

KOLOMELA MINE TAKES LEAPS IN ADVANCING OPERATIONS

- Escalating results
- Measurable performance improvement
- Sustainable value

Background

In April 2012, Kolomela's management commenced a theory of constraints (TOC) intervention to diagnose the capacity issues experienced.

As a result, a production model was determined for the mine and a list of critical issues developed. Rapid Results was selected as the implementation approach to address some of these critical issues.

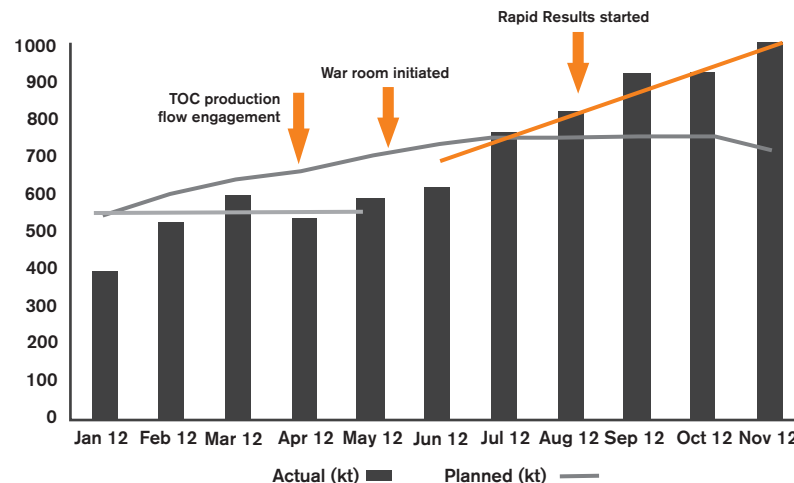
A TOC 'war room' was established to measure the daily performance of the improvement projects. This initiative facilitated improved communication and learning across all functions at Kolomela.

Rapid Results

Rapid Results has been fundamental in achieving critical, shorter-term objectives that respond to Kolomela's strategic goal of producing budget tonnes of direct shipping ore.

This improvement methodology requires appointing project teams, setting targets, generating and experimenting with ideas to meet the targets, and daily measurement of performance - all in a tight 100-day timeline.

Kolomela ore production



The Rapid Results methodology makes sense. It is a simplistic, forward-looking approach that focuses on value. The results generated through the programme since 2012 at Kolomela are escalating, impacting measurably on our production flow and overall performance."



Henk Storm,
manager operational
readiness/asset
optimisation at
Kolomela mine

1 Improvement project wave 1

- Project "Bums on Seats" set out to increase production tonnage by improving direct operating hours. Machine hours lost per day were reduced from 335 to 130 hours per day over 100 days.
- Safe "25X Brother's Keeper" project aimed to achieve consecutive safe days, increasing the number of safe days from an average of two to five.
- Project "Quality Drillers" was tasked to reach and exceed mine production targets, reduce cost per tonne and improve morale and achieved a sustained increase in metres drilled by 20-25% and increased the drill quality in terms of redrills, position and depth.

2 Improvement project wave 2

- Project "Horse Power" addressed fuel consumption. The project created understanding of the complexity around fuel due to interdependencies and improved data gathering to manage efficiency rather than consumption.
- Project "Toktokkies" focused on further improving drilling; it increased the number of quality drill metres and achieved consistent drilling improvement of more than 30%.
- Team Thusano focused on safely increasing waste production from 73,000 tonnes per day to 90,000. The team consistently exceeded their target, even setting record production during the project period.

KOLOMELA MINE TAKES LEAPS IN ADVANCING OPERATIONS continued

- **Increased production tonnage**
- **Improved safety performance**
- **Enhanced communication**

Enablers of success

After just two waves of Rapid Results projects:

- Drilling improved by 50% from an average of 1,200 metres per day to a daily average of 1,806 during the last four weeks of the 100-day Rapid Results period.
- Penetration rate improved from an average 19.6 metres per hour to 23.
- Improved average direct operating hours from 8.34 to 12.43 hours.
- Waste production increased by 36% from 73,000 tonnes to an average of 99,000 tonnes over the last four weeks of the Rapid Results period.
- The team achieved their target weekly average of 90,000 tonnes, which became business as usual for daily production.

%



Key learnings

- Use initial diagnostics to prioritise critical issues.
- Keep brainstorming sessions informal.
- It is critical for the godfather (project sponsor) to be completely supportive, enabling execution with sustainable results.
- Manage project execution in line with the critical path.
- Add milestones to the project steps.
- Appoint a strong team leader with good project skills.
- Appoint the right team and transfer project accountability and ownership.
- Allocate and clarify tasks and responsibilities.
- Communicate regularly and visibly.
- Develop a team's understanding of the full mining value chain.
- Implementation needs to be sustainable.
- Manage change and resistance.
- Express thanks and give operation-wide recognition and reward for demonstrating changed behaviour.

Performance improvement integral enablers

- Visionary leadership
- Management's participation, buy-in and support
- Explicit goals
- Disciplined project management and effective execution capability
- Open communication, improved information flow, cross learning and networking
- Change management
- Daily performance measurement and analysis
- Recognition and reward.

Who do I contact?



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