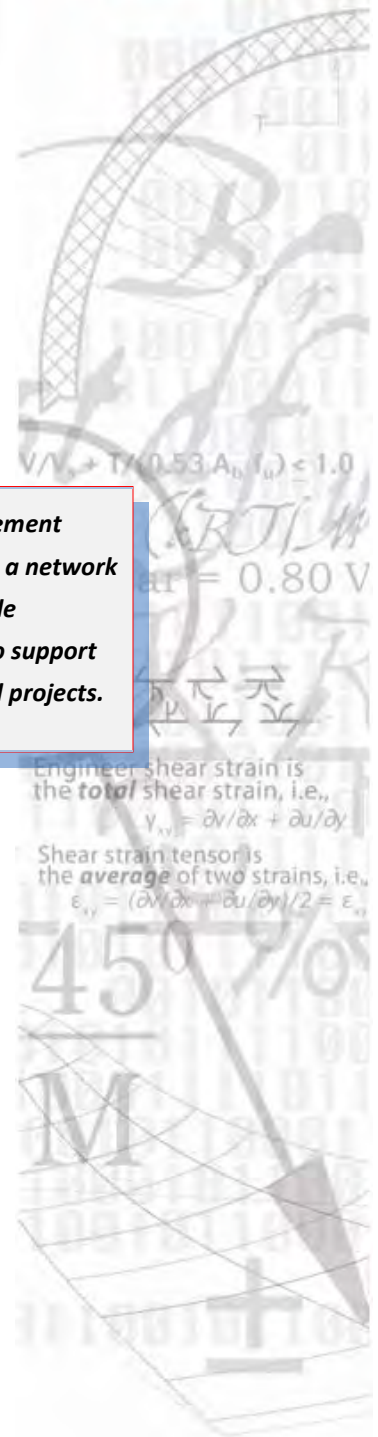
Areas of expertise

- Environmental management systems;
- Vegetation and fauna assessments;
- Environmental policy;
- General environmental management;
- Environmental legislation;
- Environmental plans and environmental assessment, project management.

Key Resource

Shantel Pecku

Ms Pecku holds an MSc degree in Microbiology and has significant experience in environmental management. This includes experience in ISO 14001 environmental management systems, environmental auditing, environmental risk assessments, environmental impact assessments, environmental research and environmental protection initiatives. She developed and implemented Siza Water's EMS during her employment there. As a Project Manager at Bigen Africa services she provides specialised environmental input on projects.





Our Value – Add Proposition

- Our integrity, commitment, desire to serve, passion for excellence, empowerment, innovative and creative working environment provides our specialist, multi-disciplinary teams with a solid foundation to implement successful projects for our clients.
- The expertise, skills and capability of our experienced environmental management team provide clients with access to comprehensive and integrated environmental management services, ranging from developing environmental policies to investigating and solving specific environmental issues.

Contact Details

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