

Global alliance - Comm Prix entry 2014	
Division A	Category: Public Service
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Overview: Based on industry research, Kolomela Mine decided to start a project to address employee fatigue before it becomes a safety problem. In view of the fact that Kolomela Mine is a new mine, and young people were recruited to work in the mine, most of the miners still have children at home. Kolomela decided to target the children in the campaign to ensure that family members working at the mine, get sufficient rest and live a healthy life. (Won a Gold Quill of Excellence in 2013)	

1. OVERVIEW

Kumba Iron Ore (Kumba) is a business unit of the Anglo American Plc group, one of the largest multinational diversified mining groups in the world. Anglo American has a strong focus on its people and their well-being. Kumba, as part of its core values, publically proclaimed safety as their top focus area according to which it strives to do business **(1.1 & 1.2)** Kolomela Mine is a Greenfield project of Kumba. The mine is located in Postmasburg. Until the mine opened Postmasburg was just a small rural town in the Northern Cape – one of the 9 provinces of South Africa. Now it is a bustling mining town with many new families and shops and a totally new lifestyle. The building of Kolomela mine started in 2008 and with hard work and competent employees it was finished within budget and could start to deliver iron ore to the world 5 months ahead of schedule **(2)**. The 865 employees at the mine work on a 24 hour / 7 days a week shift schedule. As family living is regarded as very important Kumba built 718 new houses for their employees to enable them to stay with their families **(3)**. Several houses are also rented for families. The mine had an excellent safety record during the building phase and ramp up phase (since the start till end 2012), we worked 31.4 million man hours without a Lost Time Injury (LTI) **(4)**. There was a concerning increase in safety incidents after production started. The mine management was concerned about this trend for two reasons – first of all their focus was to create a safe workplace for employees and secondly for the production losses due to incidents **(5 & 6)**. Research conducted in the mining industry indicated that fatigue was a major cause of accidents. In a recent article by the Council for Science and Industrial Research it was said that “operator fatigue is one of the major primary contributors to mining accidents, thus continued efforts to adequately manage the condition is paramount in reducing injuries and fatalities in the mining sector. In fact, a 2005 study by Anglo American identified operator fatigue as one of the primary causes of accidents and loss of life in its operations **(7 & 8)**. Consequently the management of Kolomela decided to proactively embark on a project to address fatigue amongst its employees to achieve their goal of creating a safe workplace and to ensure that the mine achieves the 4 – 5 million tonnes set as the target for 2012. Definition of fatigue: *“Fatigue is defined as a state of impairment of mental and physical function manifested by a cluster of debilitating symptoms, usually including excessive sleepiness, reduced physical and mental performance and depressed mood and loss of motivation”*.

2. STAKEHOLDER ANALYSIS

The problem that had to be addressed was that **employees did not rest and eat well and arrived tired at work**. When analysing the factors contributing to the problem, family members and especially children were identified as the groups that could be leveraged to get the most impact. Due to the structured nature of schools, it was decided that the first port of entry to the children should be schools. The fact that teachers are “important others” in the lives of children, could be used made them another key stakeholder. (The SEAT report (Socio Economic Assessment Toolkit – this is another one of Anglo American leading tools to profile the communities, stakeholders, civil society and governmental organisations where the mine operates) describes the demographics of the municipal area which is classified 100% rural). There are 7 500 children in 12 schools in the Tsantsabane municipal area in which Postmasburg is located. There are 9 primary schools from Grades R to Grade 7 (Grade R is Kindergarten) and 3 high school Grade 8 to 12. There are 270 primary school teachers and 90 high school teachers. In South Africa we have a subject “Life Orientation”. During these classes the children learn life skills, about health and hygiene and taking care of themselves. It was decided that the program could fit into the “Life Orientation”. On advice of an engagement group (teachers, principals, consultants, mine and the Department of Education) it was decided to use a colouring book for Grades R to 3 **(9)** and a picture book for Grades 4 to 7 **(10)** and for the high school children, Grades 8 to 12 **(11)**. Topics that would interest these different groups were used to get and maintain the interest of the groups while covertly creating an awareness of the importance of enough rest, healthy food and exercise. The themes were, a need to interact with a parent, the need to win, the need to win as a group and get a job that will care for me as an employee. There are three dominant languages in the area – Afrikaans, English and Tswana. The picture books were thus provided with copy in the three languages. It is important to note that Anglo American has very clear Corporate Identity guidelines. These guidelines specify that all drawings of people must represent human beings. Cartoons are not allowed. The names chosen for the characters were typical names from the region. The teachers were provided with training guides and other training material to facilitate the learning process and to make the project sustainable. Without the support of the teachers it would have been just a fad with limited effect **(12.1, 12.2 & 12.3)**

3. GOALS AND OBJECTIVES

The overall **goal** of the project was to enhance safety in the Kolomela Mine by creating awareness amongst school going children about the importance of sufficient rest and a healthy life style.

The output objectives, including the tactics, were:

- Train 360 teachers within a month to present Life Orientation classes on the importance of sufficient rest and a healthy life style, using the material provided by Kolomela **(12.1, 12.2 & 12.3)**
- Develop picture books suitable for different age groups to create awareness about the reasons and consequences of fatigue
- To distribute and integrate the project into the curriculum of the 7 500 school going children in the area

The outcome objectives were:

- To create an awareness amongst school going children about the importance of rest and a healthy lifestyle for their family members and also themselves. (Sample survey was done at 5 of the 12 schools - teachers feedback attached – 13; children sample surveys was done beginning 2013 from Grade R – 12 to see if they still remembered what they have learned in 2012
- To create a safe and productive workplace for the employees of Kolomela mine by reducing the number of safety incidents
- To create awareness among community and families about people working at the mine needing good rest and not be disrupted when they have to rest well before going to work

4. PLANNING

In 2009 the Kolomela Leadership Team (KLT) decided that ways to eliminate the impact of fatigue on safety must be identified and implemented. The Safety Department researched the availability of expertise in the area and identified Dr Doug Potter International Consulting. They assisted our team to develop the program (14). We also realized that if we include it in the school programs it would be more sustainable – the activities the teachers can do after receiving the training material would create a high level of awareness throughout the year. Debbie Mullins, Education Specialist, wrote a copy for the picture books, appropriate to the level of the target group, Jincom illustrated the books and HKLM was responsible for the translation and printing. The characters in the books reflect the South African Rainbow Nation. As soon as the objectives and the content of the plan were determined meetings were held with the principals and boards of the schools to get approval to incorporate the programme into the syllabus of the schools. The first meeting was held on 2 February 2012 – and background of fatigue management was given to the principals by Dr Doug Potter (15). The teachers training programme started on 24 February 2012 (16). The launch meeting included all the principals of the local schools, the major of the town and some of the KLT members. These training sessions was handled by Debbie Mullins. Not only is she an author of note, she is also an educationalist and understand the principles of teaching children.

Three books were created:

Dad is on night shift (9) is the coloring book for Grade R to 3 learners. With this book we illustrated the importance of getting a good rest and a healthy life style in a format these young kids could identify with. The story deals with Julia and Matthews, about 6 years of age, coming back from school and wants to tell their dad about their day at school and play with him. Their dad works at the mine and is currently working night shift. Their mother asks them to be quiet and explains the importance of him getting sufficient sleep during the day to be a safe worker at night. To keep Julia and Matthews busy and quiet, mom engages them into helping getting dinner ready, a healthy dinner at that. While preparing dinner mom, Julia and Matthews talk about what food is healthy and how eating healthy will help you grow up to be big and strong. Finally, it is time to wake dad up. Dad enjoys listening to their stories and spends some time to play with them while he prepares for work. The family eats dinner together. Then dad goes to work ready for the night because he got a good rest and had a healthy dinner in a relaxed atmosphere.

Kick it to win it! (10) is a picture book for Grades 4 to 7. In creating the comic book for Grades 4 to 7 we wanted to engage the learners that can read in a story that would grab their attention. The story had to deal with the importance of getting a good rest everyday, exercising and eating healthy. The story is about this group of early adolescents on their way to school. They notice a poster stating that you stand a chance to win R500 (\$50 US) if you can kick a soccer ball the furthest of all the participants. Kabelo and his friend partnered to practice and Julia and Dana partnered to do the same. They soon realized that just exercising does not help; you also need to eat healthy food and get a good night's sleep. While all this practicing is going on Kabelo's dad works night shift at the mine and these lessons are applied to work as well. Eventually Kabelo wins and treats his friends to a party.

Healthy Living,(11) aimed at the high school learners dealt with the same issues, but were more focused on life skills they should use when they leave school. In creating the comic book for Grades 8 to 12 we wanted to give them life skills that would sustain them throughout their life. We focused on exercising, eating healthy, getting a good night's sleep and volunteering. Tsepho, Kabelo and Joe all are in high school and their dads work at the mine. Kabelo asks Tsepho and Joe to help him coach a junior rugby team. All the boys realized if they were going to be assistant coaches they would need to set the example. They all started to follow a healthy diet and got at least eight hours of sleep each night. But Tsepho, Kabelo and Joe are also thinking about what they want to do after school. Tsepho's dad gives them some tips about working at the mine and working night shifts. All three of the boys decide to apply at the mine and follow their dad's legacy. Meanwhile their rugby team goes to the championship; they are down by one point in the final minutes. They call a time out, pull the team together and remind them of all their hard work. As the buzzer is sounding they score a try and win the game.

Each child also received book, a healthy lunch pack that consisted of a fruit juice, an apple, a bran muffin and a healthy snack bar. The Grade R to 3 children received a packet of thick crayons with their book. All the children attended a general class presented by Debbie Mullins on healthy lifestyle, exercise, sleep hygiene and healthy food. They also had to do activities in the class and afterwards felt how fast their hearts were beating. The teachers read the picture books with them afterwards and applied it to their environment.

The **roll out** started end July 2012. The reasoning behind that was that history told us that a lot of accidents happened in the beginning of each year. (Fatalities in Kumba as a group happened in January 2010 and February 2011. In 2013 3 fatigue related incidents happened at the other business units of Kumba – not at Kolomela.) Kolomela did however decide to be proactive. If the awareness were created amongst the children closer to the end of the year they could assist family members to manage fatigue and be safe workers.

Writing of scripts	Feedback from engagement forum	Graphic design	Translation	Printing and delivery to Kolomela	Training days and roster	Total weeks
6 weeks	4 weeks	4 weeks	3 weeks	4 weeks	6 weeks	27 weeks

5. EXECUTION

A total amount of \$81335 was invested in the creation of the three books. This amount includes the cost of the consultants and the design of the books. Printing 7500 picture books required an investment of \$51635. These amounts do not include the time of full time employees as they were busy with several other projects as well and we do not use timesheets to calculate cost that specifically. Taking the total amount into account it boils down to \$10.84 per learner. For that amount you will be able to buy a child a MacDonald Bic Mac meal for 2.6 days in South Africa. Definitely a better investment than a MacDonald burger worthwhile investment!

	Writing of script	Estimated costs from HKLM	Actual costs	Training	Total cost of project	Total cost per unit
Grade R – 3 (2020)	\$1100	\$17635	\$17537	\$8000		
Grade 4 – 7 (1920)	\$1100	\$17357	\$17635	\$8000		
Grade 8 – 12 (3560)	\$1100	\$16463	\$16463	\$8000		
Teachers	-	-	-	\$2400		
Total	\$3300	\$51455	\$51635	\$26400	\$81 335	\$10.84 (incl all training & teachers training & writing) \$6.88 (excl all training and writing)

The first challenge was to **convince** the Department of Education that the programme ought to be presented as part of the Life Orientation syllabus. **Solution** To address the challenge I had to study the content of the syllabus and build a case including it. I called on my friends in the education field to provide me with the syllabi for the different year groups. We build a case and indicated how the content of the books will actually enrich the syllabus. Indicating to the Department of Education and the principals of schools that the teachers will be provided with training material had a significant influence on their decision to allow it to be included. The cherry was when we asked them if we can form an Education Group to ensure that the material was educationally sound for the different groups.

The second challenge was the three **languages** spoken by the people in town. Being a rather isolated region that languages are “regionalized”. To facilitate the acceptance of the project we had to get translators that understood the local languages very intensely. **Solution:** The original text was prepared in English. This text was translated by HKLM into Afrikaans and Tswana and proof read by retired teachers from the area. The use of the language was evaluated and changed to ensure that it was really true to the region and the level of understanding of the target group.

The third challenges was to make sure that all the teachers from Grade R to 3 and all the Lifestyle Orientation teachers from Grade 4 to 12 received the **training** within a very limited time. **Solution:** In view of the fact that many of the schools are far from the mine and some of the teachers had to remain in the classes to take care of the learners, it was decided that it was worth the investment to visit the schools several times rather than to delegate the Training of the Trainer programme to another teacher. (17)

The last and biggest challenge was the distribution of the **lunch packs** to the remote schools and ensuring that it is still fresh when it arrives. Postmasburg is in the Kalahari Desert – it is hot to very hot most of the year. **Solution:** The lunch packs, which were ordered each day for the classes of the following day was delivered to our offices in town each morning – the children received fresh muffins and fruit. But the trouble was worth the while (18)

My involvement started just after the KLT (Kolomela Leadership Team) made the decision to investigate fatigue management as critical factor in unsafe behavior at mines. I scheduled meetings, kept minutes, researched the web to find resources and participated in the creation of the collateral of the project. I ensured that the project was recorded in a way that we could proof that it was a ground breaking project and on global standard.

6. RESTULTS

The output objectives were set as:

- Train 360 teachers within a month to present Life Orientation classes on the importance of sufficient rest and a healthy life style, using the material provided by Kolomela. *All the teachers were trained and ready to present the classes within 4 weeks*
- Develop picture books suitable for different age groups to create awareness about the reasons and consequences of fatigue. *Three books were created, tested, produced and distributed to schools within 6 months.*
- To distribute and integrate the programme into the curriculum of the 7 500 school going children in the area. The teachers / children were trained and the programme became a valued part of the curriculum according to the principals of schools

The outcome objectives were:

- To create an awareness amongst school going children about the importance of rest and a healthy lifestyle for their family members and also themselves. The research conducted after the project, it was clear that the learners were aware of the importance of rest and a healthy lifestyle. Furthermore the books were highly appreciated by the teachers and children
- To create a safe and productive workplace for the employees of Kolomela mine. According to the mine manager, Mr Aart van den Brink the project had a positive influence on production: “We started in February with teachers and end July with children. The production started to pick up in the 2nd half of the year and we believe fatigue management and family education contributed to this. Although production picked up after August, the percentage of incidents went down.”

In addition to achieving the set objectives, following unintended outcomes also indicate the success of the project:

- As a result of this programme Kolomela is regarded as the leader in the field of fatigue management. We have been invited to present the programme at two conferences of the International Council for Mining and Metals. (19)
- We were also invited to address the first International Anglo Health Summit in October 2012 (20)
- Other mines from the Anglo American group constantly visit us to experience our programme to adapt it to their environment
- The picture books were also nominated as one of the best practices in Anglo American and were placed on the Source (Anglo American’s internal website) for the rest of the business units to use (21)
- We already received enquiries about implementing the project from as far as Chile, from Anglo Coal, Anglo De Beers and Anglo Platinum

Based on the above it can be stated that the overall **goal** of the project, to enhance safety in the Kolomela Mine by creating awareness amongst school going children about the importance of sufficient rest and a healthy life style was achieved. But more than that was achieved – an awareness about the impact of using a total new way to communicate a safety message e.g. by of using children as part of internal campaigns was created.