



COMPANY PROFILE



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E-TEK Consulting was established in 2007 and is a team of dedicated specialists in the Environmental Engineering, Environmental Management and Estimating fields. We focus on mining and industrial activities, using a research-based approach to design while implementing environmental management strategies.

E-TEK specializes in the development of mine closure and rehabilitation plans, costing of closure and environmental liabilities, mapping, and the development of management plans. The extensive practical and hands-on experience of the various team members makes E-TEK an obvious choice for practical and sustainable solutions.

WHAT MAKES US UNIQUE

Cause leads to effect.

E-TEK applies this scientific principle to formulate strategies, expand our knowledge, and maximise resource extraction.

Our goal is to sustainably regenerate the earth. E-TEK embodies teamwork. Our project teams consist of an integrated network of internal and external specialists, providing invaluable expertise pertaining to each project undertaken.

We are passionate about empowering our clients by sharing our unique set of skills, knowledge, and experience.

Our capacity building strategies and skills-transfer principles enable stakeholders to become adaptable in an ever-changing environment.



E-TEK Consulting not only cares about the natural environment, but also the people living and depending on it. Through our partnership with the Mosaic Trust we give back to our community through various sustainable initiatives.

E-TEK strongly supports the goals and enterprises Mosaic is valued for and our affiliation is one of the ways we strive towards our vision of sustainably regenerating the earth – one project at a time.

WHAT WE LIVE BY

Our goal is to develop **sustainable solutions** through **quality service** and the building of **strong relationships** with our clients.



HOW TO CONTACT US

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WHAT WE DO



1. ENVIRONMENTAL MANAGEMENT

In today's ever-changing environment it is difficult for projects and operations from all sectors to keep track of the most important and relevant environmental strategies, processes, and legislation. **Our qualified team of environmental managers, scientists and consultants can provide well-researched, sustainable, and practical advice for all phases of a project and ensure legal compliancy..**

Our research-based approach to environmental management has given us the ability to resolve issues which are found nationally and internationally, between operational processes and environmental management strategies.

E-TEK Consulting specializes in rehabilitation and closure planning for mining and industrial operations. We integrate environmental management and engineering aspects, **including:**

1. Environmental Planning & Management:

- **Project Management** and assistance with onsite environmental coordination.
- Development of **closure plans** and providing guidance to ensure integrated mine closure and rehabilitation planning.
- **Rehabilitation and closure planning** related to training and workshops.
- **Post-mining land use plans** to assist clients to plan beyond closure. Land use plans assist in optimizing land use and capability - taking site constraints, regional context, and stakeholder expectations into consideration.
- Compilation of **Environmental Management Plans (EMPs)** and **Biodiversity Management Plans (BMPs)** to assist with the prevention and management of reasonably avoidable adverse impacts to the environment and biodiversity.

2. Environmental Studies & Rehabilitation:

- **General rehabilitation planning** and restoration of ecosystem services.
- Development and design of **rehabilitation trials** to ensure long-term successful planning for closure and rehabilitation.
- Research and management of **woody plant densities** (bush encroachment) to assist with the restoration of degraded areas.
- Terrestrial plant species identification and ecosystem qualification.

1. ENVIRONMENTAL MANAGEMENT (CONTINUED)

2. Environmental Studies & Rehabilitation (Continued):

- **Veld management planning** to assist with the successful management of resources.
- **Invasive Plant Control** to assist with the successful establishment of native species and the protection of habitat resources necessary for these species to thrive.

3. Environmental Analysis, Monitoring & Reporting:

- **Risk assessments** done as part of a risk-based approach towards mine closure planning.
- **Identification of gaps** for the compilation of action plans, assisting with the accuracy of documentation and closure of liability estimates.
- **State of the Environment Reports (SOER)** as part of research and understanding the surrounding environment to successfully plan for mine closure.
- **Strategic Environmental Assessments (SEA)** to identify the environmental implications of a specific project and assist with decision-making related to the project.
- **Landscape Function Analysis (LFA)** to monitor the success of rehabilitation trials and adapt planning accordingly.
- **Biomonitoring** to observe and assess changes occurring in ecosystems and ensure preventative measures are set in place for negative impacts.
- **Environmental auditing** (performance assessment) as part of being compliant with applicable legislation.
- **Environmental Impact Assessments (EIA)** as part of evaluating environmental and socio-economic impacts of a proposed project.
- **Basic Assessments (BA)** as part of the EIA process to ensure successful project planning and implementation.

2. ENVIRONMENTAL ENGINEERING

E-TEK Consulting apply scientific and engineering principles to evaluate possible environmental impacts and develop mitigation measures and successful solutions.

Our experienced environmental engineers will ensure that you receive well researched, practical solutions to your environmental problems.

We provide our national and international clients with the necessary guidance to comply legally and develop innovative management solutions. **We have vast experience with:**

1. Closure Planning, Rehabilitation, and Monitoring:

- Rehabilitation planning of mines, industrial sites, landfills, construction areas, and ecologically disturbed areas in line with industry standards and legislative requirements.
- Rehabilitation benchmarking to sites with similar nature and characteristics.
- Rehabilitation design and implementation, including care and maintenance programs.
- Technical approach to field-based rehabilitation trials and research.
- Practical closure objectives and criteria.
- Targeted monitoring programs, including rehabilitation success.
- Supervising and auditing of rehabilitation and closure works.

2. Mine Planning:

- Develop and optimize dumping strategies in line with closure criteria and objectives.
- Cost benefit analysis of rehabilitation alternatives and strategies.
- Concurrent rehabilitation planning and cashflows.
- Modelling of residue deposits and landfill sites for development and rehabilitation.
- Soil and mine waste inventories to optimize resource management.

3. Soils:

- Mine waste erosion stability assessments and physical characterization.
- Baseline soil surveys and soil mapping.
- Soil analysis.
- Material characterization.
- Soil amelioration recommendations and programs.
- Soil resource assessments and management plans.

3. WATER RESOURCES ENGINEERING

The hydrological cycle is a natural process, but anthropogenic activities influence the quality and quantity of usable water. How we manage this scarce resource can therefore be either an asset or a hazard.

Our team ensures integrated, realistic, and practical solutions for water resource development and management. We design to the needs of our clients, while ensuring alignment with best practices and legislative requirements. **Our field of services include the following:**

1. Assessment and Monitoring:

- Hydrological assessments.
- Water and salt balance modelling, including:
 - Pumps and pipe size optimization
 - Pollution control dam sizing
 - Liner classification
- Flood hydrology studies.
- Dam safety inspections and evaluations.
- Geotechnical investigations.

2. Layout and Design:

- Stormwater design supporting rehabilitation designs and strategies.
- Design of stormwater dams, channels, slit traps, culverts, interception trenches, river diversions and other stormwater management structures.
- Design of stormwater reticulation systems and pump stations.

3. Planning and Management:

- Stormwater Management Plans (SWMP) in line with legislative requirements (GNR 704), including:
 - Clean and dirty water separation
 - Flood peak estimation
 - Waste characterization
 - Stormwater reticulation design
- Water conservation planning.
- Implementation of stormwater designs and construction activities.
- Construction supervision and project management.

4. ESTIMATING

Managing closure liabilities has become an integral part of mining and industry planning to ensure optimization from greenfield projects throughout the full mine life cycle. Understanding one's liabilities before the impact has occurred has become a crucial factor in any industry.

E-TEK Consulting offers the full spectrum of cost estimating services. Our costing specialists will ensure that you gain a better understanding of your financial responsibilities pertaining to rehabilitation strategies, mitigation measures, and closure actions.

E-TEK Consulting developed uniquely structured financial models for estimating financial provisions addressing any closure scenario. Our financial models provide clients with an exceptional and accurate tool to assess their liabilities. All models are integrated within the mine plan to ensure optimization.

Our financial models are adaptable to any entity within the mining and industrial spectrum meeting client-specific and industry needs. Our Estimators are constantly assessing and addressing technological advancements and ever-changing legislative frameworks to ensure our financial models caters for the future.

E-TEK Consulting's financial models are comprehensive and adaptable in both the national and international arenas. Furthermore, all our costing related processes are in accordance with national and international legislative frameworks and best practice guidelines.

OUR SUITE OF SERVICES INCLUDES:

1. Financial liability analysis and estimation
2. Financial provisions
3. GIS and data solution systems to support closure liability estimation
4. Surveying, data collection, processing and qualification

"WE CANNOT SOLVE OUR PROBLEMS WITH THE SAME THINKING WE USED WHEN WE CREATED THEM."

- ALBERT EINSTEIN

4. ESTIMATING (CONTINUED)

1. Financial liability analysis and estimation

- Financial models are tailor-made to clients' specific needs (Management Tool).
- Feasibility analysis of closure criteria and actions to identify potential issues, evaluate alternatives, and priorities actions to be taken.
- Cost-benefit analysis and optimization of liabilities and mine plans providing concrete results to support decision making.
- Development and implementation of cash flow programs for mine closure (premature and life-of-mine) and rehabilitation obligations.
- Cost estimation of the risk assessment, mitigation, monitoring, evaluation, and control of potential environmental impacts.
- Create accurate asset registers and quantify infrastructural aspects to provide complete information on location and status for auditing and management purposes.
- Financial models that are aligned with closure and rehabilitation plans ensuring that our client's needs and responsibilities are met.
- Method statements with regards to demolition criteria for infrastructural aspects addressing potential risks and mitigation measures.
- Budgeting for specialist and technical studies.
- Development of standard operating procedures (SOPs).

2. Financial provisions aligned to:

- International best practices to produce superior results achieved with the most efficient methods.
- Regulatory requirements applicable to a project, whether national or international.
- Mine closure toolbox for strategic planning far beyond the life of a mine and benefiting from "lower closure liabilities, lower rehabilitation costs and more effective social investment and engagement".
- International Finance Corporation (IFC) standards as the benchmark for environmental and social risk identification and management.
- International Council on Mining and Metals (ICMM) standards which define a comprehensive set of performance expectations to achieve sustainable development with strong social, environmental, and technical outcomes.

3. GIS and data solution systems to support closure liability estimation:

- Combine and analyse data from a variety of sources and formats to comprehensively investigate relationships and accurately predict outcomes to suit our clients' unique needs.
- GIS solutions that analyse, visualize, and interpret data, showing the relationship between cost and aspect.
- Data capturing and establishment of GIS-based infrastructure and asset inventory and database.
- Creating and updating of reference maps linked to liability estimates.
- Change detection of infrastructural aspects and other cost components to evaluate any impacts and to utilize as a data tool for concurrent rehabilitation.

4. Surveying, data collection, processing, and quantification through:

- Desktop studies
- Drone surveying
- Aerial imagery
- Field data capture and mapping
- Feature digitizing
- Volume calculations
- Topographical staking of survey points
- 3D modelling and models

5. GEOSPATIAL SERVICES

GIS technology allows for the visualization, integration, and comparison of multiple data sources to provide a better understanding of real-life situations. For example, GIS layers showing existing mine infrastructure, mining components, water resources, land use, and other survey results could be overlaid to identify areas most suitable for ongoing rehabilitation activities or to inform mine closure planning.

E-TEK Consulting successfully completed a wide range of Environmental Engineering, Mine Closure and Rehabilitation, and Environmental Management projects and our geospatial implementations range from small mapping exercises to large planning and analysis projects.

We use state-of-the-art industry standard software to provide our clients with detailed, accurate and interpretable spatial products that encompass the acquisition, analysis, integration, visualization, and management of geospatial data.

E-TEK Consulting provide pragmatic and holistic solutions, **including:**

1. Data Acquisition and Integration:

- **Data Capturing:** The quality of data is one of the key variables in obtaining meaningful results. Our team gathers and verifies quality geospatial data through accurate desktop studies of imagery, maps, drawings, photogrammetry, and reports. We also execute detailed field data collection with GPS mobile capturing devices and survey equipment.
- **Image Processing:** Aerial photography, satellite imagery, and data acquisition and transformation are some of the most powerful data-capturing techniques for the creation of GIS spatial databases. Our services include checking, mosaicking, georeferencing, and georectification of raster datasets for use in mapping.

2. Data Analysis and Visualization:

- **Spatial Data Presentation Solutions:** Our team takes pride in designing, creating, and updating unique and precise maps to support mine closure liability forecasts, mine closure planning, monitoring and rehabilitation planning.



5. GEOSPATIAL SERVICES (CONTINUED)

- **Spatial Data Presentation Solutions:** The value of data is defined by its accessibility and presentation. Our team takes pride in designing, creating, and updating unique and precise maps to support mine closure liability forecasts, mine closure planning, monitoring and rehabilitation planning.
- **Change Detection:** Accurate data on land use and land cover change are crucial for liability forecasts, monitoring, and other environmental and remediation studies. We identify, measure, and describe changes in geospatial data, its features, and attributes that has been captured with mapping software and imagery.
- **Environmental Risk Classification:** Our qualified team uses existing data, field studies and interviews to produce extensive and current infrastructure risk classification maps, databases, and photo libraries for operational use by clients.
- **Environmental Risk and Constraints Mapping:** Constraints mapping is a useful tool to identify potential conflicts between design and the environment as well as provide useful information to inform early stakeholder discussions, gap analysis, and decision making. Our GIS team provides detailed site-specific analysis and mapping of opportunities, constraints, and potential impacts at any scale.

- **Spatial Data and Terrain Analysis:** Spatial analysis involves comparing the characteristics and the relationship between places and lends new perspectives to decision-making. Our team employs elevation data in conjunction with other geospatial information for visualization, interpretation, modelling, and to support decision making. The analysis of topographic features include slope, aspect, viewshed, elevation, contour lines, flow, and flow lines, which enable us to carry out:

- Water resource and water management studies
- Contaminated land mapping
- Land capability assessments
- Visual impact assessments
- Sensitivity analyses
- Material cut and fill balances
- Erosion studies
- Social impact assessments

3. Data Management:

- **Spatial Data Management:** We acquire, analyse, process, maintain, and update pertinent geospatial data in detailed and easy to access project databases for use by E-TEK and our clients.

WHO WE ARE



Jeanette Erasmus

Director & Environmental Manager

Jeanette obtained her B.Sc. Honours degree in Geography and Environmental studies in 2005, during that time, she worked as a Research Assistant at the Research Focus Area for Environmental Science and Management at the North-West University. She obtained her M.Sc. degree in Environmental Management, Cum Laude, in 2006 while working as an Environmental Consultant. Since then she is working as an Environmental Manager. Jeanette is a member of the Land Rehabilitation Society of Southern Africa (LaRSSA) and is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP). Her key experience includes the compilation of closure plans, risk assessments and gap analyses for closure planning as well as the project management of projects for mine closure planning, rehabilitation and remediation of disturbed areas. She also assists clients with facilitation of onsite workshops and training in understanding the mine closure planning process and management of associated liabilities.



Leon Koekemoer

Director & Estimator

Leon has a National Diploma in Building (N.Dip. Building) and is an Associate Member of the Association of South African Quantity Surveyors (ASAQS), registration no. 29649790 and a member of the Land Rehabilitation Society of Southern Africa (LaRSSA). He was a Senior Project Manager for Beckers Building Contractors from 2005 – 2011, where his key roles included project management, cost control and quality control. Leon specializes in the development of closure liabilities and models as well as assisting and advising in the closure planning process for mining and industrial sites. His key experience includes the calculation of environmental liabilities and the representation thereof in closure models. His expertise allows him to address all categories associated with liabilities such as closure liability cash flows, rehabilitation cash flows, auditing of liabilities and operational closure costing.

WHO WE ARE



Yolande Weldon

Financial Manager

Yolande is the financial manager for E-TEK Consulting and is a registered Chartered Accountant with the South African Institute of Chartered Accountants (SAICA). She obtained her B.Com(Law) degree in 1998 and completed her Board exams in 2004 while doing her articles at Fisher Hoffman PKF (Bloemfontein) and Bezuidenhout & Steyn (Potchefstroom). Following 5 years of financial experience at manufacturing companies, she joined the E-TEK team in 2010. Yolande assisted with the design of E-TEK's financial system and became increasingly involved in the financial direction of the company. Yolande is working alongside the rest of the team to develop and improve clients' and associates' experience at the consulting practice.



Pieter Vlok

Civil Engineering Technologist

Pieter is a qualified engineer (BTech – Engineering Civil) and obtained his B-Tech degree in 2012 and B.Sc. Honours (Water Resources) in 2015. Pieter is registered with ECSA, registration no 201670282 and is a member of SAICE. He has been involved in the field of construction, project management and design of various projects within the construction industry since 2012. He joined E-TEK Consulting in 2016 as a Civil Technologist where his current focus is mainly on compiling stormwater management plans, the onsite implementation and supervision of these projects as well as client liaison. Pieter is also involved with Rehabilitation projects, designs and modelling, where his key responsibilities is to optimize the dumping profile and estimate the rehabilitation cost required by legislation.



Joani Taljaard

Quantity Surveyor

Joani Taljaard graduated with a B.Sc Quantity Surveying (Hons) (Cum Laude) in 2015 from the University of Pretoria. She was a student Quantity Surveyor at Matla Quantity Surveyors (Pretoria) from 2014 to 2015, a junior Quantity Surveyor at Tronkon Construction (Potchefstroom) from 2016 to 2018 and a Candidate Quantity Surveyor at QS Africa Construction Consultants (Klerksdorp) from 2018 to 2021 where she managed the Potchefstroom office. She worked on a wide range of projects, including commercial developments, residential dwellings, health facilities, educational facilities, and insurance claims. She obtained experience from a construction and professional perspective in the six stages of a construction process: inception, concept and viability, design development, documentation and procurement, construction, and close out. She was employed by E-TEK Consulting in 2021 where she focusses on the calculation of closure liability estimates for scheduled and unscheduled closures as well as the annual updating of the liability estimates.

WHO WE ARE



Anja Esterhuizen

Environmental Consultant

Anja completed her B.Sc. degree in Environmental Science in 2014, her B.Sc. Honours degree with distinction in Environmental Science in 2015 and her M.Sc. in Environmental Science in 2018. During 2015, she was appointed as Head Demonstrator in Botany as well as Demonstrator in Geology at the North-West University. Anja also acted as Research Assistant at Plant Ecology during 2015. Anja is a registered Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), registration no. 121093. Anja has been employed by E-TEK Consulting as an Environmental Consultant since 2016 and have given valuable insights with regards to ecological, soil, geologic and other environmental aspects. Her focus is the compilation of closure plans, including state of the environment reports, risk assessments and gap analyses for closure planning. She also assists the Environmental Manager with preparations for onsite workshops and client liaison.



Nadine Coetzer

Environmental Consultant

Nadine completed her B.Sc degree in Ecology in 2010, her B.Sc Honours degree in Plant Ecology in 2011 and her M.Sc in Environmental Ecology in 2015. Nadine has worked at various environmental and engineering companies specialising in mine closure and rehabilitation and have gained valuable experience in this regard. She also has experience with compiling closure plans, risk assessment, gap analyses and calculating costing estimates and liabilities related to closure planning both locally and internationally. She is currently registered as a Candidate Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), with full professional registration due to follow soon. She is employed by E-TEK Consulting as an Environmental Consultant and assists the Environmental Manager with preparations for onsite workshops and client liaison.



PW Botha

GIS Analyst

PW obtained his B.Sc. degree in Geology and Geography in 2018. In 2019 he then obtained his B.Sc. Honours degree in Hydrology and Geohydrology. He is currently in his second year of a M.Sc. degree in Hydrology and Geohydrology and plans to complete it by the end of 2021. PW has been employed by E-TEK Consulting as a GIS Analyst in 2021, where he assists the company in all GIS related work. He is responsible for all the maps included in the reports sent out by E-TEK Consulting.

The curricula vitae of key personnel or team members are available on request.

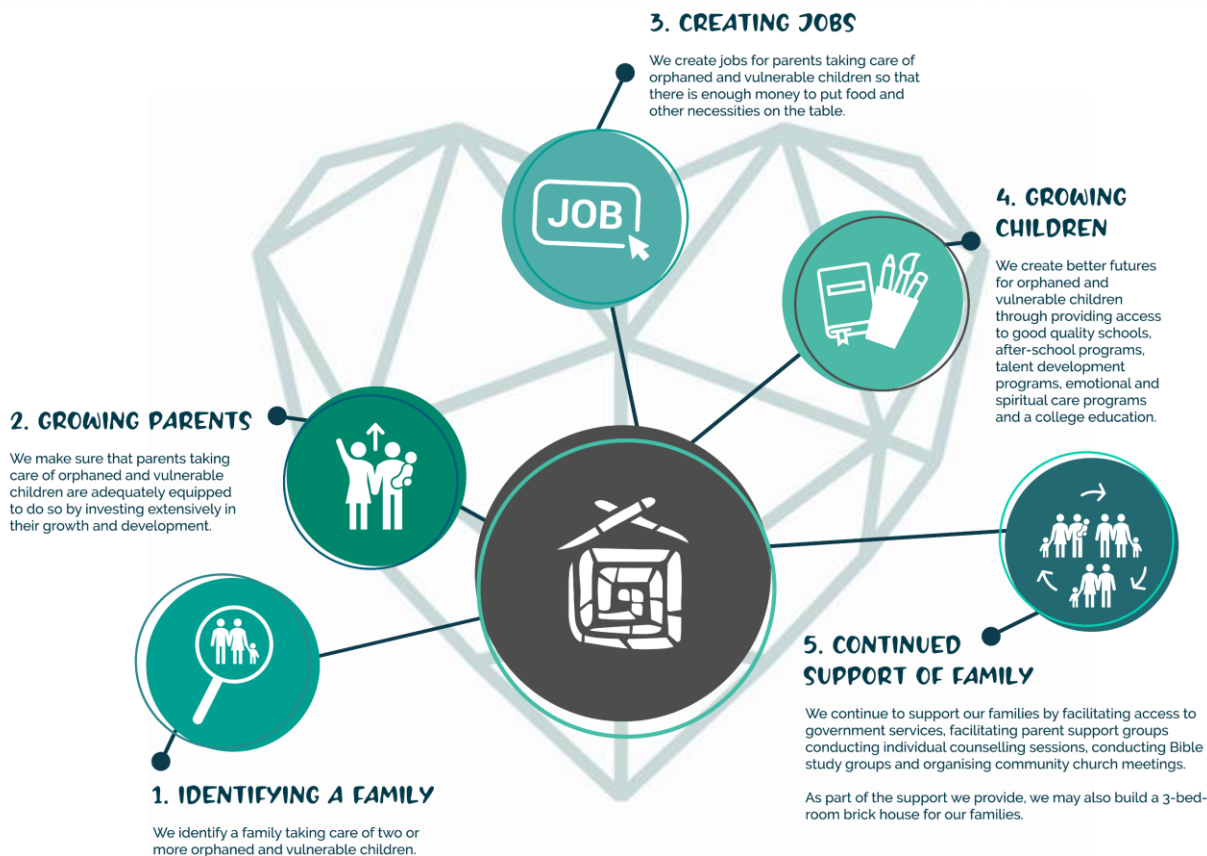
OUR HEART

We care about the natural environment, but also the people living and depending on it. The value of Ubuntu “I am, because you are” is core to our understanding of our role in our community. We are not spectators, we are part of a bigger vision.

Our belief in making a sustainable difference one project at a time, mirrors our commitment to our community, we want to see sustainable impact through the projects we support.

One such commitment made by E-TEK, is by supporting Mosaic and sharing the same sustainability vision for communities.

Mosaic Community Developments does just that, they are sustainably impacting the lives of orphaned and vulnerable children and their caretakers.



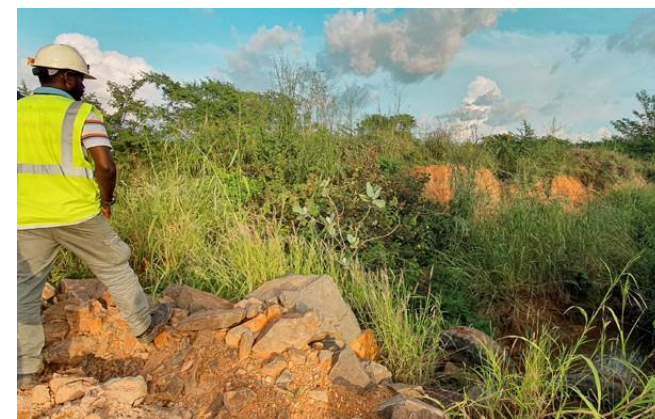
Mosaic aims to improve the wellbeing of orphaned and vulnerable children (OVC) and their families through the various programmes presented by Mosaic. OVC caretakers are empowered to take better care of the OVC living with them. This improvement of wellbeing is achieved on four different levels, namely:

- The improvement of the **physical wellbeing** of OVC and caretakers (through **subsidised housing and food security programs**),
- The improvement of the **economic wellbeing** of OVC and caretakers (through sustainable job creation initiatives for caretakers),
- The improvement of the **social wellbeing** of OVC and caretakers (through **education and life-skills programs**, as well as support groups and other social support services),
- The **improvement of the lives** of families in the wider community, to prevent other children in the community from becoming vulnerable or orphaned.

WHAT WE'VE WORKED ON

Environmental and Water Resources Engineering:

- Airspace modelling for waste rock dump strategies at **Letšeng Diamond Mine** in Lesotho
- Compilation of Mandatory Code of Practice and Continuation Reports for all WRD's and Settling Ponds at **Impala Platinum Rustenburg Operations**
- Stormwater management planning, water balance and waste barrier specifications at Mamba Cement (South Africa) and Maloma Mine (eSwatini).
- Soil characterization and erosion modelling of different mine residue deposits (**Debswana Mines**)



WHAT WE'VE WORKED ON

Rehabilitation, Mine Closure & Estimating:

- Rehabilitation and Closure planning for **Implats group**, including update of Financial Provision according to the requirements of legislative regulations (Impala Platinum, Marula Platinum, Afplats and Zimplats Mine in Zimbabwe)
- Refining of the closure criteria, rehabilitation measures and costing for **Gem Diamonds'** Letšeng Diamond Mine in Lesotho (since 2011)
- Closure planning and costing for various De Beers mines of the **Anglo American group**, including:
 - Venetia, Voorspoed, Kimberley and Oaks Mines in South Africa;
 - Orapa, Letlhakane, Damtshaa and Jwaneng Mines in Botswana (Debswana);
 - Snap Lake Mine (De Beers Canada)
- Numerous closure costing projects for a wide variety of mining and industrial sites



WHO WE WORK WITH

JUST A FEW OF OUR MANY VALUED CLIENTS AND ASSOCIATES:



