

S. Marx

SANDVIK APPRENTICE PROGRAMME: WE MAKE IT POSSIBLE

S. Marx Sandvik

*Companies that create what we call people advantage – the ability to gain competitive advantage through people strategies – will race ahead of their competitors’.*¹

Background: Skills challenge a national skills crisis?

More than twenty years ago Sasol, ISCOR, and some parastatals played a major role in ensuring that South Africa had sufficient technical skills. When the economy became tight and business and government were pressurized to decrease costs, the first budgets that were reduced were the training budgets. It seemed to be too expensive and too time-consuming to train apprentices. According to Stacey², this is a major strategic issue facing the mining industry in South Africa.

Two factors added to the shortage of skills challenge:

- Skills erosion and job losses
 - Artisans – currently the economy produces 5 000 but the need is 12 500
 - Level of mechanization in South Africa less than 10 per cent
 - Average age of operators and artisans is 50
 - Greater awareness of occupational health effects of hand-held drilling.
- Workplace challenges
 - The impact of HIV/AIDS and other employee wellness issues
 - Changes and challenges in workplace environment i.e. the mining industry.

The result of reducing training budgets and decreasing apprenticeship training is that South Africa has now been grappling with the shortage of technical skills for over a decade. As an example, in 2005, 1 440 apprenticeships were registered with the Mining Qualifications Authority (MQA). This compares to 3 000 in 2000 and 33 000 in 1975⁴.

Based on the 2008 National Scarce Skills, the latest list to be published by the Department of Labour, Goga and van der Westhuizen estimate that there was a net scarcity of 99 500 technicians and trade workers in 2008, up 9 per cent from the previous year⁵. In 2008 the skills deficit in South Africa was regarded as a national crisis⁶.

Solidarity, furthermore, confirms that South Africa had only 10 per cent of the artisans that it had 20 years ago, and estimated that the country has a 40 per cent shortage of artisans.

Figure 1 illustrates the current shortage of technical skills in South Africa. The decline in skills is illustrated by the fact that in 2006 there were 3 400 apprentices in training in the metals industry, compared to the 13 000 that were in training in 1982.

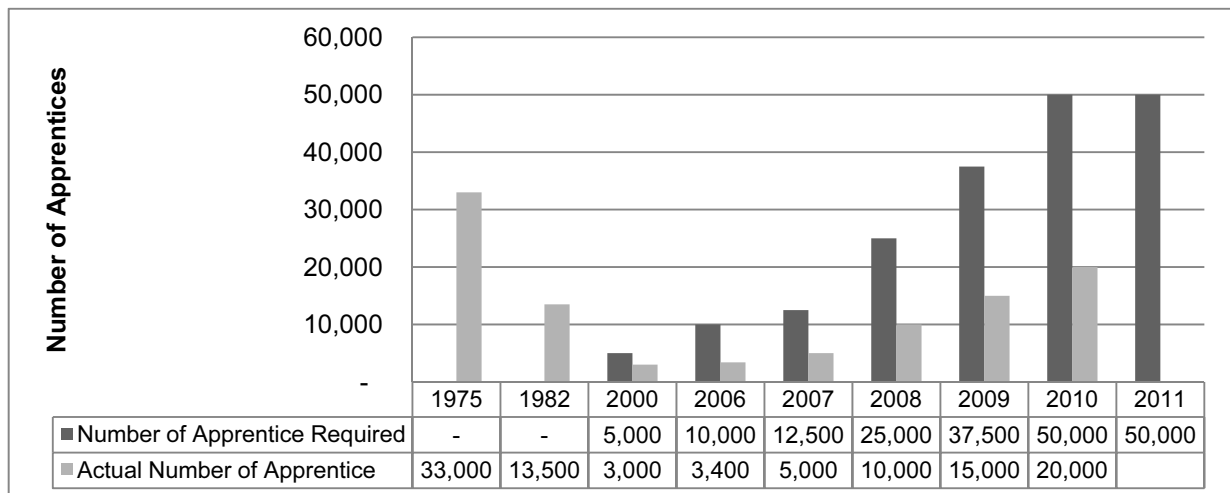


Figure 1-Shortage of technical skills in South Africa (data from the Steel and Engineering Industries Federation of South Africa³)

Minister Godongwana, Deputy Economic Development Minister, confirms this shortage when he states that the training of artisans in South Africa slipped backwards.

'(What is) shocking is that in 1975, there were 33 000 registered apprentices, largely white, with a few coloured and Indian (apprentices), because Africans (blacks) were not allowed to be artisans at the time,' he said. 'Now if you take a picture in 2000, there were 10% of (this figure), 3 000 artisans of all races. What this means is we're not training people at all in this economy. Clearly this is a major challenge.'

Furthermore, it is well known that there is a world shortage of skills in all technical fields, including mining. Finding a solution to this problem will become a critical factor for ensuring that South Africa becomes globally competitive in this area.

The question that we should ask is: what is industry doing about this?

There have been many initiatives over the years to try and revive the training in technical skills to support the mining industry. Some of these include initiatives by original equipment manufacturers (OEMs) and mining companies. There is a continual move towards companies getting more involved in the process of training apprentices. Lonmin, for example, established a trade school this year (2012). The group is planning to develop apprentices for their own needs as well as an equivalent number of artisan tradespeople for external jobs⁷.

A recent assessment of skills development interventions in South Africa by the Human Sciences Research Council⁸ indicates that there have been various mechanisms over the past five years to promote both artisanal and technical skills. The HSRC believes that this process has been facilitated largely by the Joint Initiative on Priority Skills Acquisition (JIPSA). It was found that there is a very high rate of employment after completing apprenticeships, with over seventy per cent of candidates finding immediate employment. However, it was also noticed that of the candidates that completed their apprenticeship, only four per cent entered the programme directly after school. History shows that most candidates enter an apprenticeship two, three, or more years after leaving school. This implies that school leavers do not generally consider an apprenticeship as a first option and prefer to try other alternatives first. The HSRC believes that this indicates an opportunity for further efforts at targeting school leavers to encourage them into this field of study.

An initiative currently residing within the Human Sciences Research Council, the artisan development technical team (ADTT), has researched and is developing strategies to address the artisan skills shortage⁹. The team has recommended:

- The development of a list of artisan skills that are critical for economic growth
- Increasing the capacity of industries to train artisans for other industries beyond their own requirements
- The development of a funding model to train the unemployed to become artisans.

Despite all these initiatives, according to University of the Witwatersrand School of Mining Head, Professor Fred Cawood, when discussing skills in the coal industry, there is still not enough being done to meet the demand for skilled technicians and artisans. He says that there is no clear strategy in place¹⁰.

The National Planning Commission, as part of their National Development Plan, has set a target of producing 10 000 artisans per year by 2014, extending this to 30 000 per year by 2030, subject to demand. The Commission has also identified key areas that are central to improving education and skills¹¹.

The Sandvik apprenticeship journey

In 1998 Sandvik South Africa realized that the lack of technical skills is not only a major challenge for South Africa, but also a major threat to the implementation of mechanized mining in South Africa. Johan Pieters, Sandvik's internal technical training centre manager, stated: *'Due to the shortage of skilled labour in the industry, we have undertaken to employ and train apprentices, specific to the needs of the Sandvik equipment and customer needs'*¹³.

We Have Only Just Begun

Sandvik conducted an internal technical skills gap analysis in 1998. Through this gap analysis (which compared current artisan skills with required skills to maintain Sandvik equipment) Sandvik identified a real need for mechanical, diesel, and electrical artisan skills, and the apprenticeship programme commenced with seven millwright apprentices in 1999.

The Sandvik Apprentice Programme was implemented to ensure the availability of technical skills to support the long term growth plans. The total intake from 2003 to 2011 was 563. By the year 2011 Sandvik produced 417 artisans for the mining industry with specific focus on mechanized mining, forty-one (10 per cent) of whom were females.

Since 1999 Sandvik has been continued to develop the skills and competencies required, ensuring that the company's products are continuously maintained and that customer needs are addressed. Even during the tough economic times in 2008, Sandvik decided to continue with the training of apprentices in spite of a decreasing budget. To date Sandvik has 150 apprentices in training at any one time.

Long-term planning and recruitment of apprentices

The apprentice programme of Sandvik is a large investment (the Sandvik apprenticeship budget amounts to around R20 million per annum) and requires a great deal of planning and forecasting of numbers.

The number of artisan skills required is reviewed every year and is also aligned with the business strategy. It is clear that the apprenticeship programme is one of the strategic interventions that ensure the successful implementation of mechanized mining. Sandvik strives to match its own need for qualified artisans in specific areas of our operations on customer's mines throughout South Africa, and to comply with the equity policies of the company and the country.

An apprentice programme requires a high level of commitment and an understanding of the need for continuous apprenticeship training. The challenge is to maintain this investment even during the tough economic times such as 2008. Figure 2 shows the numbers of apprentices that will qualify and planned intakes. This graph informs the business and advises on long term planning with regards to the intake of apprentices. The bottom line is that if the mining industry does not recruit and train, even in challenging financial times, it will not have the skills that it needs in the long term.

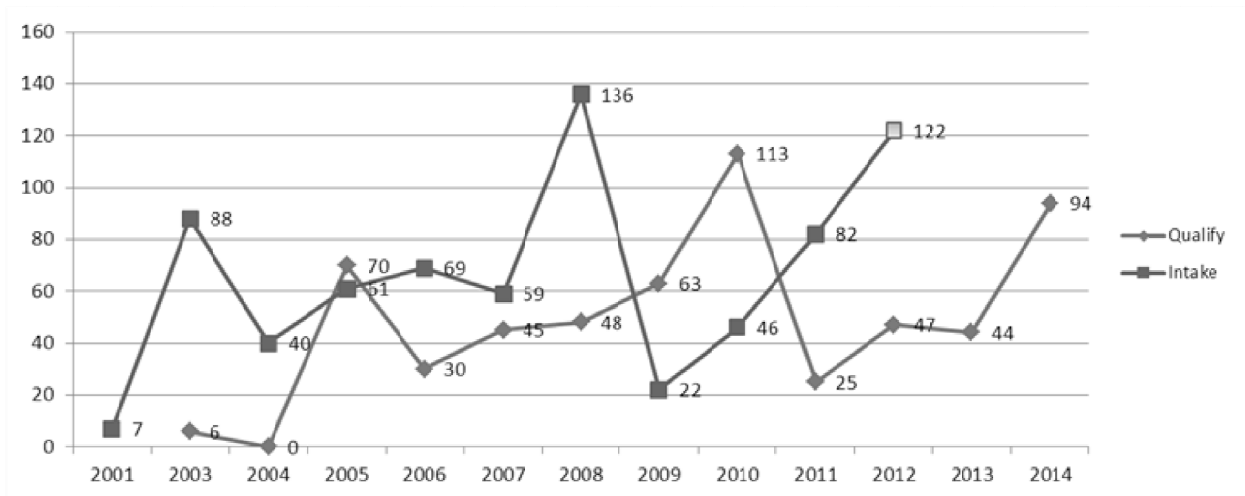


Figure 2-Example of Sandvik apprentice number forecasting

The recruitment process of the apprentices is one of the key success factors of the Apprentice Programme. The stringent candidate assessment procedure consists of:

- Screening interviews
- Selection interviews on site
- A three-month probation period
- A rating review after probation
- Close scrutiny of candidates' performance, coupled with support and mentorship.

The rigorous recruitment process of the Sandvik Apprentice Programme ensures that high-potential individuals are appointed and developed. The aim is to attract high calibre individuals using a fair and non-discriminatory process.

The minimum criteria for entry into the Apprentice Programme are determined in line with industry requirements and SETA requirements for apprenticeships.

The shortlisted candidates are invited to attend a technical aptitude test from an accredited, Sandvik-approved assessment center. Successful candidates are invited for a screening interview and attend a second interview by the relevant recruiting manager for final selection.

The apprentice will then be required to complete a three-month probation period under the relevant manager's supervision and performance management. The recruiting manager will then make a recommendation to the recruitment panel on whether the candidate should advance to the apprenticeship programme or termination.

The quality assurance and performance management of the apprentice during this time is of the utmost importance and ensures that high-potential candidates join the programme.

The new apprentice will take responsibility for attending all classes, completing all required modules and logbooks, and obtaining the required theoretical subjects for the trade that Sandvik enrolls him/her for. When the apprentice qualifies, he/she will be assigned to his/her original site.

Another success factor of this programme is the shared ownership of an apprentice. Sandvik appointed an apprentice programme manager with the purpose of tracking every step of the apprentice development plan. The apprentice programme manager plays the role of coordinator and line manager of each individual apprentice, and also tracks the performance of the apprentices and ensures the quality of the training programme in consultation with the Apprentice Forum.

The training programme

The training programme should be reviewed and aligned with the emerging technology within the mechanized mining products and ensure that the skills and competencies required to maintain Sandvik's products are included in the training programme of the apprentices.

Diverse trades are also required to ensure that all aspects of the products are addressed. At Sandvik we prefer the following trades:

- Millwrights - 60%
- Earthmoving equipment mechanics - 20%
- Auto electricians - 10%
- Electricians - 5%
- Fitters - 5%.

The review of the training programme is facilitated by the Apprentice Forum, which consists of direct line managers, senior managers, and account managers, and ensures that the Apprentice Programme is reviewed on a continuous basis

In the case of Sandvik, the Apprentice Programme also includes state-of-the-art in-house training programmes, illustrated in Figure 3. The training outline indicates the holistic approach of the Programme.

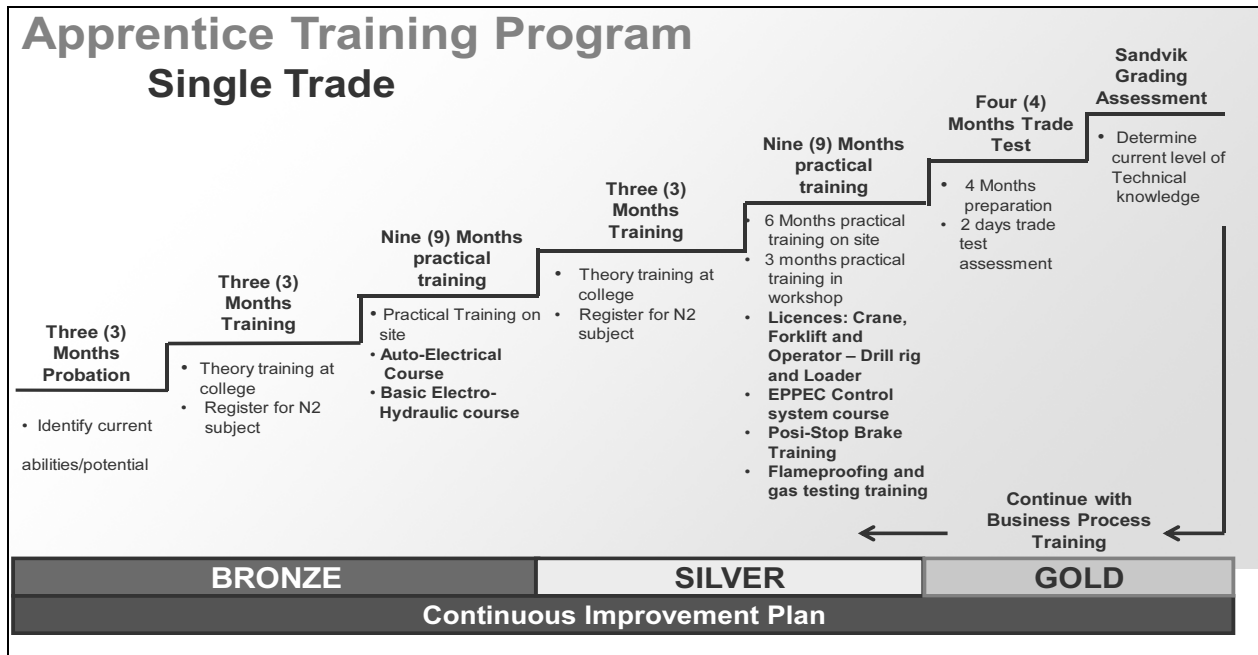


Figure 3-Sandvik Apprentice Training Programme– example of a single trade

Apprentice Programme outcomes and continuous development of internal technical skills

The Apprentice Programme addresses the human being holistically. While Sandvik acknowledges that technical skills and training is the focus of the programme, it is also important to ensure that the apprentice is developed in other areas as well.

Sandvik therefore defines an artisan as competent when artisans are competent to fulfil the following requirements:

- Artisans are able maintain mechanized equipment, mechanical, electronic and hydraulic, according to standards and specifications
- An artisan is able to practice excellent fault-finding' skills with machine breakdowns quickly, in order to minimize downtime
- An artisan partners with the customer in order to consistently maximize machine drilling performance
- An artisan develops good customer relations to ensure ongoing and new business.

The outcome of the Apprentice Programme is, therefore, not only a qualified artisan, but a confident human being that can take their place in society and enhance the performance of mechanized mining machines.

Continuous development of internal technical skills is also of utmost importance to ensure the closing of the skills gap. Furthermore, the recertification of artisans is essential to ensure that they stay abreast of new technology.

To ensure the continuity of lifelong learning, Sandvik has implemented an artisan grading programme, which identifies further technical skills gaps for each and every artisan. The result of this grading programme analysis assist with the identification of personal development plans for each artisan. This ensures that skills development is focussed and ensures that personal technical skills gaps are closed.

A successful apprentice programme requires partnerships

Sandvik is committed to skills development that is aligned with the economic strategies of the country as outlined in the National Skills Development Strategy (NSDS) and is accredited with two Sector Education and Training Authorities (SETAs), namely the Manufacturing, Engineering and Related Services Seta (Merseta) and the Mining Qualifications Authority (MQA).

With Merseta, Sandvik has formed a partnership through the apprenticeship programme, learnerships, as well as through being accredited by them. Sandvik also participated in various national initiatives as may be determined by the SETA from time to time. With this partnership, Sandvik contributes to the sector through a skills development levy (SDL) that is paid every month towards the National Skills Fund, and this also enables the organization to apply for mandatory and discretionary grants. The bulk of the SDL that Sandvik recovers acts as a top-up to the Apprentice Programme budget. Sandvik strives to employ the learners that have completed the programme, and when this is not possible, the learners are made available to industry.

Sandvik has the interest and needs of their employees at heart. Sandvik is a member of Seifsa (Steel and Engineering Industries Federation of South Africa), which is a bargaining council for employers, and this enables employees and employer to set fair salary and benefit parameters that will benefit both parties.

Sandvik also partners with various, mining houses, OEMs, and FET colleges to ensure that training in industry is of a high standard. Not only is this training a business transaction, but it is also a way for the company to act as a responsible corporate citizen by training apprentices from communities in mining areas that we operate in.

Through organizations such as Swedish Workplace for HIV and AID Programme (SWHAP), a partnership is formed with some of our competitors to work together to address social issues, specifically the HIV/AIDS pandemic. The wellbeing of employees, families, and ultimately the community is sought after.

Healthy employees, which lead to healthy families, which lead to healthy communities, which translates to a healthy economy to operate in, that leads to economic growth, is the ultimate goal. Sandvik is committed to contributing to the scarce skills sector of the economy; hence all training interventions and programmes are focused on the National Skills Fund. With all these partnerships in place, we can deliver more!

Sandvik Apprentice Programme: success stories and retention rate

It is clear that Sandvik is very proud of the Apprentice Programme. Sandvik apprentices received the Best Apprentice award in 2008 and 2009 and over 70 merit awards from the Colliery Training Centre. Further proof of the success of the Sandvik Apprentice Programme is the 20 ex-apprentices who have been promoted to supervisory and specialist levels¹⁴. Currently the retention rate of the apprentice programme is 74 per cent. This retention rate is calculated three years after completion of the programme.

Future actions to close the skills gap

It is clear that this is not enough when considering the attrition rate and industry needs, and it is crucial that the effort be made to continuously close the skills gap.

Some key recommendations regarding the Apprentice Programme can be summarized in the following few points:

- **Ownership:** Ownership of the programme should be with the business and not with central services. Although the programme is managed and co-ordinated by the human resources function, the business owns it and must take responsibility and accountability for the programme
- **Teamwork:** Industry should train for the industry, and organizations or sectors should not rob critical skills from one-another. An industry critical skill action plan should be created where all stakeholders of the industry work together as a team. We now have to build on this in partnership with the government, industry, and our customers, through a consolidated needs analysis
- **Purpose-driven:** The industry should form a partnership with the main purpose of developing the critical skills needed in South Africa to ensure the successful implementation of mechanized mining
- **Continuous improvement and planning:** Benchmarking against global companies is critical to ensure that the programme is continuously improved and aligned with the latest technology. One of the critical areas that the National Planning Commission has highlighted in order to improve education and training within South Africa emphasizes the need for a national skills planning system¹¹. Australia has developed a scheme to monitor and forecast specific skills shortages in the mining industry, with the aim of developing a five-year national plan to forecast skills demand and supply for the industry¹². Figure 4 demonstrates a continuous process for improvement of a learning programme. It also

emphasizes the fact that the mining industry as a whole should take responsibility for the critical shortage of skills and pro-actively train and develop our people¹⁵.

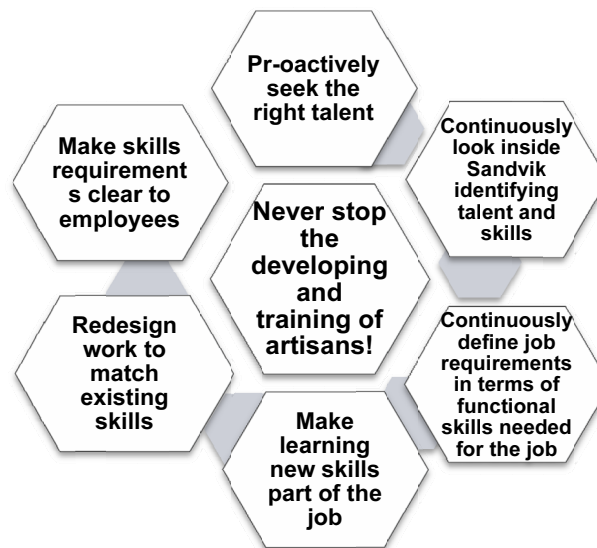


Figure 4-Proactive steps to close the artisan skills gaps

- Investment: The Apprentice Programme should be viewed as an investment to the future of mechanized mining. The biggest mistake that was made in the past is that South Africa stopped training apprentices. The industry should avoid short-sightedness and understand that the training of apprentices is crucial to business success and therefore a long-term investment is required.

Conclusion

In the past thirty years South Africa has neglected the development of artisans. The current 'bottom line' has taken precedence over planning for the future. To grow and develop, it is essential that the country has an appropriate availability of skills, and more emphasis needs to be placed on artisan training. The Sandvik Apprentice Programme is one of the company's strategic actions that show how investing in people to increase their skills; will result in enhanced productivity and profitability, not only for Sandvik but also the wider mining industry.

'Companies that create what we call people advantage – the ability to gain competitive advantage through people strategies – will race ahead of their competitors'¹.

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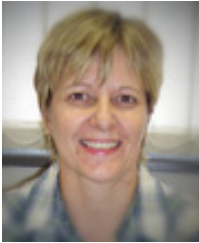
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