

YIMM



Youth in Mining and Metallurgy



CAROLINE MULAUDZI

Talks about making the industry more adaptable for women

TSHEPO MMOLA

Chairperson of YPC gives tips on how young professionals can thrive in the industry

SAIMM - YPC EWG

The first magazine issue, learn about the team behind it all

We are
the future
of
mining

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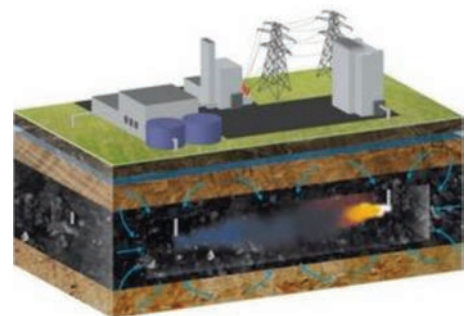
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SAIMM JOHANNESBURG BRANCH STUDENT DEBATE

INNOVATIONS IN THE MINING AND METALLURGY INDUSTRIES



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We would like to thank everyone who worked tirelessly to make this e-magazine possible. Most importantly, Mr Sihe Nhleko, Ms Sam Moolla and Mr Tshepo Mmola.



Chairperson's address

The SAIMM has a long history of developing young professionals in the minerals industry. A Career Guidance Committee led this function of the SAIMM and initiated several successful programmes to this end. However, in 2014 the Committee, comprising senior professionals in mining and metallurgy, came to recognize that young professionals should drive this function themselves. This would allow them to bring across their viewpoint when it comes to deciding on opportunities and threats to their future careers in the minerals industry. Thus in 2015 the SAIMM Council constituted the Young Professionals Council (YPC), led by young professionals, for young professionals.

The YPC formed three working groups – the Education, Career Guidance, and Enterprise working groups. Each working group has a specific focus area, and it is the responsibility of the group firstly to identify the needs of the target members, secondly to strategize, plan, and manage projects or programmes to meet the identified needs, and thirdly to evaluate the impact of the projects or programmes. Additionally, working groups are involved in advocacy support and network-building both locally and internationally. Through the activities of the working groups, the YPC is able to carry out its mission to empower young professionals to contribute to the profession and to society.

This e-magazine is one of the initiatives of the Education Working Group (EWG). The EWG represents the interests of young professionals at the basic and tertiary education levels. The EWG has actively participated in career guidance expos for high-school learners, fundraising for the SAIMM Scholarship Trust Fund whose beneficiaries are university students studying mining and metallurgy, and holding regular soft-skills development workshops in the universities to develop professionalism among the students and assist them to successfully complete their studies. Members of the EWG are empowered to dream and to reach for those dreams, and this magazine is the realization of just one of those dreams.

This edition of the magazine, aptly themed – *How to empower yourself as a young professional*, embodies the mission of the YPC. The magazine reflects the inherent curiosity and creativity within the students. The magazine is a demonstration of the power of students to self-organize and work together towards a common goal. I am proud of and grateful for their hard work and dedication in putting together this magazine and look forward to reading many more editions.



Editors note:

On behalf of the YPC, I would like to thank everyone who reads this for taking their time to look at the YPC's very first e-magazine, *Youth in Mining and Metallurgy*. This e-magazine is meant to keep young people abreast with the minerals industry by covering topics that matter to the constituents. Each e-magazine issue has a theme. This issue's theme is: *How to empower yourself as a young professional*.

The people who helped to make this e-magazine possible are students from the University of Johannesburg and the University of the Witwatersrand who form part of the subcommittee of the YPC EWG. These students study courses in the minerals industry like Mining Engineering, Metallurgical Engineering, and Mine Surveying.

The e-magazine team plans to release a total of two issues in 2017. The release date for the next issue will be made available on the SAIMM website, under the YPC tab.

I hope you enjoy reading this magazine, just as the team and I enjoyed working on it!

Yours sincerely,

Katleho Phamotse



Youth in Mining and Metallurgy e-Magazine

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How to Upgrade Your CV as a Young Professional

By Busisiwe Siliga

The Young Professionals Council (YPC) of the Southern African Institute of Mining and Metallurgy (SAIMM-YPC) is constituted to develop and promote initiatives and industry awareness of the members of the Institute who are 35 years old and younger. Following is an interview with the Chairman of SAIMM-YPC, Mr Tshepo Mmola.

Q: Extracurricular activities

Students are encouraged to participate in sports, academic research, technical skills development, volunteer work, leadership experience; what relevance do these have in self and career development?

A: From a CV point of view these demonstrate your abilities. They provide evidence of your attributes and strengths. These attributes are desirable when you are a graduate; they are what makes you stand out. Companies look for well-rounded individuals. In practice, these attributes play a role in developing your skills as a worker. These skills can only be developed outside the lecture rooms and should complement your technical knowledge. This will be essential for your career success.

Q: Extracurricular courses

When is the appropriate time to take short courses while at varsity (without infringing on school policy)?

A: Mining-related courses are technical in nature. You do not need to take short technical-related courses. You may take short courses in soft skills, business writing skills, computer-based skills, and foreign languages. Concentrate on that

‘Leadership is not a position, but a habit you develop. It becomes a way of life and does not require a title to be validated’

which is necessary to supplement your technical knowledge.

Q: Once you get to industry as a young professional, should you invest in obtaining more qualifications or in acquiring experience?

Once you enter the industry you can best invest in acquiring hands-on experience. You must have a plan for your career path. In that plan you reach certain stages where you should upgrade your knowledge. That is when you may consider pursuing more qualifications. But for the most part, in your entry level focus on gaining experience and developing your passion and strengths to advance your career.

Q: What should one consider in their graduate programme?

In your graduate programme take every opportunity recommended for you. Apply your knowledge and skills as soon as you can. Your pursuit of qualifications should not hinder your work experience.

Q: When should I start taking on leadership in the work environment?

Leadership is not a position, but a habit you develop. It becomes a way of life and does not require a title to be validated. Your leadership skills will be based on your character, not titles. You learn leadership qualities and practice them by taking on a role in organizations and in class.

To be a leader you must learn from and behave like leaders. Continue developing these habits until they are embedded in your character. In relation to CVs, take on a role in a leadership structure. You will be able to demonstrate your attributes through these actual roles. Also, keep good records of all work you partake in. Keep academic records and qualifications close by. You will need these when you register as a young professional.

Q: How do the SAIMM-YPC programmes assist in enhancing a CV?

A: From a student's point of view, the YPC facilitates how-to knowledge, preparation for job search, CV writing and interview skills, presentation and communication skills, research and innovation, time management, financial and entrepreneurship skills. All these help in upgrading the quality of CVs. The YPC Education Working Group committee members get to develop additional soft skills, leadership skills, and time management. Their participation in the Working Group contributes to building well-rounded individuals, which will also be demonstrated in their CVs.

For young professionals, the YPC conducts regular workshops, conferences, seminars, and lectures for imparting specialized knowledge. These events contribute to the Continuous Professional Development required by ECSA to acquire and maintain professional registration. We also have a mentoring programme that places young professionals in a one-on-one relationship with a senior professional for

guidance, and personal and professional development. This programme is now in its second year. At our events, you also get a networking opportunity. For entrepreneurs, we have an Entrepreneurship in Mining Forum in July. It will be targeting entrepreneurs, small businesses, start-up businesses, and unemployed graduates.

Q: Who does the YPC associate with?

Associations we have worked with include the R&D Corp; we facilitated a business proposal workshop and how to pitch for funding. We've also worked with Engineers Without Borders; we held a discussion about the social and environmental impacts of the mining industry. Currently we are building partnership with WIMSA, for the advancement of women in South Africa. Association with the YPC will also provide you with exposure to these organizations.

Making the Minerals Industry More adaptable for Women

By Katleho Phamotse and Kgabo Mokoena



Left: Kgabo Mokoena, Middle: Caroline Mulaudzi, Right: Katleho Phamotse

‘Caroline could relate to the problems that other women were facing because she herself was required to put on the PPE and spend 4-5 hours underground. She then saw the need to start the Mbokoto Group, a ‘one-stop’ company focusing on personal protective equipment (PPE) designed for the female physique’

Her presence goes unnoticed as she enters the room; her laugh, smile and easy going nature put us all at ease and give the impression that this interview will be a pleasant one. She is a beautiful lady hailing all the way from Venda, Limpopo. She enjoys regular activities such as golf and shopping, which is evident in her stylish attire she had on for the interview. Caroline is one of the people who are making the mining industry more adaptable for women. She is from humble beginnings as she used to walk about 3-4 km from home to Mutshalinganga Primary School. She then attended Mbilwi High School, and later Tshivhase High School where she completed her matric. While in high school, she was one of the top 16 performers who were selected for a mine visit at Tshikondeni Mine, one of Exxaro Resources’ coal mines, to see what career paths could be followed in the mining industry. It was there she met Mr. Eric Thabo, current Samancor Exploration Geology Manager, who inspired her to study geology. At the time, 90% of women were doing menial jobs around mines and she was puzzled that there were few females represented in the geology field. She then worked hard at school and was accepted to study geology at the University of Venda. In 2004, she relocated from her home province and moved to Johannesburg to attain her Geology Honours degree at the University of the Witwatersrand. Immediately after completing her studies, in December 2004, she started working at Lonmin Platinum Mine. A very loyal employee she was, she worked with Lonmin for 10 years. While at Lonmin, she became the head of the Women in Mining Forum. She was leading this role concurrently with her geology responsibilities.

This was a very opportune position for her as she was able to have an eagle's eye view of the problems women were faced with in the mines. A lot of women would complain that the personal protective equipment (PPE) garments were not suited for their physique and needs. Caroline could relate to the problems that other women were facing because she herself was required to put on the PPE and spend 4-5 hours underground. She then saw the need to start the Mbokoto Group, a 'one-stop' company focusing on PPE designed for the female physique and sanitary packs for women to attach to their PPE in case of emergencies, hosting workshops to empower women, with the PPE having received the greatest achievement.



Maternity wear that flares out as the pregnant woman's tummy grows

There is maternity-wear PPE as pregnant women can be allocated low-risk tasks that may still require them to wear full PPE on surface (for example: ladies working at the stores) All these variations of PPE are available because Caroline strongly believes that a garment should accommodate a person's needs. The fabric that the PPE is made of is SABS-approved to meet safety standards for a mining environment. In August 2015, Caroline introduced her

PPE products at the women's conference organized by the MHSC and DMR at Birchwood Hotel. The Mbokoto brand received enthusiastic support from the unions, mine management, and the general workforce. The conference was attended by numerous mining houses, and the then Minister of Minerals (Mr Ngoako Ramatlhodi) who was highly impressed by the innovations and the unique designs. This was the highlight for Caroline, her hard work and persistence had finally paid off.



Dungaree PPE to accommodate different bust sizes

Starting her own company was not a smooth ride. She faced many challenges along the way; these included raising the starting capital to buy machinery, paying employees, and a lack of skills with regards to operating sewing machines. It became very apparent to Caroline at the time that South Africa lacks portable skills.

'Be self-driven: there are a lot of challenges along the way and if you do not want something badly for yourself, anything can shift your focus'

Training costs became a large expense for her, and gave birth to other problems of efficiencies in producing required batches of PPE. Mining is a very old profession in South Africa and PPE has been worn for years; as a result, mines prefer to purchase PPE from reputable companies that have been in the business for a while. That became another challenge for Caroline as it was not easy to penetrate the market. It however turned out that the women who had tried on Caroline's PPE were extremely happy with the comfort and how the PPE was able to meet their needs. To overcome most of her challenges, Caroline worked closely with the Department of Mineral Resources (DMR) and the Mine Health and Safety Council (MHSC). She attends tripartite meetings and the two bodies have helped immensely with exposure for her company. She also worked closely with the government funding and business development institutions such as the Small Enterprise Financing Agencies (SEFA) and Small Enterprise Development Agencies (SEDA). To improve productivity and efficiencies, her company is working closely with Productivity SA, an institution specializing in analysing and improving business performance. To develop her export capabilities, the Export Credit Insurance Co-operation of South Africa (ECIC) also approved her company for further capital outlay and support. This also proves to all South Africans that the government has established substantial institutions directed towards supporting small and medium enterprises (SMEs). Caroline's PPE products have passed the end-user trial and have been approved for use by some of the biggest mining companies in South Africa, including Sibanye Gold, Gold Fields, Gold One, Bokoni Platinum, PPC Slurry, Idwala Lime Producers, Samancor Chrome East, Two Rivers, Dwars River, and Universal Coal.

Being a young woman in a male-dominated world, Caroline has needed very strong support structures by her side

that have encouraged her to soldier on even when it seemed like things would not work out. Her support structures have been her mother, brothers, and her children as she wants to leave a legacy for them. While mentioning her children, Caroline did remark that she was a teenage mother and that was never a barrier for her to achieve her goals. Instead she turned it into a positive aspect and kept pushing forward to reach to the stars.

Her mentor, Mark Munroe, current Vice President at Black Mountain Mining, has played a great role in her success too. Her advice to young people who wish to follow the entrepreneurial route is as follows.

- Break boundaries: do not limit yourself to what people have been able to do in the past
- Get as much exposure as possible: go out there, ask, do not only do work for money, do it to learn
- Remain focused: even if you have many ideas, focus on at least three or four and watch them transpire before moving onto the next idea
- Be humble: always be willing to learn from your surroundings and from everyone, regardless of their rank
- Develop very good listening skills: it is in listening that you are able to identify an area that needs extreme caution and focus
- Be self-driven: there are a lot of challenges along the way and if you do not want something badly for yourself, anything can shift your focus
- Be persistent: for the doors that are not open, be willing to kick and slam them down
- Do not take 'no' for an answer: there are many people willing to help so you must not be discouraged by any one person who says no.

Given the great advice, Caroline shows further that she does not just mention things but she practices what she preaches. Her company, Mbokoto Group, has grown, and a mining consultancy was birthed from her initial company, named MIC Mining Consultancy. Her consultancy firm has worked on manganese and coal exploration projects and is assisting with obtaining mining licenses and mine technical services, to mention a few. Today, Caroline's companies can run themselves since she strongly believes in learning continuously. To prove that, she is currently studying towards a Bachelor of Commerce degree in Management at the University of South Africa (UNISA). She not only empowers herself but also empowers people through learnerships offered at Mbokoto Group.

Mbokoto Group currently has about 35 employees, most of whom were recruited through the learnership programme that offers a tailoring course. The people who successfully complete the tailoring course end up as employees. Caroline is truly an inspiration to young people.



Standing tall above: Caroline Mashudu Mulaudzi



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LECTURER Q&A SESSION

By Katleho Phamotse



‘The mining industry can be very dynamic, so rigidity is not a good idea’

Mr Erhan Uludag, from Turkey, graduated with a Mining Engineering degree from Middle East Technical University. When he was a third-year student, he did vacation work in South Africa and it was then that he received a job offer from Gold Fields South Africa. After completion of his studies in 1990, he relocated to South Africa and worked in an underground gold mine for seven years. He later moved to De Beers, where he worked in mining research for approximately 10 years. He then moved to TWP as a consultant mining engineer for two and a half years. Finally, in 2010, he became a lecturer at Wits University, lecturing second, third, and fourth year students and sharing the expertise he gained through working so diligently in the mining industry.

Q: What is mining engineering?

A: Mining engineering involves the process of safely extracting a mineral that naturally occurs on surface, underground, or on the ocean floor. It is the task of a

mining engineer to find technically and financially viable methods to extract such minerals.

Q: What interested you to study something in the minerals industry?

One of my relatives was a mining engineer and I thought it was worth exploring – at the time I did not know much about mining.

Q: What is your view is of the industry currently?

The Global Financial Crisis of 2008 affected South Africa later in comparison to other countries. It started about 2010/2011.

The South African mining industry is suffering a bit currently and one of the reasons is the ground conditions. Ground conditions are a problem mainly in gold and platinum mines as they are becoming deeper and deeper. It is, however, difficult to mechanize under such conditions so conventional methods are still largely being used. Things are definitely getting better, though, as more projects are coming up each year.

Beyond South Africa, it is important to note that mining is cyclical. Global mining has not suffered that much. The worst effects were felt in 2008. Only metal prices remain affected, and it is important to note that more mining companies are opening up across the world.

Q: In your opinion, is the mining field lacking skills and if so, which skills?

There is no shortage of skills, even though the industry has complained about the quality of graduates. What universities have done to combat that problem is to increase the entry requirements into mining and metallurgical engineering degrees.

Q: Are there any mining-related fields that a person can further study towards after obtaining a mining engineering degree?

Yes. There are fields such as petroleum engineering, project management, Master in Business Administration (MBA), mechanized mining through mechanical engineering, and working in banks doing feasibility studies on mines. Those are some of the fields to follow that contribute to the growth of the minerals industry as a whole when combined with a mining engineering degree.

Q: Given the current state of the industry, there are more people who enrol to further their studies (e.g. Master's degree). Does that increase a student's employment prospects and is it really necessary to do a Master's degree and doctorate?

That depends heavily on the Master's degree topic. Some students choose topics that relate to real mining problems and they become fortunate enough to collect their data from an actual mine that is facing the problem at the time.

It is also very important for students to avoid developing an attitude towards certain courses throughout the course of their degree because of a dislike of the lecturer. That very same field could be the one which lacks students venturing into it.

Q: What advice could be given to a student currently studying for their undergraduate degree in order to help them find their area of interest early enough?

Do not develop a negative attitude towards any courses due to a high failure rate or the lecturers. Find out as much information about every single course throughout the degree in order to see if there is anything beyond the classroom that interests you about the topic.

Most importantly, speak to your lecturers. Do not be scared to speak to them—they are there to help.

Q: Any advice that you wish you had been given as a student or when you started out in your career?

'Learning never stops'. It is important to always be eager to learn. The mining industry can be very dynamic so rigidity is not a good idea.

Good communication skills are very important, as well as having a lot of energy.

Q: Is it important for one to be affiliated with a professional body?

Yes. Being affiliated with a professional body informs a person of the required international standards in the industry. This means that their career is not limited to one place or one country. Affiliation can also serve as a motivation to actively

'Being affiliated with a professional body informs one of the required international standards in the industry'

learn, as it generally helps with staying in contact with people in the industry across different commodities and how mining is evolving in a certain commodity worldwide.

Q: What advice can be given to a graduate who cannot find employment? Are there other jobs to apply for besides the 'mainstream' mining jobs?

As I mentioned earlier, it is important to always be eager to learn. Broaden your mind and think further than where you come from. Apply for employment beyond the borders of South Africa.

Q: What can a student do while they are still in university to increase their employment prospects?

Read a lot - there are a lot of mining magazines, journals, and seminars. Be willing to know about the state of the industry at any point; develop self-trust when you know about a topic while learning.

Choosing to Further Your Academic Profile at a Young Age

Is it Advisable or Does One Need Experience in the Industry?

By Dineo Makhoba

Choosing to be an academic at the beginning of anyone's working career is a decision that has to be well thought out and pre-planned. Questions such as 'What are you trying to master?' or 'What skills are you refining?' should be seriously considered before doing a Master's. This ensures complete satisfaction with career path the undergraduate has chosen.

'Technical application of mining engineering knowledge will hold more weight for a newly employed graduate'

Furthering your academic qualifications will also depend on the field of study, the type of company you work for, and the essence of your developmental goals. Choosing to do your Master's degree will depend on your career choice and your goals in terms of your future development. Do you choose academia or operational expertise?

If the field a graduate is going into requires a broad knowledge of engineering systems and processes, applications of innovative technology, and specialized knowledge on consultation within that field, then a Master's degree would be beneficial.

If the production route is a graduate's preferred option then obtaining a blasting certificate, Mine Overseer's certificate and a Mine Manager's certificate will hold more weight within the industry than a Master's degree.

In terms of the production sector of mining, a Master's degree will not hold value from a promotional standpoint. This is because in terms of promotional value, experience and a technical application of mining engineering knowledge, will hold more weight for a newly employed graduate.

'Questions such as "What are you trying to master?" or "What skills are you refining?", should be seriously considered'

According to Tshegofatso Mashapu, a South 32 production manager currently doing his Master's degree at the University of the Witwatersrand, furthering his studies was just a means of sharpening his skill set and broadening his technical background. From the beginning of his career, his main focus was putting energy into industry-specific skills so that he could advance in the production sector. In addition to this, his advice to graduates is to seriously consider their career path and analyse where they would like to see themselves within the mining engineering industry.

In the end, doing your Master's degree will depend on your developmental goals, where you envision yourself in the future, and on the field you feel that you are most likely to succeed in.

What Students expect from the Industry after Graduation, and the Reality

By Dineo Makhoba

One of the main aims of the YPC is to ensure that varsity students are adequately equipped with the basic tools that will propel them in industry as graduates.

Currently, the view of the mining industry according to the younger generation is quite vague and unclear. According to Khanyisile Khenene, a grade 11 student from the Eunice High School for Girls, being a mining engineer is about finding diamonds. Indeed, this is quite a limited and basic view of the exciting mining industry as there is a wide range of commodities.

‘For most students the biggest expectation is, “Finally all my hard work is going to pay off”’

The industry may thus seem unpredictable and daunting for most undergraduate students who are in the beginning stages of attaining their degree. The academic requirements for entry into the academic programme ensure that the technical skills of the student are effective enough to be applied within the working industry.

With that being said, what are the main expectations of a graduate with regard to the real and exciting world of the mining industry?

For most students the biggest expectation is, ‘Finally all my hard work is going to pay off.’ Realistically speaking, however, the starting salary package of

most graduates is adequate only once saving and smart spending techniques have been adopted. Students also expect the same structured routine that they have become used to during their whole schooling career, but graduate programmes will require flexibility and time management skills.

As an undergraduate student, equipping yourself not only with technical tools but with the capacity to climb the social ladder is imperative for ensuring your own personal growth within the industry.

According to Boitumelo Tshetlanyane, a recent mining engineering graduate from Wits University and a South 32 employee, her expectations of the mining industry were of a very cut-throat and fast-paced environment. However, she has since learnt that while the industry is indeed fast-paced, the initiative and determination of the graduate will prevail.

In addition to this, the mining industry will require the graduate to have social networking skills, a clear vision of where

The ever-important question is “How do I become greater?”

they want to be headed, and to continually ask themselves the ever-important question ‘How do I become greater?’

Most undergraduates expect the work environment to be flexible and well planned, but as mentioned above the working environment will be influenced by the initiative and the motivation of the graduate. It will mean pushing yourself beyond your comfort zone and growing your social skills at varsity. It is not an easy path, but with determination and commitment all things are possible.

Let Us Hear from the Students Themselves

a) Interview with Students about Vacation Work

By Khanyisile Kunene

Interviews were conducted with students to understand some of their expectations from vacation work as well as the challenges faced. These are the dialogue interviews with some of the students interviewed, which reflect opinions that are shared widely among undergraduate students.

Khanyisile Kunene: What do you think, in your opinion, was the most challenging thing about vacation work?

Interviewee 1: Getting taken seriously, they do not assign you any real work.

Interviewee 2: They did not give me any work, so it was somewhat difficult to find the introduction to mining.

Interviewee 3: It was not properly organized, instead of it being an exposure to mining we just ended up doing theoretical things that we do here at school. In my understanding, vacation work should be about learning the practical side of things.

Interviewee 4: There was no guidance, and there was no relation between the project given and the courses done at school.

KK: What advice would you give to someone who is yet to attend vacation work?

1: You must know what you want to do in advance.

2: Absorb everything you can when you go there because that could help you, not only at school but also in your mining life.

3: Keep an open mind, it is an interesting experience. People there see you as a threat, so treat people there with respect.

4: Good communication makes for a good project. They should be confident and not be afraid to make mistakes. They should also go to the school of mining to seek for advice as to what kind of questions to ask during vacation work.

KK: How do you communicate effectively with management and supervisors?

1: Learn to ask questions when unclear of things – it helps a lot.

2: Before you go for vacation work, do some research on it so that you have content to engage your managers on.

3: Try to stand out by being cooperative and interactive so that they notice you.

4: You must respect the hierarchy; you must know who to talk to before you jump to the big boss. You should also know who to ask to get what you want.

It is evident, from the above interviews and other interactions with students that each student should understand why he or she is going to vacation work and what they want to get from it. This should come in the form of pre-reading on the type of commodity and also on the specified project given. Pre-reading enables students to ask relevant questions and to obtain the most out of vacation work.

b) Interview with the Students about what they think of the Mining Industry

By Lukona Melento

Interviews were conducted with a number of young students who are currently pursuing an undergraduate degree in the field of Mining Engineering. These are some of the varying opinions that they had.

Lukona Melento: How do you currently feel about the industry?

Interviewee 1: It is bad, because we are not guaranteed jobs after working so hard for this degree.

Interviewee 2: I still feel like I do not know enough about it, so I do not want to go there.

Interviewee 3: I do not have experience in the industry, but from the little that I have seen so far, like every other thing it has its pros and cons. However, I think with the new generation that is coming in there are many things we can change.

Interviewee 4: It is a harsh industry.

LM: How far do you wish to go in the industry?

1: Some of the mining engineers produced do not end up working in mines. I would like to stay in the industry and apply the knowledge that I have been taught here at school to build the industry. I would like to be a developer of the system.

2: I do not really care about what I become there; I just want to have 10 years of experience.

3: At this point, I am not sure what of what my interests are so I do not know.

4: I would like be the CEO of a mining company.

LM: Do you still feel the same way you did before first year about the degree?

1: No, I do not.

2: No.

3: No

4: Yes

LM: What has changed?

1: Reality has kicked in; a real feel of what the industry is like and not the office you initially thought you would be in.

2: I have learnt a lot, I feel like I now know a little more about mining than I did before, which has made me realize that it is not what I thought I was signing up for.

3: I thought it was one thing but when I got here it was not really what I thought it was, so that kind of threw me off.

4: I feel more proud of what I am doing now than I did in first year, because most people would never do what I am doing.

LM: Is there any advice you would give to someone who is still in high school and would like to pursue mining?

1: Find a person who is already in the industry, a person who will tell you about what you are getting yourself into, because we find people who end up changing to other degrees because they realized they do not like mining.

2: They must research, and by researching I do not mean Google; they must find someone who is doing mining who will tell them what they will really do.

3: Make sure it is really something you want to do, because waking up to attend classes or to go to a job that you do not want is going to take three to four times the effort as doing something you love. Do as much research on mining as you can, so that when you do choose it is something you want and not what you think you want.

4: They should be physically and mentally prepared for the challenges.

LM: What do you wish someone had told you before you started?

1: That I will not be working in an air-conditioned office; underground is not like an office.

2: I would have actually preferred being shown mining, rather than be told what it is.

3: What 'starting at the bottom of the chain' in mining really means. I wish they had told me that so that I can reconsider.

4: I wish someone had told me that I would be dealing with different types of people, people that are profane and vulgar and do not want to do their work as they should.

LM: What are your likes and dislikes about mining?

2: I like the fact that it is different from the other engineering fields. I do not like the mining politics.

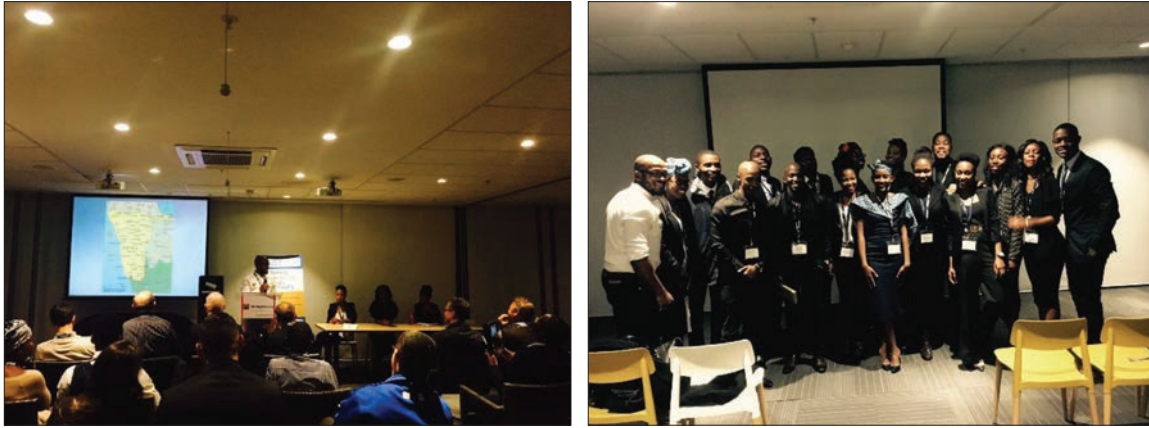
3: I like how there is so much room for potential. Now that more learned people are coming into mining we can expect change. I do not like the culture, the fact that it is male-dominated and how it is informal.

4: I like mining and the challenges it comes with. I dislike the lack of diligence in the people.

Students generally did not know what to expect when starting their studies in mining and although they might have had a slight idea, the reality of mining only hit them once they had started on the course. This gives an indication that not enough is taught or explained about mining to young pupils who are yet to enter into tertiary institutions and pursue a career in mining; which might explain the reason why a large number of mining graduates do not stay in the mining environment for long.



SAIMM Johannesburg Branch Student Debate



Courtesy of SAIMM Johannesburg Branch

By Sihe Nhleko

The Southern African Institute of Mining and Metallurgy, Johannesburg Branch has been running an annual initiative called the Student Debate since 2012. The Student Debate 2016 was held by the Johannesburg Branch together with the Young Professionals Council (YPC) at Worley Parsons at Melrose Arch. The purpose of this initiative is to empower students from various education institutions. Students are expected to research and present the information depending on the theme of the event. This event enhances students' ability to research and present their information. The 2016 topic was for students (representing member countries of the SAIMM) to make a pitch to a mining investment team promoting their allocated country and convincing the investors to invest in their countries.

For more information please contact Kea Shumba at Kea@saimm.co.za

Young and Prominent

Phethani Madzivhandila



Phethani is a Metallurgy student at the University of the Witwatersrand, currently in his third year. He is from Venda, Limpopo and went to Thengwe High School. He chose Metallurgy because of the lack of engineering skills amongst black people and has a particular interest in the academic field. Phethani has been tutoring high-school students in maths and science since 2012 and is also part of a feeding scheme in Orlando, Soweto where he also motivates and inspires the youth in the area. According to Phetani, 'reading helps unlock the mind and makes us more conscious of our surroundings'; which is why he does a lot of reading. In terms of leadership, he is the current Media Officer for the Wits School of

Metallurgy School Council.

Aspirations and goals: To see more black people achieving success and bring an end to monopolization of the mining industry, and also to become an academic.

Julia Mosola

Julia is a B.Tech Mining Engineering student at the University of Johannesburg. She is from Odendaalsrus in the Free State. She is an academic achiever, with top achievement in Mining Engineering (S3 and S4) for Harmony Gold Mining Company among her achievements. Tutoring is one of her passions; she tutored maths and physical sciences to grade 11 and 12 students in the Free State. In terms of leadership, she is the current chairperson for the Women in Mining at the University of Johannesburg (WIMUJ).



Goals and aspirations: To study towards a qualification in project management and industrial engineering in future. She would also like to be involved in more initiatives that involve female empowerment and development in the mining industry.

Tsholofelo Molefe



Tsholofelo is a Mining Engineering student at the University of Johannesburg. She is from Hammanskraal in Pretoria, and went to Tipfuxeni High School and finished matric as a top achiever. The challenges and ever-changing nature of the mining industry is what attracted her to studying mining engineering. She had always known that she wanted to do engineering, but initially battled with finding a specific industry that matched her skill set and personality. She was intrigued by the unpredictability of the industry, as it keeps one on their toes. Martin Luther King said '... everybody can be great, because greatness is achieved by service'. Tsholofelo displays that by playing a role in her community. She received the Solomon

Mahlangu Scholarship due to her community engagements; she also received the Enke: Make Your Mark Visionary Award for community projects, to name just a few.

Young and Prominent



Poloko Motsoane

Poloko is a final-year Mining Engineering student at the University of the Witwatersrand. He is from the Free State and finished grade 12 at the top of his class at Kheleng Secondary School in Phomolong Hennenman. He picked mining engineering due to the importance of problem-solving, communication, and leadership in the field; which he related to. Academics are of great importance to Poloko, so are leadership roles. He is the current treasurer for the Students in Mining Engineering Society (SMES.) and has held the position of chair of Wits School of Mining Engineering Council in 2016. He seeks to impact more lives with his academic and leadership skills.

Violet Hilane

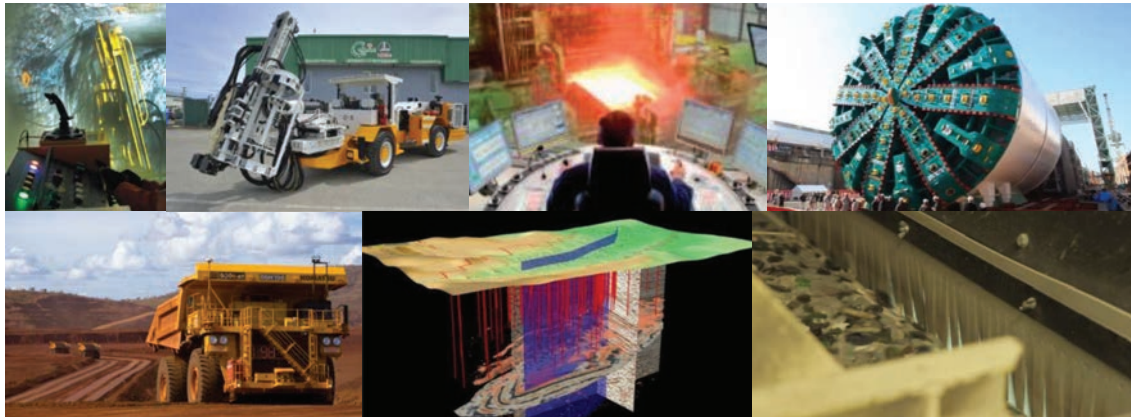
Violet, also known as Kgomotso, is a 21-year-old who was born and raised in a small township called Lethabong next to Rustenburg. She matriculated at Iketleetso High School in 2013 and pursued her tertiary career at the University of the Witwatersrand in 2014. She qualified for her first degree in Materials Science in 2016 and is currently studying her second degree in Metallurgy. Her involvement stretches from being a part of a new organization called Queens With Confidence, which aims to empower fellow sisters while they are still young, to serving as a vice-leader for ushers at Christian Action Fellowship. *'I am one person who likes to see others happy, I am inspired each and every day by what is going on in this world to bring change to someone else's life.'* Her inspiration to succeed is her



mother, two little sisters, and her brother Dr Lawrence Mphahlele (a dental surgeon) who always pushes her to do her best, be kind, to hustle, and never settle. Her career goals are to gain more knowledge from companies like Mintek and the CSIR, as they are more research and mineral technology orientated. She sees herself working as a Process Metallurgist for a company such as Mintek or Outotec. Her future is very bright.

We recognize these young individuals for excelling in their academic studies, their communities, and in their careers. We appreciate their continuing efforts to change this world and, most importantly, our mining industry. We thank them for being role models and for inspiring the next generation of mining leaders. May their futures be as bright as they are.

Innovations in the Mining and Metallurgy Industries



Source: Mining Global

By Khanyisile Kunene

Energy efficiency, resource and environmental conservation, and improved safety have become some of the main reasons for the urgent need for innovative ideas in both mining and metallurgy. According to the Merriam Webster dictionary, innovation is 'a new idea, method or device'. With this definition in mind, this article (which will focus mainly on mining) will discuss the impact and importance of innovation, especially of young, emerging professionals.

The Southern African mining industry is still in its infancy in terms of technology, mechanization, and automation. Hard-rock mines still, for the most part, employ conventional methods of mining the ore. These conventional methods worked well when the ore was easier to access and process; but due to deeper orebodies, economic instability, reduced demand, increased energy per ton mined, and deteriorating grades; new ways of extracting ore have to be found in order to keep the industry alive and booming. As some countries move toward automation; South Africa is still in the transitional phase from conventional mining to mechanization.

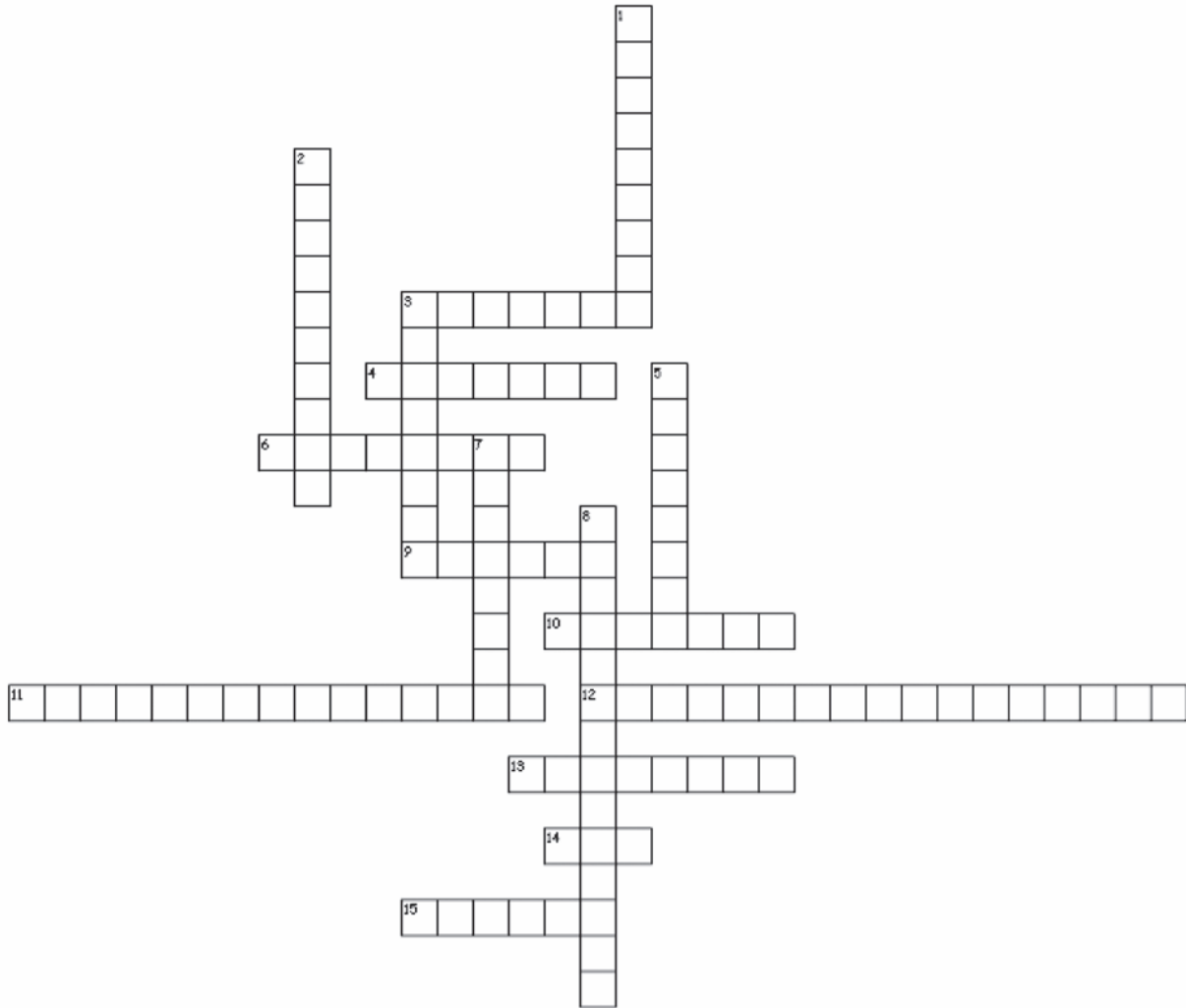
'The move to more innovative ideas would mean that there is a greater opportunity for young professionals...'

The move to more innovative ideas would mean that there is a greater opportunity for young professionals, although not limited to just the young, to design and apply creativity to the mining and metallurgy industry. Although mechanization and automation reduce the number of people required at the working face, they will, however, open a door for new skills development in mining and metallurgy. The easiest part of the process of improving the industry is coming up with new ideas; but it is important that these ideas address current problems in mining and metallurgy and are then driven to conclusion and implementation. The move towards automation will not only improve how minerals are extracted and processed, but will also improve the skills and knowledge of those working within these industries.

Yes! You Have a Great Mind. You can Prove Here!

CRISSCROSS: 45 MINUTES

Mining & Metallurgical Terminology



Across

3. A process that is done after the ore has been blasted.
4. These are positively charged and mostly metallic.
6. A vision towards 100% accident-free at mines.
9. A device used to protect one's hand from harm when barring.
10. A naturally occurring solid substance possessing definite chemical composition and atomic structure.
11. Using aqueous scientific methods to extract metals from the ore.
12. These act in the absence of shear stresses.
13. Unofficial mining language.
14. A type of rock that contains minerals of possible economic value.
15. The first cut made to start a mine in strip mining.

Down

1. A course sizing operation for particles down to 1-3mm.
2. A sizing device which has a large gape opening and thus can handle larger rock sizes.
3. A metallurgical process used to extract metals from their ores.
5. Double handling of waste.
7. A process where sulphide concentrates are heated in the presence of oxygen.
8. Volume of waste removed in volume of ore removed.

WORDSEARCH : 1 HOUR

U E
 O A Z M
 M X E G Q M
 G C Z N N R Y Y
 N G J I E T E G G V
 I A D R P D U S R Y N O
 K X J R I N O A E U B C I E
 A I V A I J O R G R L A S T L R
 B P V B Z Y M I T N V L C D U E L O
 G G X M N U Q Z T C I E A K O C O F I R
 D C J I C P Y X A E N X T F R S L E A M
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 X O F M B B I B
 F E A O N M
 R B A K
 S Y

MINING
 ORE
 PEAT
 ANION
 BACKFILL
 BAKING
 BARRING
 CROSSCUT
 ELECTRODE
 METALLURGY
 REEF
 RESERVE
 SAMREC
 MILLING
 RODS
 REFRIGERATION
 SILO
 STOPE
 YPC

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SUDOKU: HARD (2 HOURS)