

“Training for Life”

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The increased mining activity after privatisation in Zambia resulted in shortfall of skilled workforce. Furthermore, with its vision of becoming a world-class entity by 2023, Mopani Copper Mines Plc requires a sustained supply of skilled workforce to adapt to the advanced technology introduced in the industry. To meet this challenge, Mopani built a modern and world-class training facility in 2013 offering theoretical and practical training in Engineering, Mining and Process. The Engineering section enrolls Grade 12 school leavers for artisan training. The workshops are fully equipped with advanced technology to impart advanced technical skills to the students. The courses offered include electrical, auto-electrical, metal fabrication, heavy equipment repair, mechanical fitting, instrumentation and rigging. Additionally blacksmith and forging are offered on request. The Mopani Sustainable Development Academy ensures that contractors are fully registered, comply with all relevant regulations and have gone through induction before they can be allowed to work on the mine. The Mining section offers a comprehensive safety induction programme to employees and contractors to meet the Mopani zero tolerance accidents safety policy. Highly trained instructors conduct training in the mining MOCKUP, which simulates a real underground environment. State-of-the-art simulators in three dimensions are utilised for training of vehicle drivers and heavy equipment operators. The Process Training section offers advanced training programmes for plant operating personnel and university graduates. The programme includes needs analysis, theoretical metallurgical modules, practical plant training and E-learning modules. Preparation for the training of assayers and samplers is underway. The section has also been networking with universities within and outside Zambia to strengthen the graduate training programme.

INTRODUCTION

Responding to employees' need for on-going learning is a prudent investment of an organisation's resources and funds. In this competitive world, most organizations realize the importance of training and development. They are motivated by many factors: competitiveness, need for efficiency, need for quality, desire to avoid litigation, and others (Walters & Griffin, 2013). Realising this, Mopani seeks to ensure availability of a competent and trained workforce, which adapts well to advanced technology. The company also aims to fulfil its vision of becoming a world-class entity by 2023. In the year 2013, Mopani Copper Mines built a modern and world-class training facility, which offers theoretical and practical training in Engineering, Mining and Process.

Background

Prior to privatization of the mines, the government-owned Zambia Consolidated Copper Mines Ltd had a centralised system of planning and training of skilled manpower. This ensured the continued

availability of skilled manpower to meet the industrial requirements of all divisions within the company.

Skilled Labour Post-Privatisation

Privatisation has seen the opening of new mines and expansion of the old ones, which resulted in higher demand for skilled labour. There has been exponential growth in global mining production during the last 20 years, which has drained the talent pool, thus making the industry a victim of its own success (Zambia Chamber of Mines, 2017).

Like most new mines, Mopani did not initially focus on the training of labour. Many new mining companies generally proceeded with an uncoordinated approach to training. The available skilled labour was therefore in high demand and this led to a brain drain within Mopani because a significant number of people were poached by other mines.

High-level mining skills are increasingly sought-after and increasingly mobile. This is a characteristic that is common among most mines around the world and Zambia is no exception. Zambia's pool of home-grown mining talent – while not as deep and extensive as that of more developed mining countries – is fairly good by international standards (Zambia Chamber of Mines, 2017).

The modern and well-equipped world-class Mopani Central Training Centre (MCTC) was therefore built to meet this labour shortfall challenge at a cost in excess of US\$ 21 million.

THE MOPANI CENTRAL TRAINING CENTRE

MCTC is a multi-discipline training institution, which has been providing training to recommended employees, sponsored learners and contractors since 2013.

The Uniqueness of MCTC

The Triangle of Training

MCTC follows the triangle of training system, as shown in Figure 1 to ensure an effective learning process. The learners are taught theory in the classroom, practical practice in the workshops and also spend time on the plant for actual plant practice.

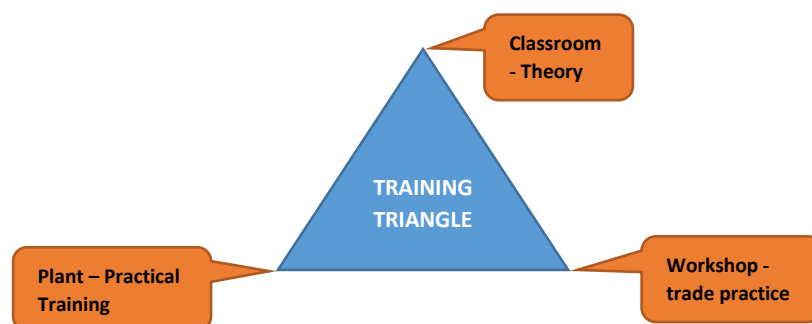


Figure 1: Triangle of training.

The Centre offers a full-time apprentice training programme and a wide range of competency-based training courses (short intensive courses) in various engineering, mining and process fields. It also covers development programmes for graduate engineers and inductions for employees as well as contractors to ensure high compliance to stringency in-house safety standards. Mopani Copper Mine Plc. is committed to develop, implement, maintain and manage learning and development systems, which provide employees with the opportunity to obtain the necessary knowledge, competencies, experience and qualifications to meet strategic operational and human resources goals.

Youth empowerment

Youth empowerment is one of the strengths of MCTC and girls are given an equal opportunity to train in the technical fields, which were previously believed to be a reserve for males only. In line with Mopani motto of “Empowering youths with practical life skills”, the apprenticeship programme mostly enrolls youths with good Grade 12 results. The rigorous selection process ensures that only top performers are trained and absorbed into industry. The trainees are also taught entrepreneurship skills. The competitive advantage of MCTC is that when the young trainees complete their training, they are already assured of immediate employment and are therefore absorbed into the industry where they are bonded for a period of three years.

Pre-promotion assessments

Before any promotions are effected, the candidate has to pass a computer-based assessment as well as an oral panel interview conducted at MCTC to ensure suitability for promotion.

MOCKUP and West Portal 90 m level training facilities

All the mining training courses are conducted in the MOCKUP, a building with well-equipped classrooms, which are on the surface but are built to simulate real underground conditions to give the learners an experience of the underground environment. Figure 2(a) shows the side and aerial view of MOCKUP while Figure 2(b) shows the inside view. Furthermore, a West Portal 90 m level training facility is being developed underground to facilitate practical training in drilling and blasting operations. The above initiative has significantly reduced the running cost of training as well as time of training because of their proximity.

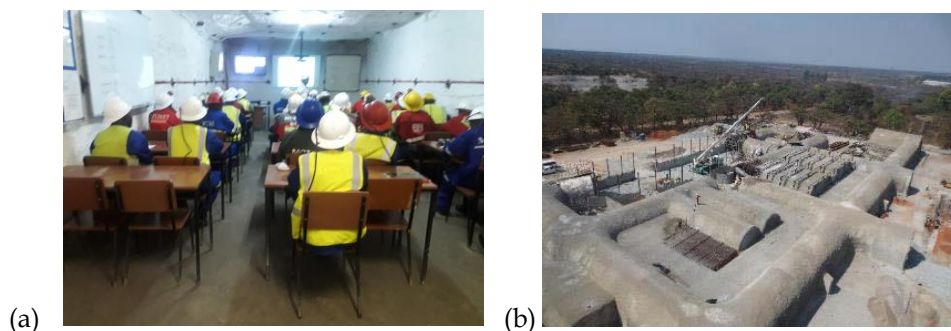


Figure 2: (a) Aerial view of MOCKUP and (b) inside view of MOCKUP classroom.

Accreditation

MCTC is accredited with the Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), a national training regulatory body. The Engineering section of the college is fully certified under the BS EN ISO 9001:2015 Quality Management System to ensure consistent credibility of the quality of training offered. The process of extending the accreditation to Mining and Process sections is in progress.

TRAINING PROGRAMMES OFFERED AT MCTC

The Training Centre was initially commissioned with the Engineering and the Mining Training programmes in 2013. Implementation of the Process Training Programme commenced in 2017. At the time of writing, the implementation was still in progress. The training programmes offered are discussed below.

Engineering Training

The Engineering Training section is directly responsible for the MCTC Training College, which offers the Apprentice Artisan training programme. The college is fully equipped with modern classrooms

for theoretical lessons as well as workshops for practical training. The workshops are also fully equipped with latest state of the art advanced technology as can be seen Figure 3.



Figure 3: Engineering workshops.

Apprentice artisan training programme

Artisan development is key to improving the national economy and creating employment for the youth population (Chamber of Mines of South Africa, 2017). MCTC offers this training to Grade 12 school leavers for a duration of two and a half years. The courses offered are Metal Fabrication, Diesel Mechanics, Fitting, Rigging and Electrical (comprising of Electrical, Instrumentation and Auto Electrical). Blacksmith and Forging are offered on request.

Short courses

A total of 86 engineering related short courses are offered as refresher courses to Mopani employees as well as contractors to enhance their skills and expose them to modern technology. In addition, MCTC, in conjunction with Barloworld Equipment, offers short-term courses in Servicing and Preventive Maintenance of heavy equipment.

Mining Training

The Mining training section offers various courses as discussed below.

Generic safety courses

To ensure compliance with Mining and Government Statutory Regulations, it is an obligation that all employees, employees returning from long leave, all contractors and new learners should attend generic safety induction courses before they are allowed to enter their work areas. This includes all employees working both underground and on surface. Strict enforcement of this requirement has greatly improved the overall safety record of the company.

Furthermore, all operators of mobile plant equipment and drivers have to undergo Dover tests to ascertain their coordination and reflexes. Before they are given driving permits, they are first tested on three-dimensional (3D) simulators and thereafter on the actual mobile equipment.

Basic mining skills courses

A total of 24 basic mining skills courses for underground operations are offered to both Mopani employees and contractors. These courses include blasting license training, underground equipment operators and drivers training and other underground jobs. The durations vary from 1 to 4 weeks of theoretical classroom training and 4 to 12 weeks of practical plant training. Competence-based assessments are conducted at every stage.

Supervisory skills courses

The training covers supervisory levels from Section boss to Mine Captain as well as Mine Manager. Total duration varies from 1-10 months.

The Staff Learner programme is very comprehensive and also covers a period of up to 10 months.

Mining graduate development programme

The section also runs a very comprehensive 2½ years graduate development programme for new mining engineering graduates. During this period, the graduate is exposed to all the mining functions, as well as metallurgical operations, to have an appreciation of the entire value chain. The graduate is also assigned a Mentor who progressively guides and monitors his progress.

Process Training

The Section offers both theoretical and practical training and development programmes for metallurgical graduates and plant operating personnel covering Concentrators, Smelter, Refinery and Analytical Services.

Metallurgical graduate development programme

The metallurgical graduate development programme is offered to new graduate metallurgists and those on training in the process plants. The programme involves familiarization and practical plant training.

A further addition to the graduate development programme is the multiskilling component where the graduates are exposed to all the various plants from underground mining through to all the metallurgical process plants before their permanent placement. The purpose of this 2½ year development programme, which covers a total of 118 courses, is to ensure that the metallurgists are well developed and can work in any metallurgical plant.

During the development programme, the graduate is assigned a Mentor who continuously mentors and monitors his progress.

E-learning modules

The metallurgical graduates on development are also assigned modules to study on their own using the E-learning platform. These modules mainly cover the technical and theoretical component of the training and are classified in four levels. The graduates have to complete the online assessments at the end of each module to help monitor their progress.

Operatives development programme

There are a total of 93 different training courses available for personnel operating the different units of the processing plants from Concentrator, Smelter, Refinery, as well as Analytical Services. These courses include both theoretical and practical plant practice to ensure that the personnel are fully trained. The learners are given pre- and post-course assessments to monitor the learning process. The programme also manages a well-defined succession chart system to ensure that people are trained and ready to move to any position that becomes vacant to minimize plant interruptions due to labour deficits.

Monitoring and evaluation

To monitor the effectiveness of the training programmes, monthly training meetings are held with the Process Plants to plan and review. Furthermore, departmental training officers monitor the training programmes of the individual learners. Assessments are conducted and discussions held with mentors. From these interactions, appropriate action plans are developed. For instance, further training sessions with equipment manufacturers, special lectures with university professors and exposure trips to similar plants are some of the solutions that are implemented.

Training of samplers and assayers

To meet the industrial shortfall in the training of assayers and samplers, MCTC is in the process of establishing this training in consultation with TEVETA. This training will also be extended to other organisations outside Mopani.

Supervision of university vacation students

The section has also taken over the supervision of university vacation students in metallurgy when they come for industrial exposure and to conduct technical investigations/projects at Mopani. The students are guided during their testwork, technical paper presentation and report writing.

Sustainable Development Academy (SDA)

This section was set up in 2017 and is responsible for scrutinizing contractors who have registered with Mopani and have been given contracts. They have to verify that the companies are genuinely registered and have obtained all the required statutory registrations. The section also verifies that the contractors have fulfilled the statutory government requirements before authorizing them for the mandatory safety induction and granting them access to work on the mine.

TRAINING STATISTICS

Apprentice Programme

Figure 4 shows the number of artisans who graduated in each year since 2014. The number slightly dropped in 2016 following the global drop in copper prices the previous year.

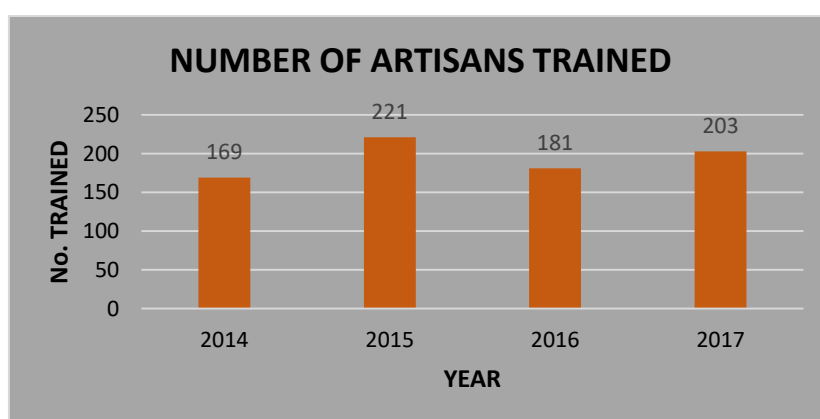


Figure 5: Number of artisans trained.

In-Service Training

Figure 6 shows the number of employees who went through refresher courses, other training and employees returning from long leave and had to go through the mandatory safety induction.

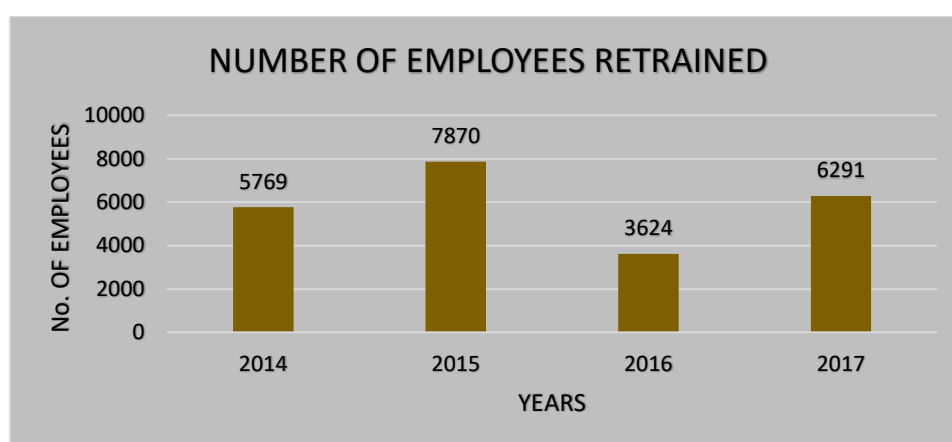


Figure 6: Number of employees retrained.

Contractors Trained

Figure 7 shows the number of contractors who went through the Sustainable Contractors Academy and safety induction. The sharp increase in the 2017 figure coincides with the setting up of the Sustainable Development Academy, which took over the responsibility of monitoring the safety induction of contractors. Prior to 2017 safety induction for contractors was not centrally done.

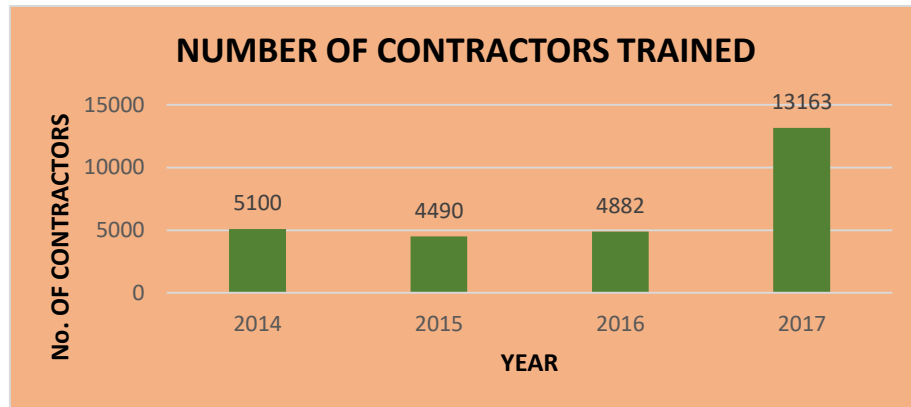


Figure 7: Number of contractors trained.

CONCLUSION

The Mopani Central Training Centre is effectively producing highly skilled learners and contributing immensely to meeting industry skills shortfall. The Centre has strategically positioned itself to providing superior “training for life” and contributing to Mopani’s vision of becoming a world-class entity by 2023.

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