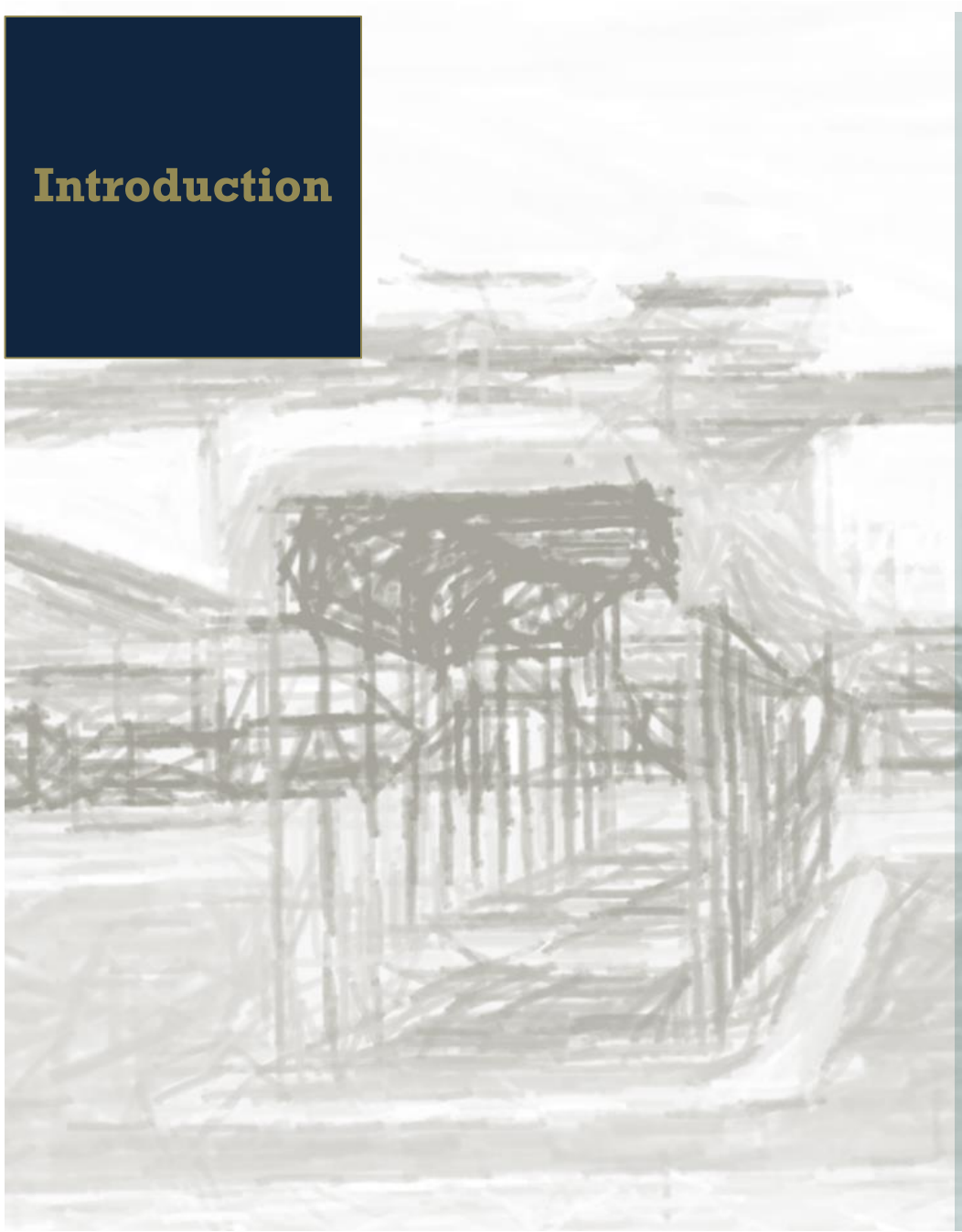
Compendium of TB Leading Practices in the South African Mining Industry

MHSC
Mine Health and Safety Council

CONTENTS

Introduction



Who is this compendium for?

The information compiled here is for the use of TB program staff in the South African mining environment who are in search of strategies to reach at-risk and vulnerable employees and communities more effectively.

How is the Compendium intended to be used?

The goal is to introduce users to the range of tools and strategies available in TB control for the mining industry. The TB mining community is encouraged to browse the Compendium to select approaches that meet the needs of specific types of TB patients. In many fields the evidence is still emerging and the particular risk groups that benefit from some approaches are still being defined. This compendium is therefore to be considered a snap shot of the current state of affairs, and should be updated regularly as more evidence emerges in this rapidly changing field. The Compendium is not designed to be read from cover to cover because it covers overlapping and inter-related concepts.

What does it contain?

These are all distinct, but closely inter-related strategies. Summarized descriptions of 50 leading practices and over 65 approaches to reach and serve at-risk and vulnerable populations.

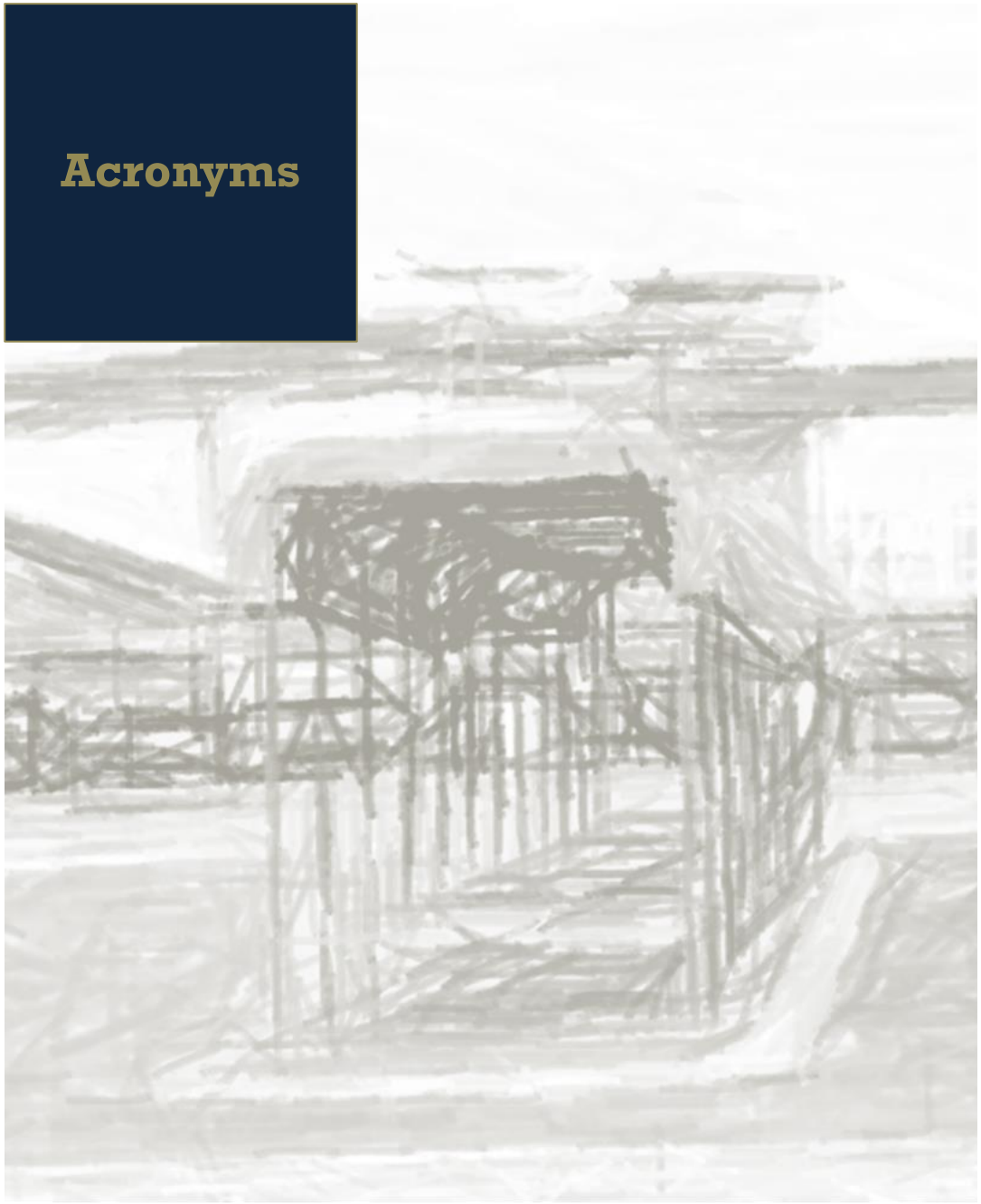
How is it organized?

The strategies are organized chronologically in a five step pathway. Beginning with prevention approaches, health promotion approaches, diagnosis and curative measures, workplace policy and monitoring and evaluation.

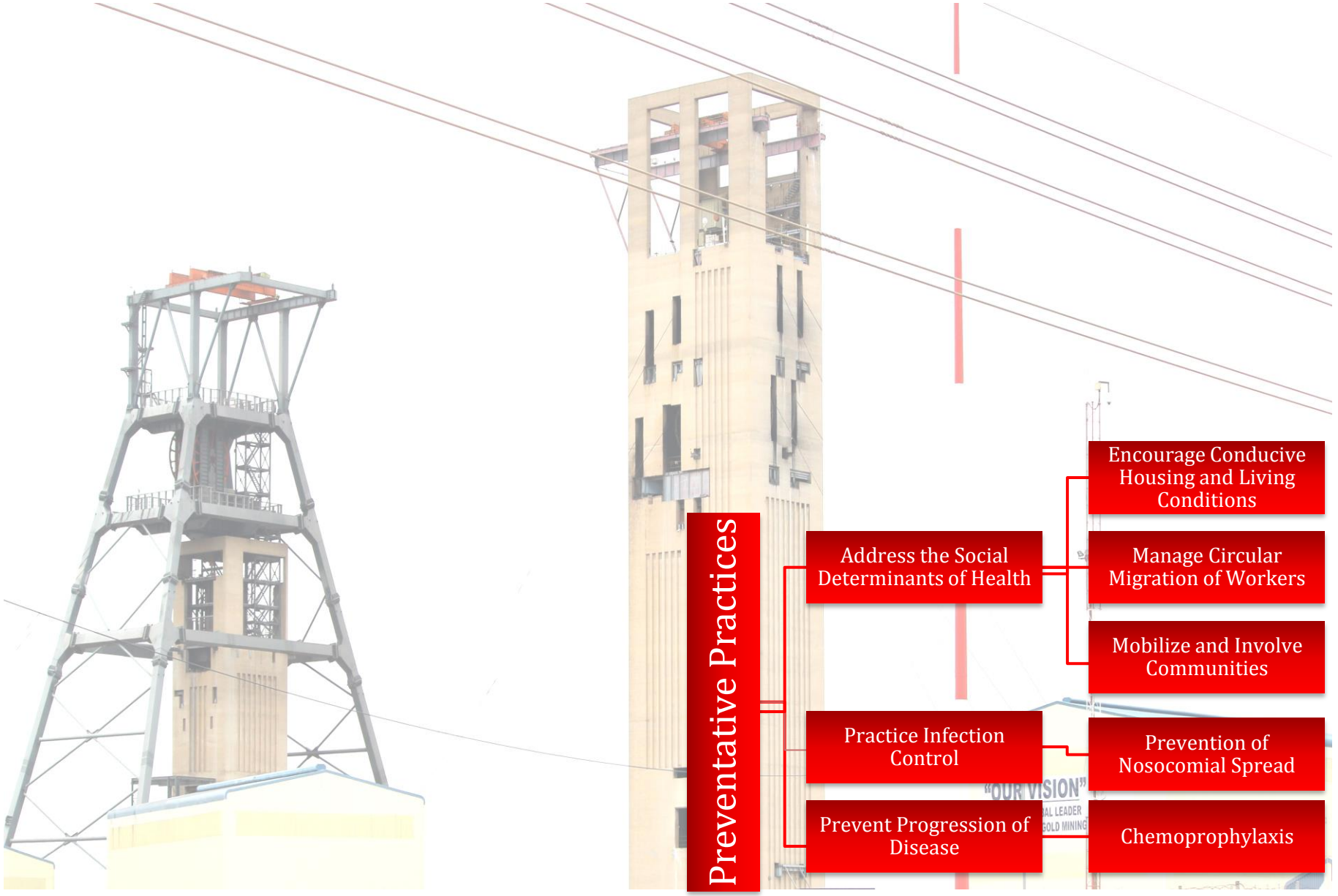
How was it compiled?

Brief texts were compiled from pre-existing documents or drafted where necessary. A literature review, an in-depth South African Analysis and a workshop review were used in the documenting of these leading practices.

Acronyms



ACF	Active Case Finding
ART	Antiretroviral Therapy
CHC	Community Health Centre
CXR	Chest X-ray
DMR	Department of Mineral Resources
DNA	DeoxyriboNucleic Acid
DoH	Department of Health
DOTS	Directly Observed Therapy Short Course
EAP	Employee Assistance Programme
HAART	Highly Active Antiretroviral Therapy
GSTB	The Ghana Stop TB Partnership
HIV	Human Immunodeficiency Syndrome
IEC	Information Education and Communication
INH	Isoniazid
IT	Information Technology
MBOD	Medical Bureau for Occupational Diseases
MDR-TB	Multi-Drug Resistant TB
MMC	Male Medical Circumcision
NCD	Non-Communicable Disease
NGO	Non-Governmental Organisation
NIHL	Noise Induce Hearing Loss
NHLS	National Health Laboratory Service
NPT	National Tuberculosis Programme
NTBCP	National Tuberculosis Control Programme
ODIMWA	Occupational Disease in Mines and Work Act
PPE	Personal Protective Equipment
RIF	Rifampicin
SACTWU	Southern African Clothing and Textile Workers' Union
SADC	South African Development Community
SLP	Social and Labour Plans
SMS	Short Message Service
STI	Sexually Transmitted Infection
TB	Tuberculosis
URCSA	University Research Council South Africa
UVGI	Ultraviolet germicidal irradiation
VCT	Voluntary and Counseling Therapy
WHO	World Health Organisation


Preventative Practices
Address the Social Determinants of Health
Encourage Conducive Housing and Living Conditions
Manage Circular Migration of Workers
Mobilize and Involve Communities
Practice Infection Control
Prevention of Nosocomial Spread
Prevent Progression of Disease
Chemoprophylaxis

Encourage Conducive Housing and Living Conditions

Context

Provision of conducive housing and living conditions is imperative to address the TB epidemic in the mining sector. However, the variation in mine size, sector and provincial location must be taken into account. The large mines have made significant progress towards single-living and family-style accommodation. At the small mines however, housing and living conditions are still an issue. Gold sector employees have voluntarily elected to remain in company hostel accommodation and, as a result, fewer gold miners are living in informal settlements. On the other hand the platinum industry, which has fewer hostels, with employees resident in company accommodation, provides the majority of employees with a living out allowance and miners opt to live in nearby informal settlements [1].

The living out allowance has created unintended consequences and has, to some extent, undone the work of preventing the spread of diseases. Some miners have sought their accommodation in informal settlements where there is no running water, poor sanitation and no health services. It has also created a situation where miners eat food of poor nutritional value, which does not provide the required minimum daily intake for their type of work (heavy manual labour) [1].

Migrant employees do not maintain a permanent residence in mining towns and prefer to return to their homes in rural areas. Encouraging permanent urban dwellings is, therefore, difficult for migrant labour. An unintended consequence of the move to family-style accommodation is the increased concentration of migrant miners in single-style or high-density residences.

Currently, all mines report to the DMR through their Social and Labour Plans (SLPs), which detail how they plan to achieve compliance with the Mining Charter. This is a pre-requisite for granting of their mining rights.

Leading Practice

An induction programme is an entry point into the mining environment and should include health promotion and prevention strategies that address the risks of both communicable and non-communicable illnesses associated with the mining industry, for that particular individual, their family and their community. Furthermore, to address the social determinants of health, miners should be informed about the available housing options and the intended purpose of the living-out allowance.

Shown to Benefit

- Employees in large and small mines
- Employees in all commodities but especially gold and platinum mines
- Families of miners

Example of Implemented Practices

Sibanye Gold's employees living in high-density residences are offered three meals a day, designed to meet their nutritional needs. Each high-density residence complex has also been provided with a clinic, which operates twenty-four hours a day, seven days a week.

Goldfields introduced the "*24 Hours in the Life of a GoldFields Employee Program*", which includes various initiatives around occupational health and safety, health care, living conditions, nutrition, education, and sport and recreation.

Example of Implemented Practice

AngloGold Ashanti has encouraged employees to seek their own accommodation with a living-out allowance. During induction programmes, employees are informed about housing options available to them and what the living-out allowance is intended for.

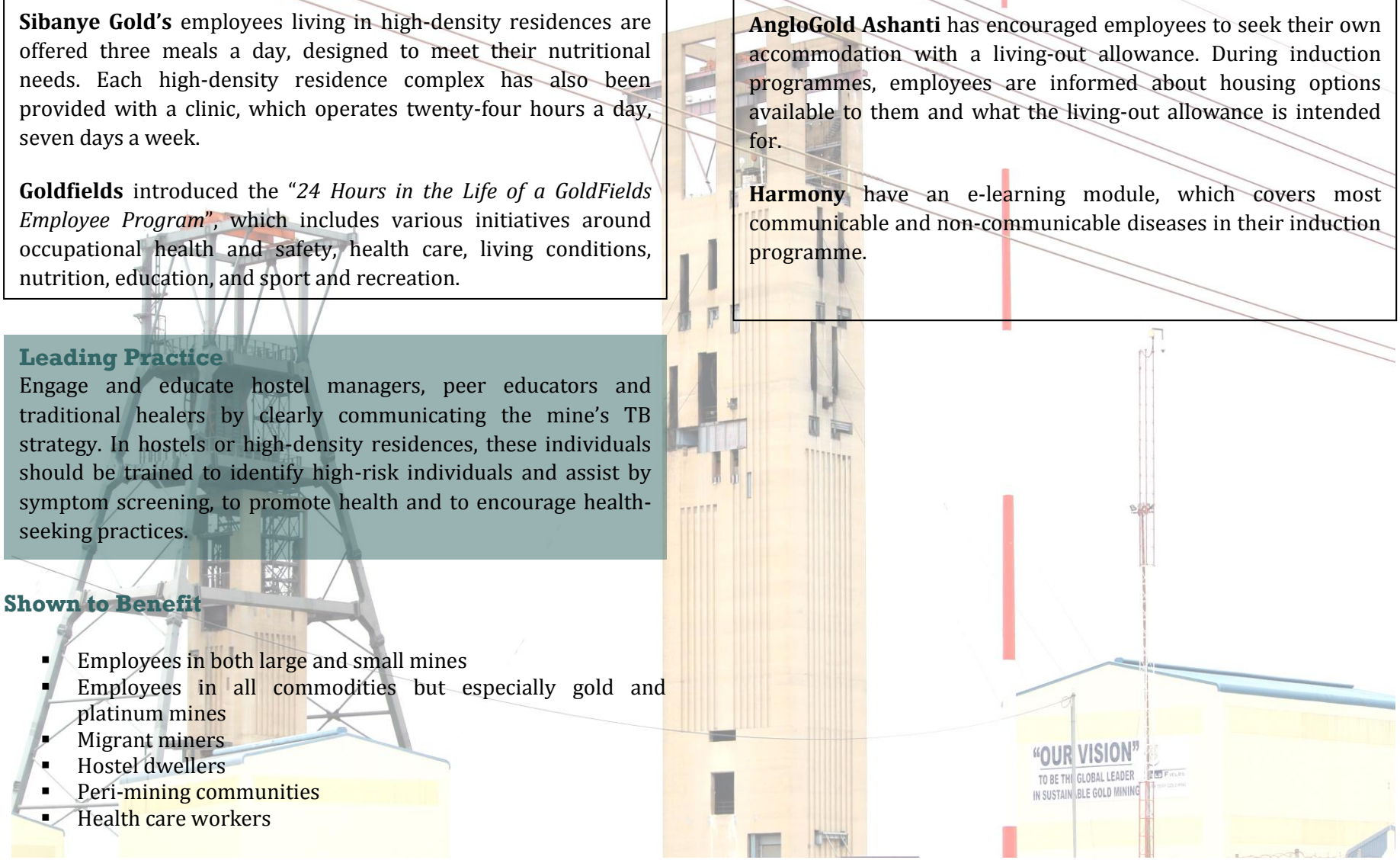
Harmony have an e-learning module, which covers most communicable and non-communicable diseases in their induction programme.

Leading Practice

Engage and educate hostel managers, peer educators and traditional healers by clearly communicating the mine's TB strategy. In hostels or high-density residences, these individuals should be trained to identify high-risk individuals and assist by symptom screening, to promote health and to encourage health-seeking practices.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities but especially gold and platinum mines
- Migrant miners
- Hostel dwellers
- Peri-mining communities
- Health care workers



1.1 ADDRESS THE SOCIAL DETERMINANTS OF HEALTH

Manage Circular Migration of Miners

Context

South Africa has a long-standing history of migrant labour. The TB risk in mines also impacts on the peri-mining communities since there is the risk of transmission from mine employees to community members and vice versa. Furthermore, migration of mine employees across regions within a country and across countries makes TB in the mining sector a complex regional problem. The circular migration of miners challenge efforts aimed at promoting greater treatment adherence and effective outreach to encourage people with TB symptoms to seek a clinical diagnosis.

Circular migration of employees is a challenge mostly to large mines, which have employees from neighbouring countries like Swaziland, Lesotho, and Mozambique. Small mines or mines with less than 5000 employees have been affected minimally by circular migration of workers.

Leading Practice

Where available, spouse quarters for visiting family members to be provided by mine. During these visits health wellness, screening and testing of family members should also be provided.

Example of Implemented practice

Harmony Gold has various initiatives in place to address the different elements of the migrant labour system. They ensure that their employees are able to return home regularly. They also aim to make it easier for employees to have their families visit them by having spouse quarters for visiting family members. Their hostel de-densification programme ensures that employees have access to private living space. To make it possible for employees to move their families closer to their operations, their hostel conversion programme is making family units available; they also seek to make provision for family accommodation in local towns. Harmony invests in corporate social responsibility in the surrounding communities as well as labour-sending areas. They also have an agreement to provide home-based care to medically incapacitated employees from all areas.

Shown to Benefit

- Employees in large mines
- Employees in all commodities but especially gold, platinum and coal
- Migrant miners

(See also Manage Patient Mobility to Prevent MDR-TB under Curative Practices)

1.1 ADDRESS THE SOCIAL DETERMINANTS OF HEALTH

Mobilise and Involve Communities

Context

Social mobilisation activities are intended to bring together stakeholders including community members to strengthen community participation for sustainability. Engaging communities assists in the accountability and ownership of both TB problems and solutions. Communities then also play a role in TB control governance, advocacy, planning, monitoring and evaluation.

Many mines are not involved in the direct provision of services to communities, i.e. they do not fund or provide healthcare staff for the communities but instead play a part in public health issues. A strong component of the social and labour plan is focusing on the social determinants of health. Mines focus on water and sanitation projects, the building of schools and healthcare infrastructure. Activities to promote community healthcare include investments made in strengthening health systems in the peri-mining communities.

Although larger mines are providing the infrastructure, there is, however, a serious challenge to promote adequate and effective engagement with communities. The lack of capacity within communities to take ownership of the public infrastructure and services supplied through community investment can pose a challenge to the sustainability of projects. Where communities are empowered, and projects are carried out with significant participation from the community, outcomes are more likely to be successful and sustained.

Leading Practice

Collaboration through public-private partnerships between the mining houses and the Department of Health guarantee the provision of support to both mines and communities. Mines invest in health systems strengthening in peri-mining communities by building, renovating and equipping health facilities while the DoH recruits and posts health care workers to fill vacant public sector positions.

Leading Practice

Mines to develop active community participation strategies such as community dialogues to ensure community involvement either through direct engagement with community members, or through involvement with local CBO's or NGO's. This engagement will determine infrastructure development needs and priorities such as provision of water, sanitation, schools, etc., which mines are to invest in.

Leading Practice

Mines to engage with local/regional DoH to promote two-way communication for the sharing of TB data and information. This will assist to identify emerging trends and risks to the miners and the peri-mining community.

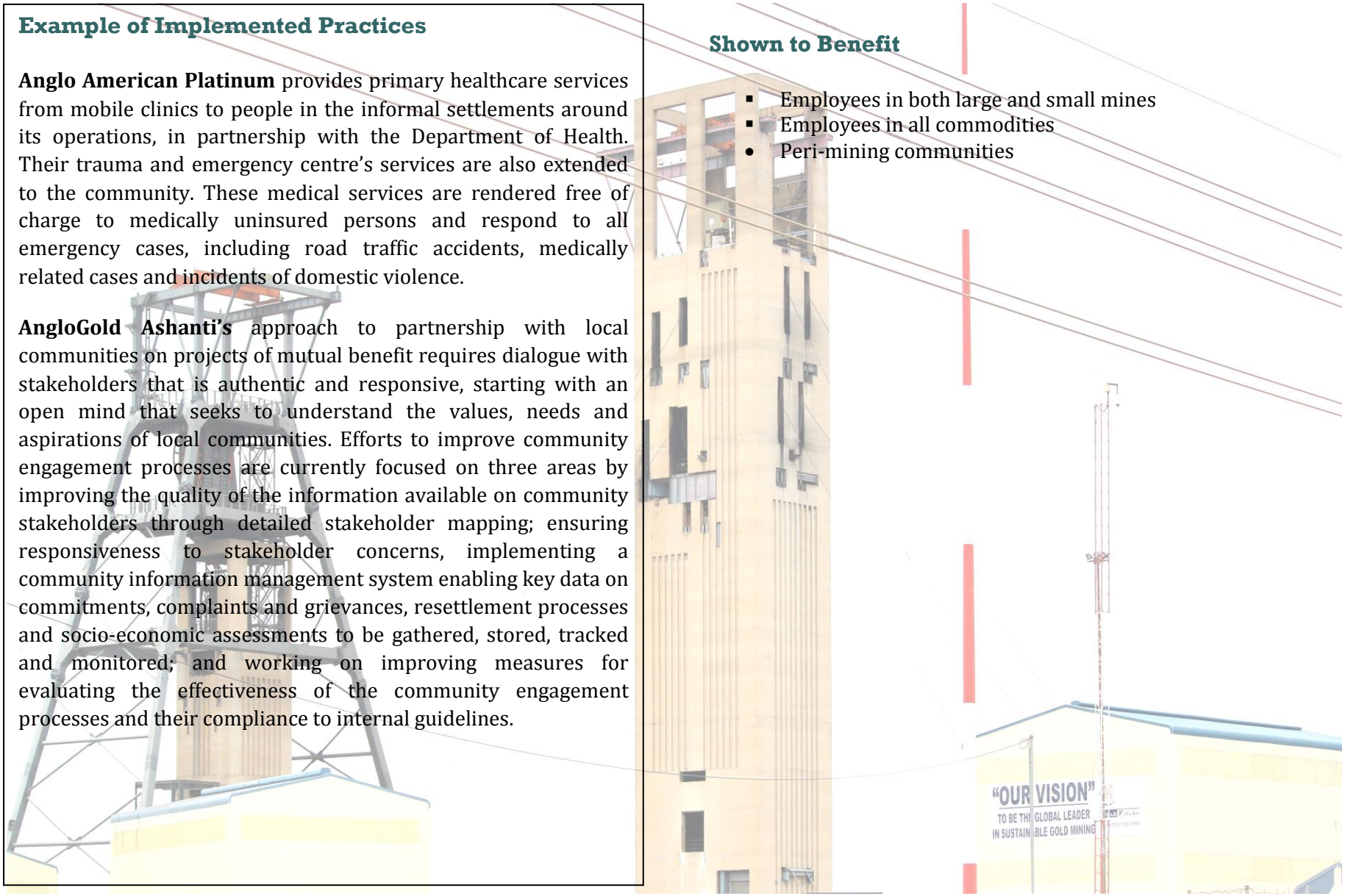
Example of Implemented Practices

Anglo American Platinum provides primary healthcare services from mobile clinics to people in the informal settlements around its operations, in partnership with the Department of Health. Their trauma and emergency centre's services are also extended to the community. These medical services are rendered free of charge to medically uninsured persons and respond to all emergency cases, including road traffic accidents, medically related cases and incidents of domestic violence.

AngloGold Ashanti's approach to partnership with local communities on projects of mutual benefit requires dialogue with stakeholders that is authentic and responsive, starting with an open mind that seeks to understand the values, needs and aspirations of local communities. Efforts to improve community engagement processes are currently focused on three areas by improving the quality of the information available on community stakeholders through detailed stakeholder mapping; ensuring responsiveness to stakeholder concerns, implementing a community information management system enabling key data on commitments, complaints and grievances, resettlement processes and socio-economic assessments to be gathered, stored, tracked and monitored; and working on improving measures for evaluating the effectiveness of the community engagement processes and their compliance to internal guidelines.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Peri-mining communities



Prevention of Nosocomial Spread

Context

Patients with active TB present a risk of spreading the infection to other patients as well as to health care workers. Despite the risk of nosocomial TB, infection control for TB is often overlooked as a TB prevention intervention. Mines, health care facilities and mining communities may play a significant role in preventing TB in patients infected.

Measures include administrative controls, environmental controls and the use of personal protective equipment (PPE) and should be implemented at all health facilities, during community household visits and when transporting patients. Sputum specimens should be obtained in a well-ventilated area or else out of doors.

Administrative control measures include early diagnosis, prompt isolation and initiation of treatment of potentially infectious patients. Risk assessment needs to be conducted for all facilities and an infection control plan developed to address the risks that have been identified with proper monitoring of the implementation of this plan.

In cases where infectious particles cannot be eliminated various environmental control methods can be used in high-risk areas to further reduce the concentration of infectious particles in the air. These measures include improving ventilation, controlling the direction of flow of air. The implementation of these measures should be guided by the assessment of risk as well as the availability of resources. Ultraviolet germicidal irradiation (UVGI) may be used as an adjunctive measure. Ultraviolet rays kill the bacilli but for this to be effective the contaminated air has to come into contact with the rays, therefore circulation of air is important and it is ineffective in humid and dusty environments.

Surgical masks are meant to prevent the spread of infectious particles from the person wearing the mask to others and do not protect the person wearing it from inhaling the particles as they have a limited filtration capacity. These are recommended for infectious patients under certain circumstances on a short-term basis as this could perpetuate stigma.

TB programmes should include appropriate infection control measures such as:

- Workplace and administrative controls;
- Environmental control measures;
- Measures to protect health care workers and staff;
- Each facility should have an implemented written infection control plan.

Leading Practice

Every mine to have a documented and implemented infection control plan which is updated or reviewed at regular intervals.

Leading Practice

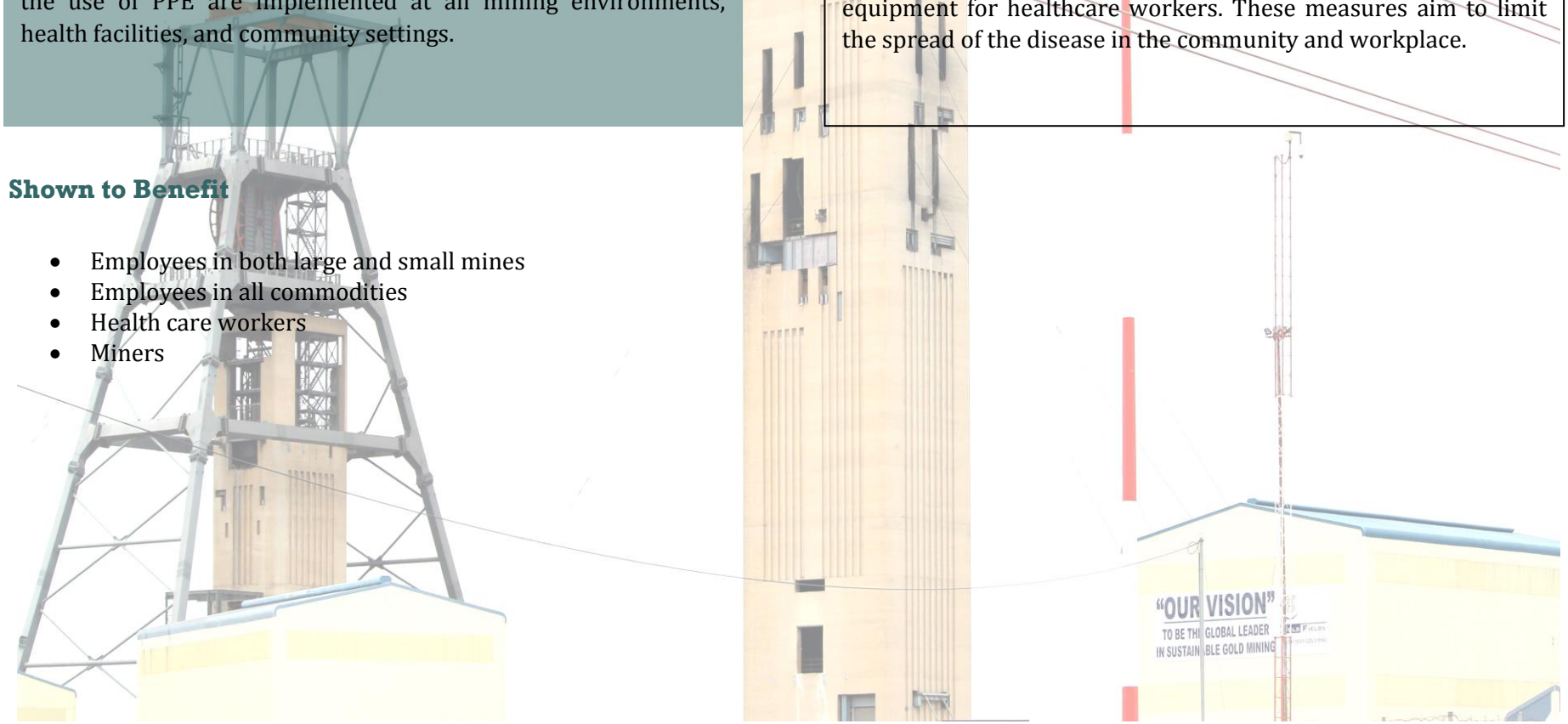
Mines to conduct regular risk assessments to ensure workplace and administrative controls, environmental control measures and the use of PPE are implemented at all mining environments, health facilities, and community settings.

Example of Implemented practice

AngloGold Ashanti has a variety of environmental controls in place such as a dedicated TB and multidrug-resistant TB ward, and the use of ultraviolet light units and appropriate ventilation measures within healthcare facilities. It also enforces key infection control procedures involving common routes of infection, such as hygienic coughing practices, appropriate sputum collection techniques and the use of personal protective equipment for healthcare workers. These measures aim to limit the spread of the disease in the community and workplace.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Health care workers
- Miners



Chemoprophylaxis

Context

Adopting preventative strategies rather than curative strategies more appropriately addresses the health service delivery model. Tuberculosis chemoprophylaxis is a therapeutic measure for the prevention of infection by Mycobacterium tuberculosis or to avoid development of the disease in individuals already infected with it.

The following extended TB care for HIV-infected TB patients should be offered:-

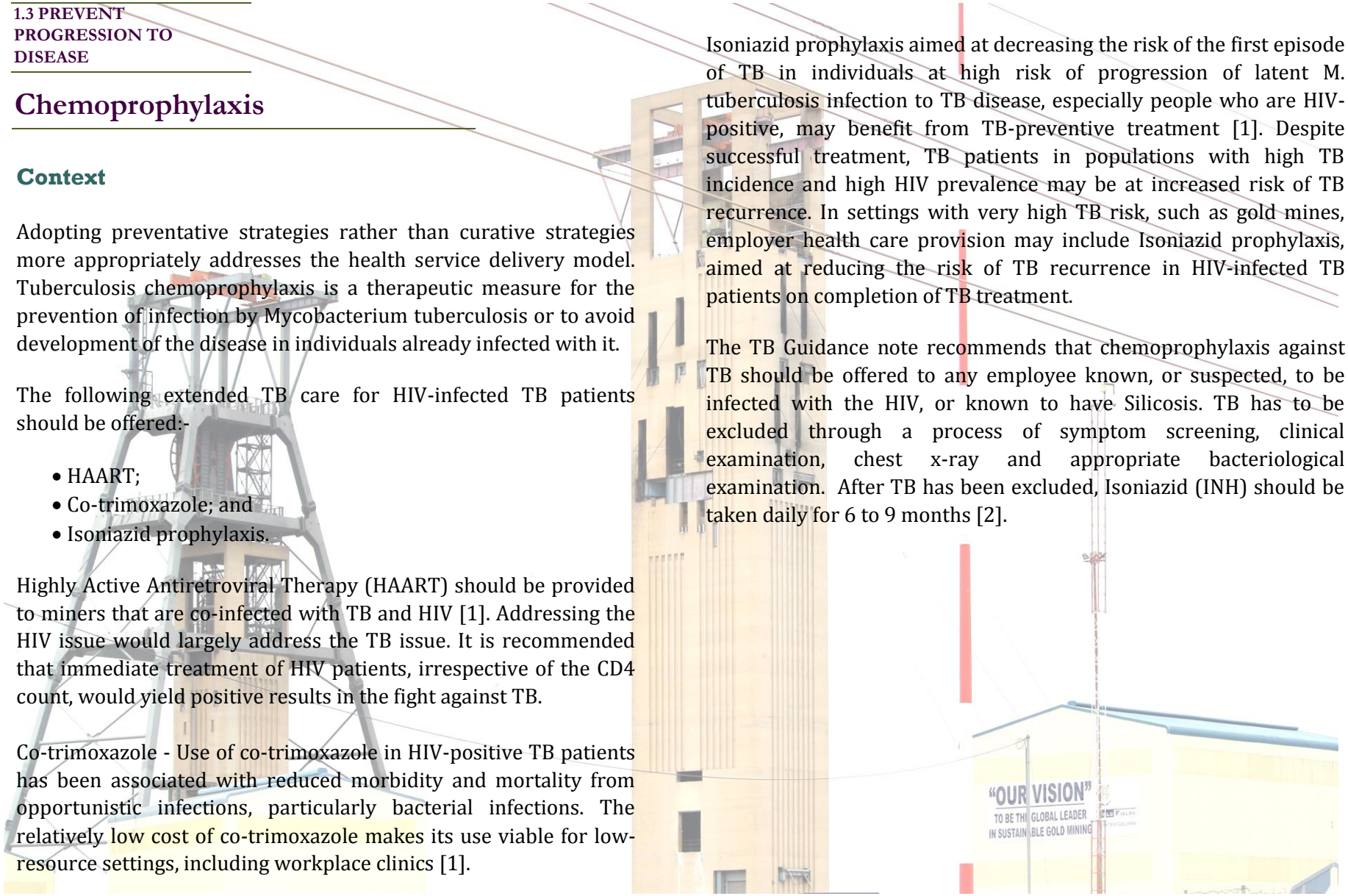
- HAART;
- Co-trimoxazole; and
- Isoniazid prophylaxis.

Highly Active Antiretroviral Therapy (HAART) should be provided to miners that are co-infected with TB and HIV [1]. Addressing the HIV issue would largely address the TB issue. It is recommended that immediate treatment of HIV patients, irrespective of the CD4 count, would yield positive results in the fight against TB.

Co-trimoxazole - Use of co-trimoxazole in HIV-positive TB patients has been associated with reduced morbidity and mortality from opportunistic infections, particularly bacterial infections. The relatively low cost of co-trimoxazole makes its use viable for low-resource settings, including workplace clinics [1].

Isoniazid prophylaxis aimed at decreasing the risk of the first episode of TB in individuals at high risk of progression of latent M. tuberculosis infection to TB disease, especially people who are HIV-positive, may benefit from TB-preventive treatment [1]. Despite successful treatment, TB patients in populations with high TB incidence and high HIV prevalence may be at increased risk of TB recurrence. In settings with very high TB risk, such as gold mines, employer health care provision may include Isoniazid prophylaxis, aimed at reducing the risk of TB recurrence in HIV-infected TB patients on completion of TB treatment.

The TB Guidance note recommends that chemoprophylaxis against TB should be offered to any employee known, or suspected, to be infected with the HIV, or known to have Silicosis. TB has to be excluded through a process of symptom screening, clinical examination, chest x-ray and appropriate bacteriological examination. After TB has been excluded, Isoniazid (INH) should be taken daily for 6 to 9 months [2].



Leading Practice

Mines to adopt a preventative rather than a curative health service delivery model to aid early detection of diseases, timeous management and provision of appropriate health care services.

Leading Practice

Provide Isoniazid Preventive Therapy to high-risk individuals who are infected with HIV or known to have Silicosis.

Leading Practice

Provide Co-trimoxazole Therapy to high-risk individuals.

Leading Practice

Provide Highly Active Antiretroviral Therapy (HAART) to every miner that is co-infected with TB and HIV.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Miners infected with HIV/AIDS and TB

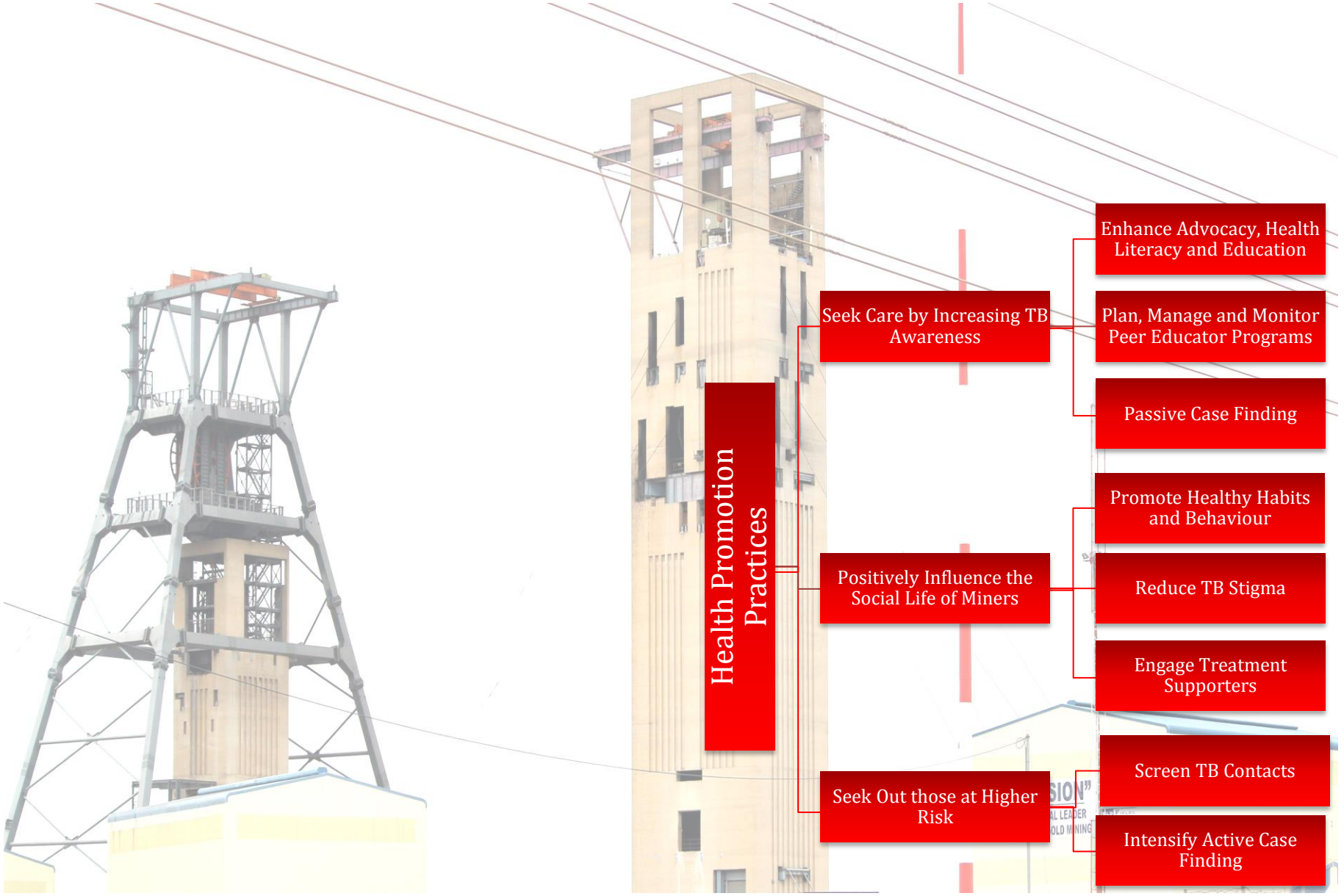
Example of Implemented Practices

Sibanye believes that early detection of HIV-infected employees and initiation of HAART at an early stage is effective. They begin treatment at a CD4 count of 500 cells/mm^3. By treating HIV infection early, they avoid deterioration of the immune system to levels below a CD4 count of 200 cells/mm3 at which individuals are predisposed to TB infections. Impala Platinum starts treatment at 350 cells/mm^3.

Anglo American Platinum has various TB and HIV/AIDS programmes in the workplace, which has improved management and capacity, and progress in case detection and reporting. Testing (through their wellness programme) is the entry point to their comprehensive programme of prevention, care, support and treatment for HIV/AIDS. They have also extended their ART programme to include the partners of HIV-positive employees.

Sibanye has adopted a preventative approach to health and healthcare as opposed to a curative role in order to ensure a healthier and more productive workforce. Preventative programmes enable early detection of disease, timeous management and the provision of healthcare services closer to the operations at the primary healthcare centres and shafts. Sibanye has adopted a comprehensive strategy to address TB, including annual TB screening for all employees, voluntary HIV testing, molecular DNA testing for TB, freely available HAART and TB drugs.

Harmony has also moved away from the health service delivery model, which is curative in nature, to a more proactive, preventative health service delivery model.


Health Promotion Practices
Seek Care by Increasing TB Awareness
Positively Influence the Social Life of Miners
Seek Out those at Higher Risk
Enhance Advocacy, Health Literacy and Education
Plan, Manage and Monitor Peer Educator Programs
Passive Case Finding
Promote Healthy Habits and Behaviour
Reduce TB Stigma
Engage Treatment Supporters
Screen TB Contacts
Intensify Active Case Finding

2.1 SEEK CARE BY INCREASING TB AWARENESS

Enhance Advocacy, Health Literacy and Education

Context

Information and education programmes to raise awareness among employees on TB and other commonly prevailing diseases must become part of the activities of the workplace. Employees must have easy access to user-friendly informational material in the language commonly spoken at the workplace. Education of the workforce on TB is thus essential, encouraging employees to seek medical care as soon as they have any symptoms and ensuring that policies to protect job security and confidentiality after diagnosis are in place and known to the workforce.

Leading Practice

Mines to analyse available medical baseline data or collect new data on individuals to determine a disease risk-profile for each employee, shaft and region and then proactively manage the diseases with appropriate or customised health promotion and prevention programmes.

Leading Practice

Health promotion and prevention strategies should be reinforced for all employees on return from annual leave and at various mass meetings.

Leading Practice

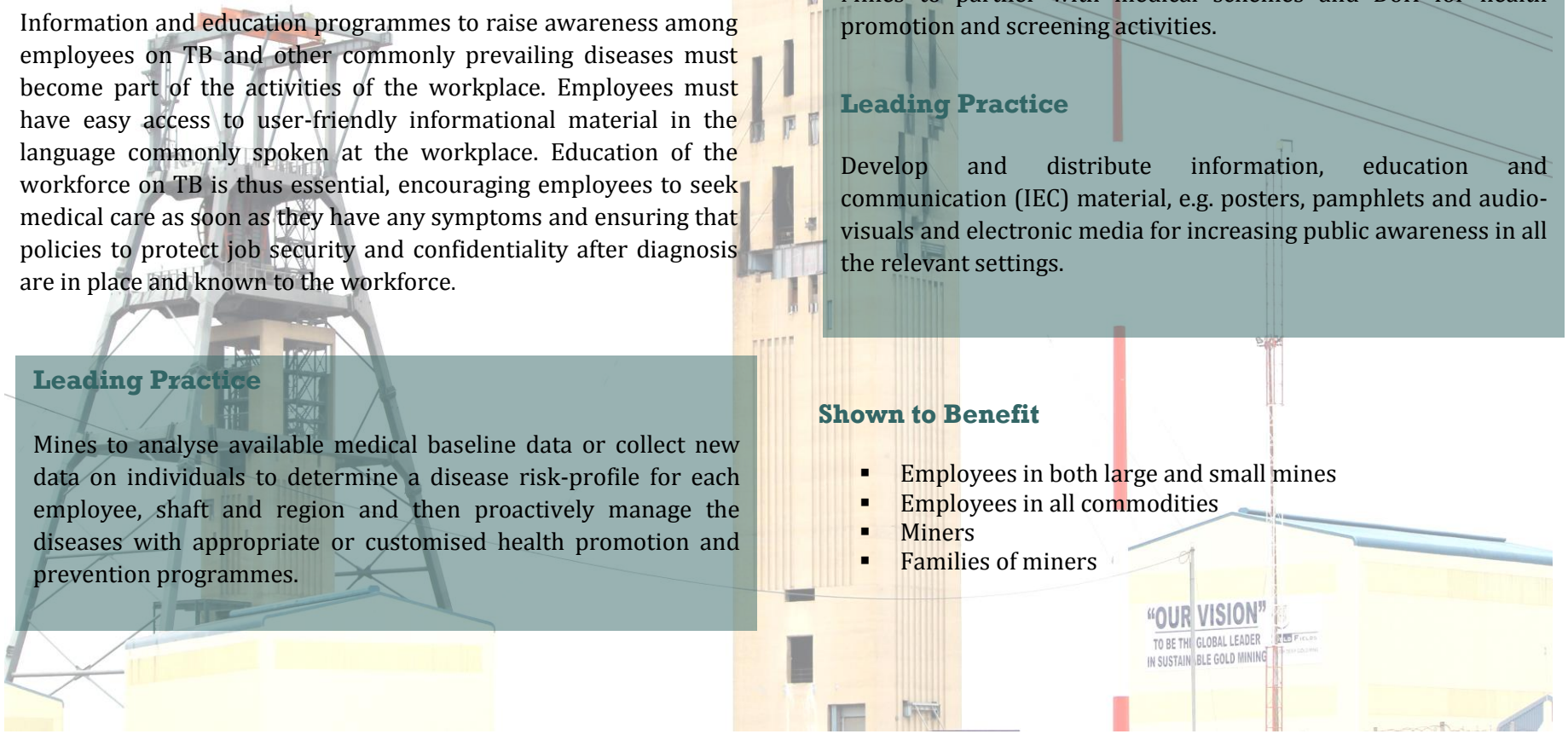
Mines to partner with medical schemes and DoH for health promotion and screening activities.

Leading Practice

Develop and distribute information, education and communication (IEC) material, e.g. posters, pamphlets and audio-visuals and electronic media for increasing public awareness in all the relevant settings.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of miners



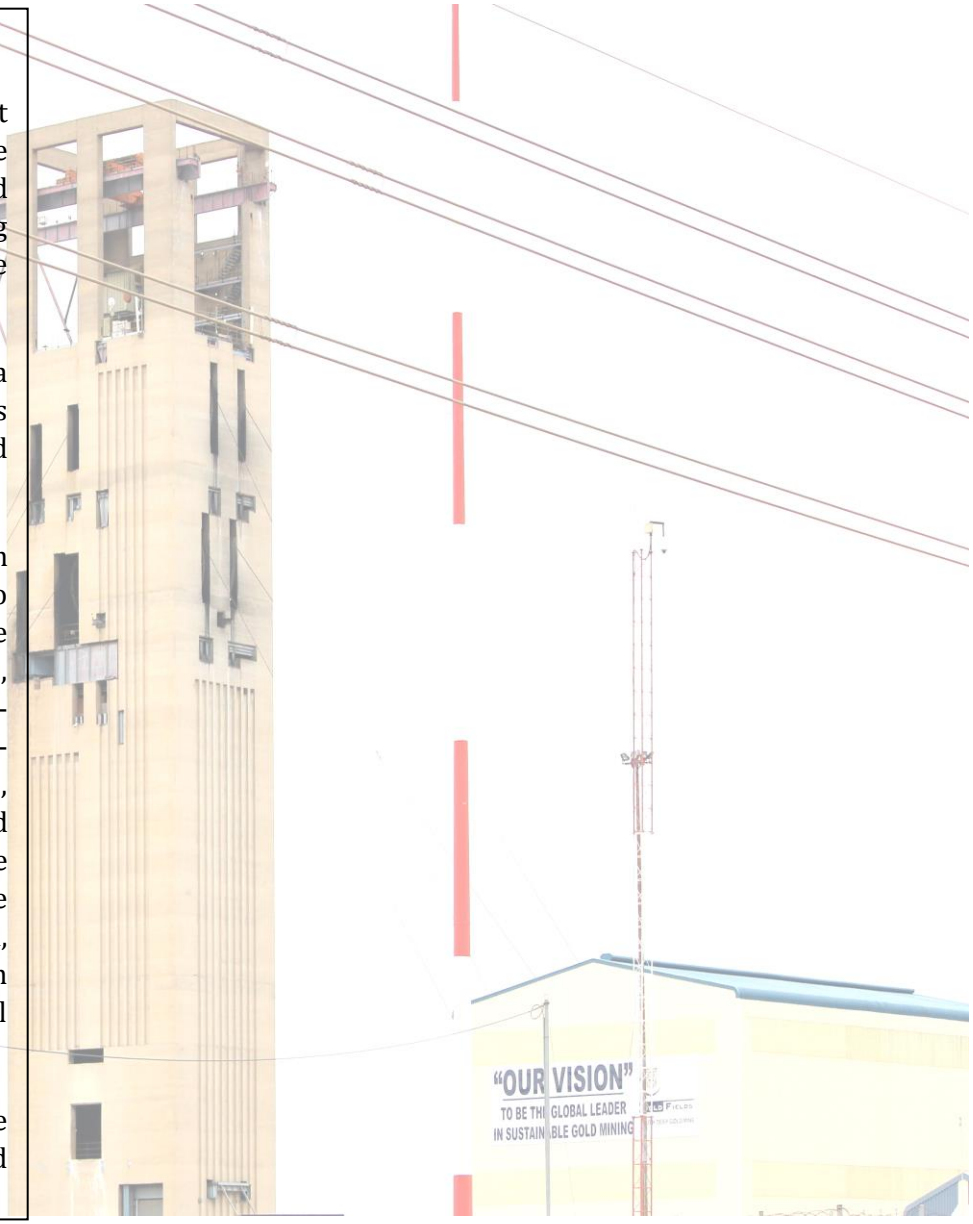
Example of Implemented Practices

Lonmin's health promotion programmes are mainly directed at school children and school-leavers. Awareness campaigns are regularly conducted at all of the high schools. TB awareness and contact tracing extend into the communities by visiting households of employees that were diagnosed with TB for case finding and health education.

Aquarius ran a campaign to obtain baseline data to determine a disease profile for each employee. Employees and contractors were screened for TB, HIV/AIDS, cholesterol, blood pressure and glucose among others.

Harmony carries out awareness campaigns on a monthly basis on various, health related topics. Due to their integrated approach to healthcare, specific initiatives have been implemented to manage chronic diseases, with their main focus on HIV, TB, diabetes, hypertension, silicosis, asthma and epilepsy. They also have an e-learning module, which covers most communicable and non-communicable diseases. Other initiatives are pamphlets, management healthcare memorandums that focus on mine-based health and safety topics, health-worker training to recognise the most prevalent diseases, screening at all medical centres, disease management interventions and quality assurance. In addition, branding on Harmony buses is used to help educate employees on HIV matters and promote VCT, as are podcasts and liquid crystal display monitors.

Sasol's increase in their employees on ART is attributed to the improved health campaigns and strong leadership support and participation in these campaigns.



Plan, Manage and Monitor Peer-Educator Programs

Context

Some mines have peer educators informing management and health workers on the current issues and challenges. Health and safety departments respond accordingly with focused programmes, which also include the community. Peer educators are usually employees, clinic staff and community workers.

Peer educator programs should be well planned, managed and monitored.

Leading Practice

Use a peer-nominated process, where peer-educators should be appropriately selected to ensure confidentiality and trustworthiness.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Families of miners
- Peri-mining communities

Example of Implemented Practices

Lonmin's volunteers from within the community go on door-to-door campaigns to perform mobile assessments on community members in their own homes. Lonmin also supports home-based carers who attend to those who are too ill to leave their homes. Volunteers receive in-service training and medical kits provided by the Company and are assisted in registering as formal carers with the Department of Health. These volunteers provide social assistance to orphans by making sure they are registered to receive support from the Government and attend school every day.

While most mines use community and employees as peer educators, **Booysendal,** on the other hand, outsources their HIV/AIDS peer educator group. This peer educator group is managed by one of its core contractors.

Sasol has trained 45 employees as peer educators in the past year. They have also run 24 awareness sessions on HIV/AIDS. The increase in their employees on ART is thought to be attributed to the changes in their HIV/Aids programmes, improved health campaigns and strong leadership support and participation in these campaigns.

At **Aquarius** approximately 48 employees have been recruited as peer educators and have received training on basic health and wellness matters, on counselling and presentation skills. They will advise, counsel and make referrals to clinics where necessary. Another peer education programme is also being rolled out at Kroondal.

Passive Case Finding

Context

Activities related to early identification of TB are classified as either passive or active case finding. Passive case-finding relies on symptomatic individuals presenting themselves to a health facility. This requires that affected individuals are aware of their symptoms, have access to health facilities, and are evaluated by health workers or volunteers who recognize the symptoms of TB and who have access to a reliable laboratory.

Passive case finding should be promoted through the following practices, noted in the DMR Guidance Note [2]:

There should be a TB education initiative, which may be through peer educators or formal presentations, and which will reach all employees at least once a year. The symptoms of TB should be made known.

Employees should be encouraged to present early. All mines should provide easy access to a good quality, client-orientated, diagnostic and treatment service for TB.

A recommended practice is to monitor both passive case finding statistics and health promotion programmes so as to gauge whether a correlation exists. Health promotion programmes to include signs and symptoms of TB, the importance of early presentation and diagnosis, and prevention of transmission.

Leading Practice

Information and education programmes to raise awareness among employees on TB must become part of the activities of the workplace and should reach employees at least once a year.

Leading Practice

The signs and symptoms of TB, the importance of early presentation and diagnosis, and prevention of transmission should be included in TB education initiatives to employees, their families and key individuals in contact with the employees e.g. hostel managers.

Example of Implemented Practice

AngloCoal advises and counsels employees on TB and other commonly prevailing diseases at every clinic visit.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Families of miners

Promote Healthy Habits and Behaviour

Context

There is a strong opinion that miners greatly contribute to the spread of the disease with their habits and behaviour. Smoking, alcohol and prostitution are rife in the industry and partly due to the working conditions and environment in which miners operate. The circular migration of mine employees increases the vulnerability of women to TB and HIV infection, both amongst partners and family members, as well as sex workers in mining communities. The communities that emerge around mines also boost an active sex industry in areas surrounding mining sites, often with little preventive or curative health activities. Sex work is common around single-sex hostels at the mines, increasing the risk of HIV transmission, which in turn increases the risk of active TB.

Men don't seek medical care as frequently when compared to women. Education is powerful and both men and women must be educated.

Leading Practice

Health Promotion programmes to focus on the various touch points e.g. school children, families and partners in peri-mining communities who can directly influence behavior change of the miner.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of miners
- Peri-mining communities

Example of Implemented Practice

In a **SACTWU program** aimed at male circumcision, it was found that targeting the female employee yielded better results in behaviour change interventions. SACTWU says that 80 % of their employees are women and that they have been targeting and training the females.

Females are more proactive and persuasive and often encourage males to come forward. Targeting the wives and families is starting to yield results – using the wife to cause a behaviour change. Females even bring sputum jars for husbands and children or suspects and send for testing. Testing is done using GeneXpert at the NHLS and if positive the suspect is counseled together with his family.

The MMC program has shown that programmes targeting the spouse have been extremely successful in changing behavior amongst men.

It was also found that senior political and religious figures can greatly influence the decisions as in the case of the MMC programme, which was endorsed by cultural leaders.

Reduce TB Stigma

Context

Stigma and discrimination are common problems of patients with TB, especially TB with HIV co-infection and MDR-TB. These complications can lead to non-adherence to TB treatment.

Although stigma remains an issue in the industry, the stigma associated with TB was more of an issue in the smaller mines and mines in the limestone, sand, diamond and coal sectors.

HIV/TB-related stigma is a major obstacle to treatment adherence and prevention among mine employees especially when they travel to their homes in labour-sending areas. This results in mine employees not disclosing their HIV/TB status and further exposing their families and communities to the risk of infection.

Leading Practice

Rights awareness and sensitisation of high-risk individuals on TB and HIV related stigma to enhance disclosure by mine employees and ex-mine employees affected by TB will improve treatment seeking behavior.

Leading Practice

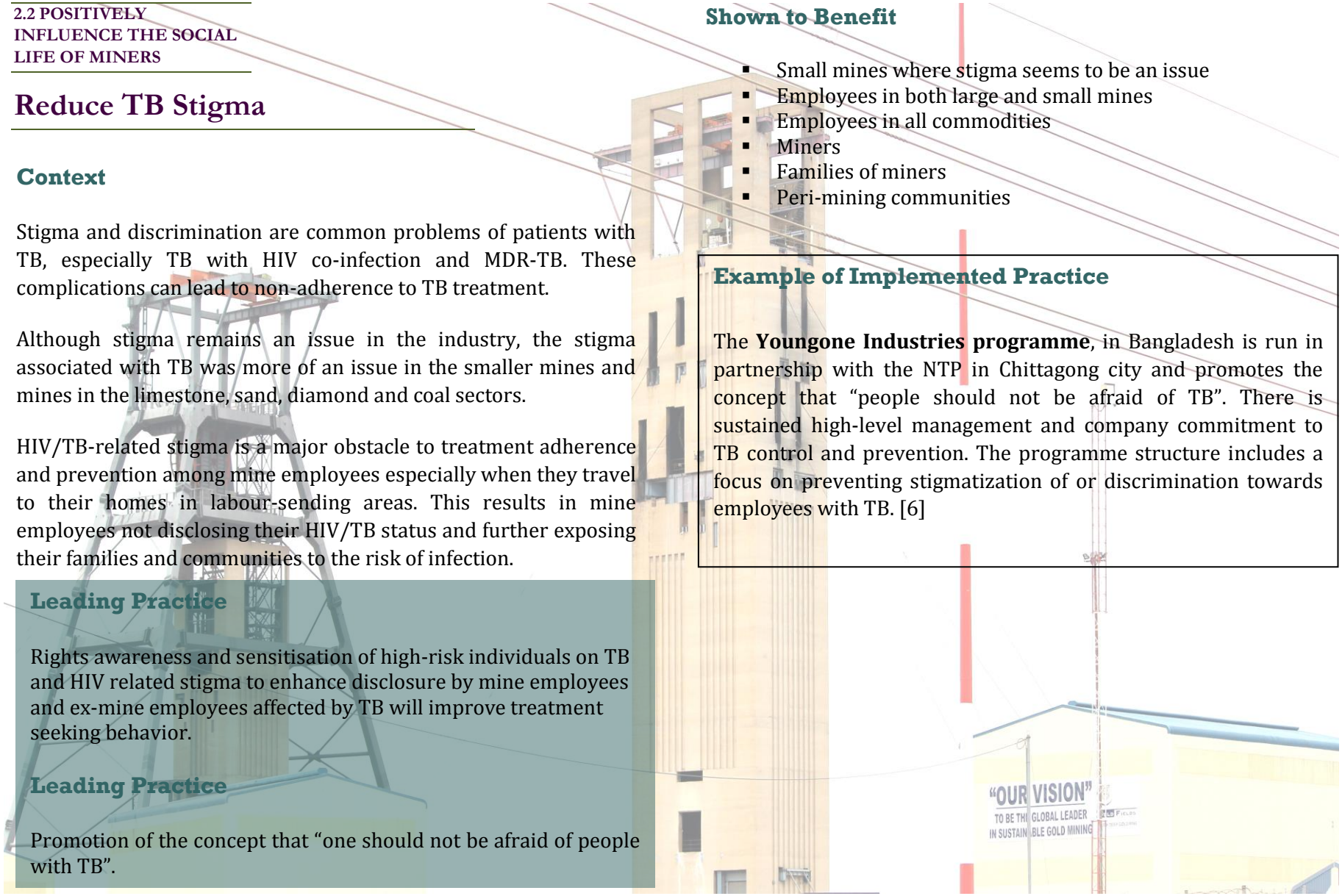
Promotion of the concept that “one should not be afraid of people with TB”.

Shown to Benefit

- Small mines where stigma seems to be an issue
- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of miners
- Peri-mining communities

Example of Implemented Practice

The **Youngone Industries programme**, in Bangladesh is run in partnership with the NTP in Chittagong city and promotes the concept that “people should not be afraid of TB”. There is sustained high-level management and company commitment to TB control and prevention. The programme structure includes a focus on preventing stigmatization of or discrimination towards employees with TB. [6]



Engage Treatment Supporters

Context

Traditional healers can be authoritative figures in some settings and play a key role in patient support and adherence. Traditional healers can play both a positive and negative role in TB diagnosis and treatment, however when they are actively engaged in a respectful collaboration with the formal TB program, they may be less likely to delay or divert TB suspects and patients from their formal treatment path. Patients may also experience higher satisfaction with complementary care by practitioners who share their disease etiology.

Leading Practice

Engage political leaders, traditional healers, community leaders etc. to participate in development of and endorse programmes that may influence health-seeking behavior.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of miners
- Peri-mining communities
- Communities where traditional healers have a great influence
- Employees whose dependence on traditional healers, political leaders etc. is high

Example of Implemented Practices

In a **SACTWU program** aimed at male circumcision, it was found that targeting the female employee yielded better results in behaviour change interventions. SACTWU says that 80 % of their employees are women and that they have been targeting and training the females. The MMC program has shown that programmes targeting the spouse have been extremely successful in changing behavior amongst men.

It was also found that senior political and religious figures can greatly influence the decisions as in the case of the MMC programme, which was endorsed by cultural leaders.

The Ghana Stop TB Partnership (GSTB) supports national and global plans to arrest the spread of TB. The GSTB case offers several important lessons, including how to successfully employ a national TB partnership to coordinate and partner with regional structures.

Its biggest contribution, however, is found in its illustration of how the innovative use of influential stakeholders from traditional social structures can overcome high sociocultural barriers to early TB diagnosis and proper treatment. This innovation shows how case finding and treatment support activities benefit greatly from such political support, resulting in higher general acceptance of TB-HIV services [4].

Screen TB Contacts

Context

Contact screening is a mechanism of active or intensified case-finding. Early identification of disease among contacts can reduce both disease severity - thereby improving outcomes - and subsequent rates of transmission. The main purposes of contact screening and management are twofold - first, to identify contacts with undiagnosed TB disease and second, to provide preventive therapy for contacts without TB disease who are susceptible to developing disease following recent infection [3].

Close contacts of people with active pulmonary tuberculosis are at increased risk of acquiring infection, developing active disease and spreading it. Timely identification and adequate treatment of those with active pulmonary tuberculosis reduces the risk of exposure of community members [1].

Encourage TB patients to extend an invitation to his or her close contacts to seek out TB screening.

Leading Practice

Perform contact tracing where possible or refer to a local NGO or community health screening service.

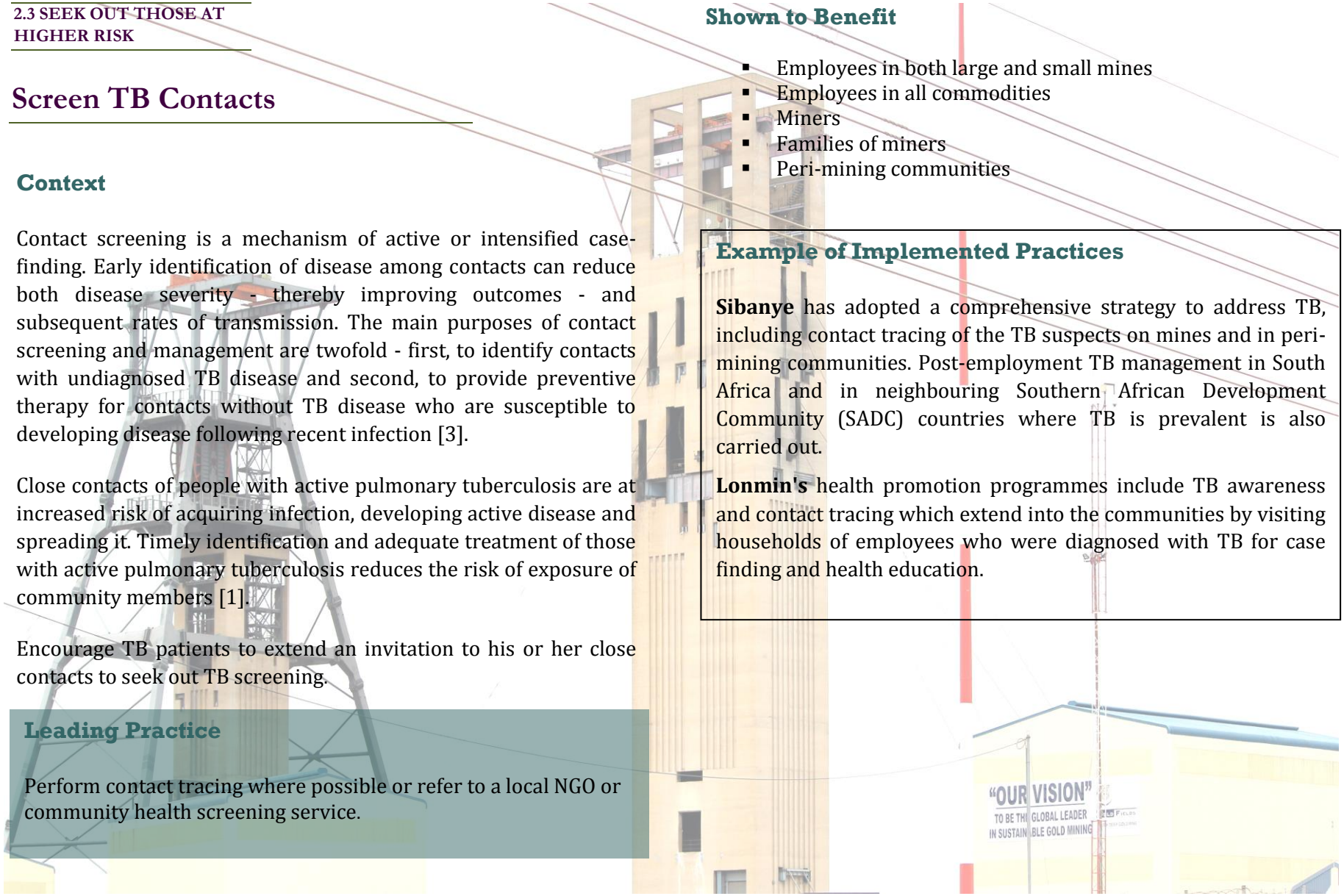
Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of miners
- Peri-mining communities

Example of Implemented Practices

Sibanye has adopted a comprehensive strategy to address TB, including contact tracing of the TB suspects on mines and in peri-mining communities. Post-employment TB management in South Africa and in neighbouring Southern African Development Community (SADC) countries where TB is prevalent is also carried out.

Lonmin's health promotion programmes include TB awareness and contact tracing which extend into the communities by visiting households of employees who were diagnosed with TB for case finding and health education.



Intensify Active Case Finding

Context

Active case-finding (ACF) places the onus of case-finding on the health system, not the patient. Active case-finding requires systematic screening and clinical evaluation of persons who are at high risk of developing TB, such as people who are contacts of someone who was diagnosed with TB or people living with HIV. Within the mining sector dust exposure (silicosis) and HIV play an important role in the epidemiology of the disease.

Larger mines offer screening and diagnostic services to their employees, contract workers as well as their contacts. The smaller mines where no facilities exist utilize the public sector TB control programme.

Mines conduct routine TB symptom screening, and sputum testing if positive, at various intervals ranging from quarterly to annually. In addition employees in some mines are screened prior to going on leave, on returning from leave and when they present with symptoms of TB.

Leading Practice

Active case finding must be regularly performed – conduct annual TB symptomatic screening of all employees. Contractors should be included in screening. Increase screening frequency based on individual or mine risk profile. Screen high-risk individuals more frequently than others.

Leading Practice

Symptom screening for TB when migrant miners go on leave, particularly those going to labour sending areas. If symptoms are positive then further tests are necessary. Employees must be smear-negative before they go on leave.

Leading Practice

Compulsory holistic symptom screening for employees particularly, employees with HIV and/or silicosis with every health care visit.

Shown to Benefit

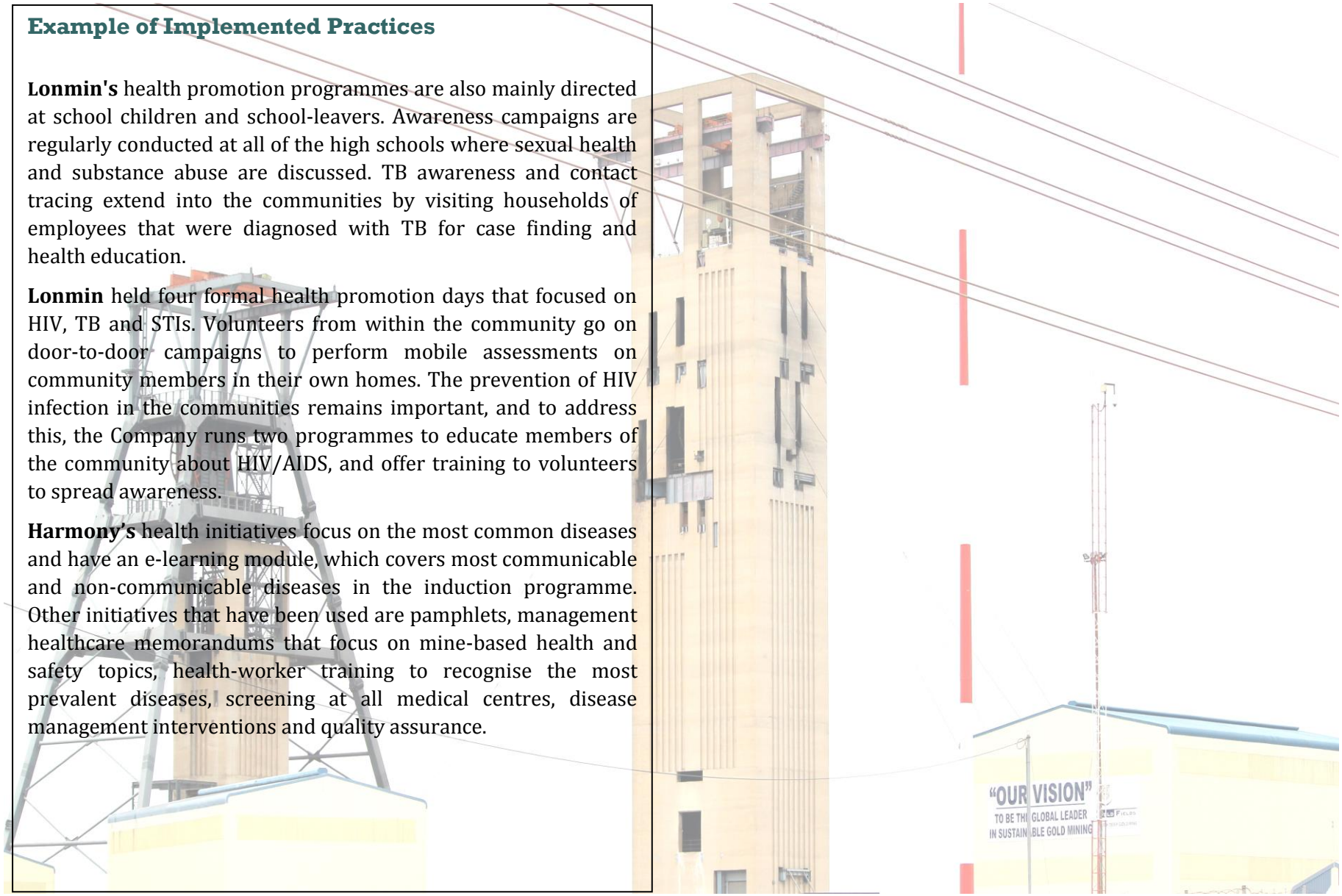
- Employees in both large and small mines
- Employees in all commodities
- Miners
- Families of Miners
- Peri-mining communities

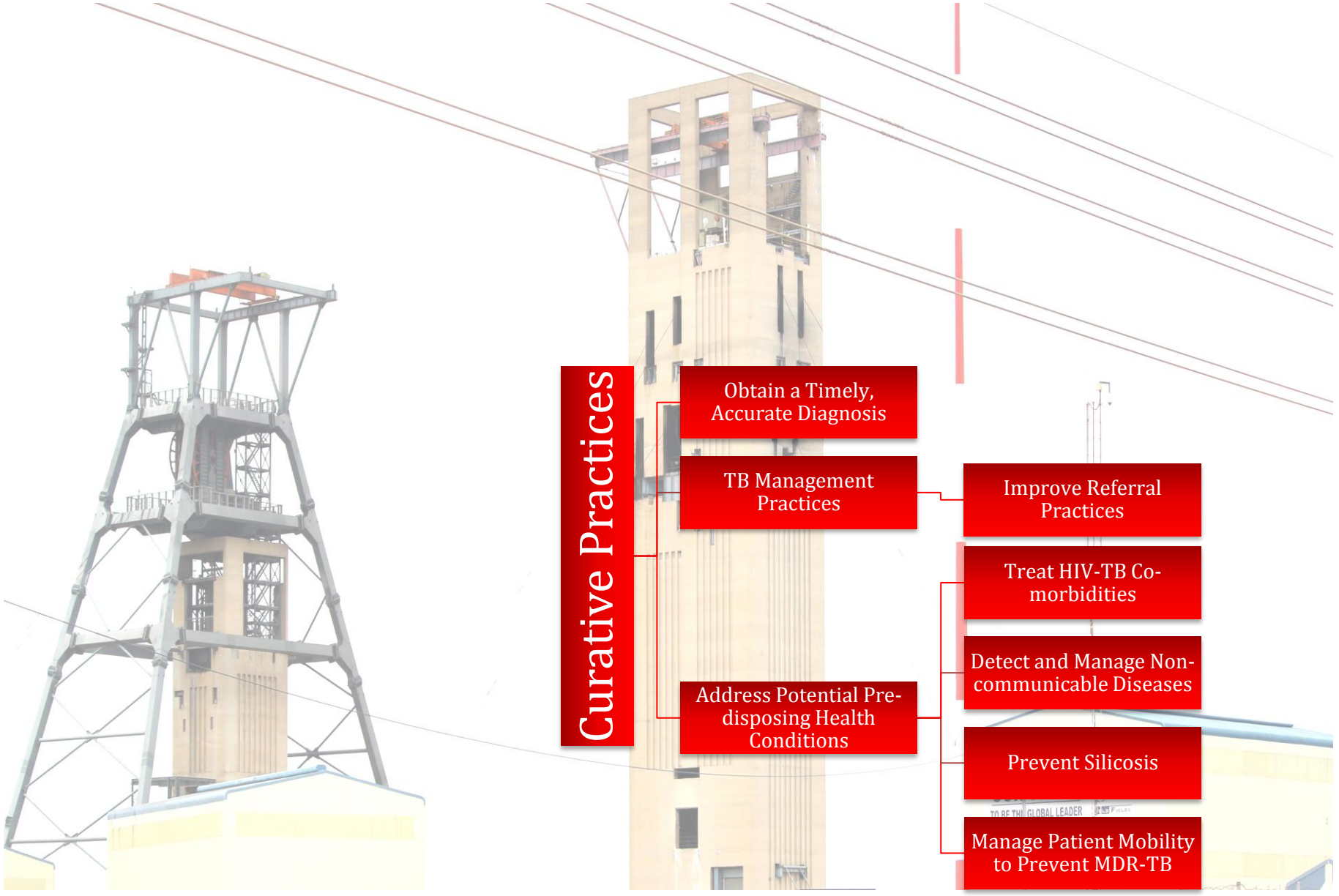
Example of Implemented Practices

Lonmin's health promotion programmes are also mainly directed at school children and school-leavers. Awareness campaigns are regularly conducted at all of the high schools where sexual health and substance abuse are discussed. TB awareness and contact tracing extend into the communities by visiting households of employees that were diagnosed with TB for case finding and health education.

Lonmin held four formal health promotion days that focused on HIV, TB and STIs. Volunteers from within the community go on door-to-door campaigns to perform mobile assessments on community members in their own homes. The prevention of HIV infection in the communities remains important, and to address this, the Company runs two programmes to educate members of the community about HIV/AIDS, and offer training to volunteers to spread awareness.

Harmony's health initiatives focus on the most common diseases and have an e-learning module, which covers most communicable and non-communicable diseases in the induction programme. Other initiatives that have been used are pamphlets, management healthcare memorandums that focus on mine-based health and safety topics, health-worker training to recognise the most prevalent diseases, screening at all medical centres, disease management interventions and quality assurance.




Curative Practices
Obtain a Timely, Accurate Diagnosis
TB Management Practices
Address Potential Pre-disposing Health Conditions
Improve Referral Practices
Treat HIV-TB Co-morbidities
Detect and Manage Non-communicable Diseases
Prevent Silicosis
Manage Patient Mobility to Prevent MDR-TB

Obtain a Timely, Accurate Diagnosis

Context

Amplification and detection of M. tuberculosis (Mtb) DNA is one of the fastest and most sensitive ways to detect TB and it allows for the detection of genetic mutations associated with drug resistance. The Xpert MTB/RIF assay is a fully automated system that allows a relatively untrained operator to perform sample processing, DNA amplification and detection of Mtb and screening for rifampicin (RIF) resistance in less than 2hrs [1]. Xpert MTB/RIF can be done outside of conventional laboratory settings. WHO strongly recommends that countries use the Xpert MTB/RIF as the initial diagnostic test in individuals suspected of having MDR-TB or HIV-associated TB and (when appropriate) as a follow-on test to microscopy in settings where MDR-TB and/or HIV is of lesser concern, especially in smear-negative specimens. Guidance exists to support the implementation of the Xpert MTB/RIF assay [1].

Test costs are much higher than microscopy; however, once implemented the running costs of Xpert MTB/RIF are much lower than liquid culture or line probe assays.

The TB Guidance Note (2003) prescribes that in all suspected TB cases up to three sputum smear examinations, sputum for culture and organism identification and a CXR should be conducted. GeneXpert/RIF testing has replaced sputum microscopy as the first-line diagnostic test for TB [2].

Leading Practice 27

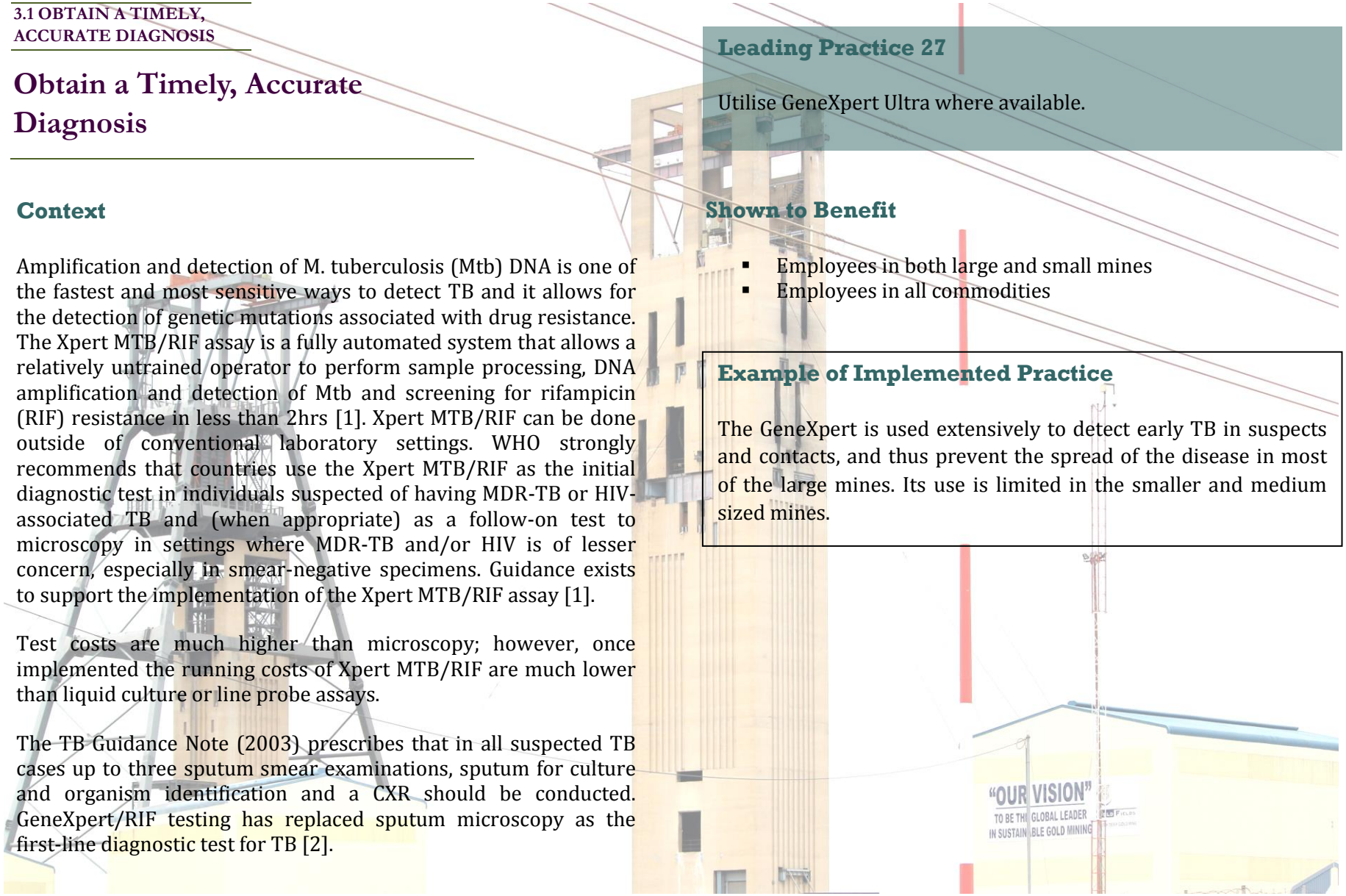
Utilise GeneXpert Ultra where available.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities

Example of Implemented Practice

The GeneXpert is used extensively to detect early TB in suspects and contacts, and thus prevent the spread of the disease in most of the large mines. Its use is limited in the smaller and medium sized mines.



Improve Referral Practices

Context

Early detection, diagnosis and complete treatment ensure positive treatment outcomes. Health facilities must be made accessible to miners. In the case where mines do not have their own health facilities, it is recommended that referral linkages between private and public service providers be developed.

Leading Practice

Mines to develop referral linkages between private and public service providers and with community support services.

Leading Practice

Increase the monitoring of cured individuals.

Leading Practice

Decentralise primary health services into hubs, medical stations, to provide primary care-based services as close as possible to operations, hostels etc.

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Leading Practice

Provide access to psychosocial services through in-house or outsourced arrangements.

Leading Practice

Where the mining company does not have an in-house TB control programme there must be a service level agreement with the local DOH or another recognized health care provider

Leading Practice

Outsource health care services and facilities to independent companies who have resources such as mobile clinics, etc.

Shown to Benefit

- Employees in both large and small mines
- Employees in all commodities
- Employees and communities where TB services do not exist

Example of Implemented Practices

Sibanye has also implemented the 'TO STOP TB PROGRAM'. Operation "Hlasela iTB" is isiZulu for "Stop TB". Employees have access to healthcare services at nine primary healthcare clinics located at and around Sibanye's operations, and three on-shaft clinics. The primary healthcare services are doctor-based and include family physician services, digital radiology, laboratory, pharmacy, rehabilitation and social worker services. At shaft level, primary healthcare nurses provide health screening, consultation services and management of chronic conditions. In addition, monthly medication is also delivered to the shaft clinics.

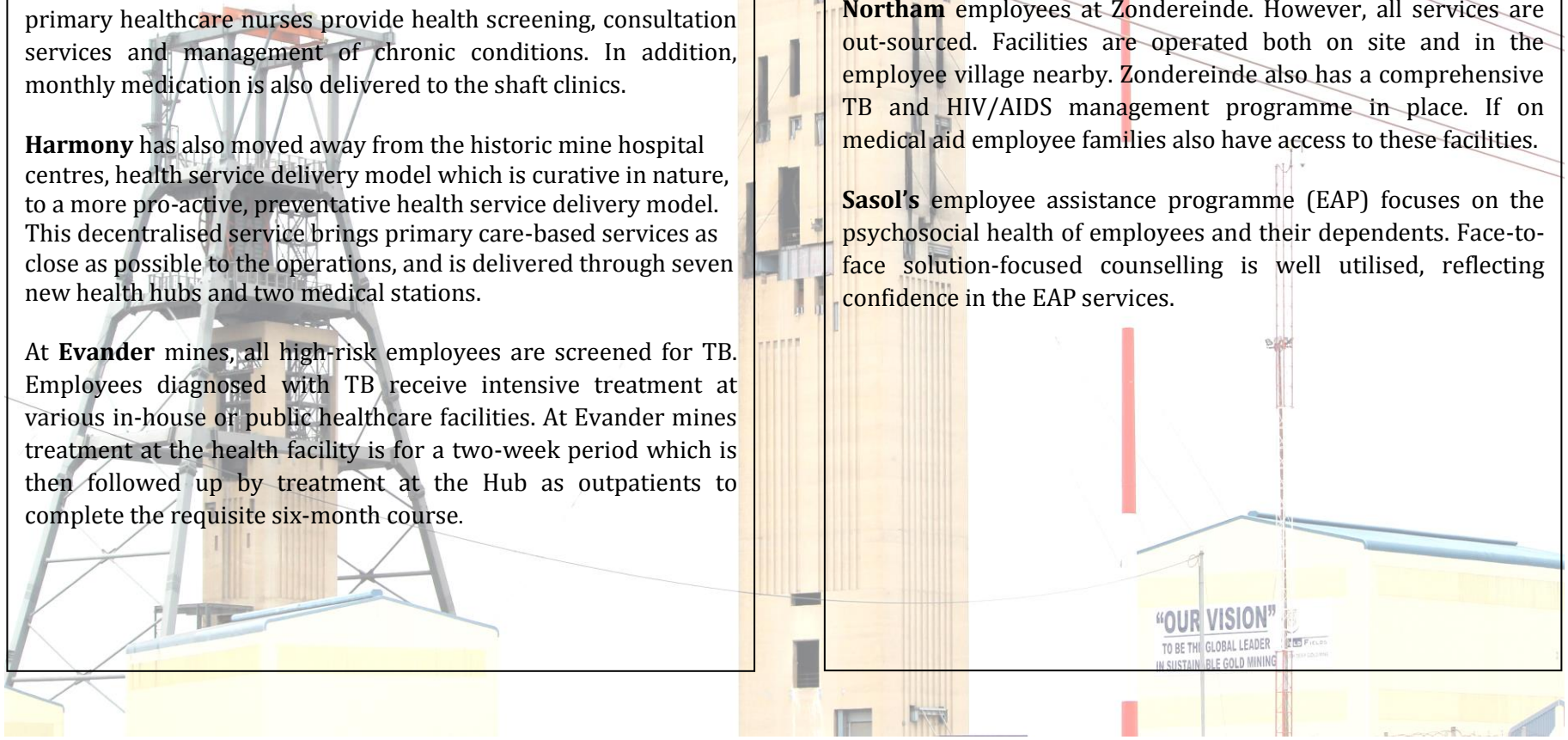
Harmony has also moved away from the historic mine hospital centres, health service delivery model which is curative in nature, to a more pro-active, preventative health service delivery model. This decentralised service brings primary care-based services as close as possible to the operations, and is delivered through seven new health hubs and two medical stations.

At **Evander** mines, all high-risk employees are screened for TB. Employees diagnosed with TB receive intensive treatment at various in-house or public healthcare facilities. At Evander mines treatment at the health facility is for a two-week period which is then followed up by treatment at the Hub as outpatients to complete the requisite six-month course.

At **Meraffe**, occupational health nurses have been trained in the management of HIV and TB and the impact of HIV and TB. ALL employees that visit its occupational health clinics are screened for TB. Those whose screening tests indicate they may have TB are referred to public healthcare facilities for TB investigation and treatment. Medical records remain on site and are only seen by the Occupational Medical Practitioner and the nurses.

An integrated and holistic health care service is offered to all **Northam** employees at Zondereinde. However, all services are out-sourced. Facilities are operated both on site and in the employee village nearby. Zondereinde also has a comprehensive TB and HIV/AIDS management programme in place. If on medical aid employee families also have access to these facilities.

Sasol's employee assistance programme (EAP) focuses on the psychosocial health of employees and their dependents. Face-to-face solution-focused counselling is well utilised, reflecting confidence in the EAP services.



Treat HIV-TB Co-Morbidities

Context

In mines where health services are offered, a holistic approach to employee or patient centred care should be adopted to identify and mitigate the risks.

All patients with TB and HIV infection should be evaluated to determine if ART is indicated during the course of treatment for TB. Appropriate arrangements for access to antiretroviral drugs should be made for patients who meet indications for treatment. Given the complexity of co-administration of anti-TB treatment and ART, initiation of treatment for TB should not be delayed. Patients with TB and HIV infection should also receive Co-trimoxazole as prophylaxis for other infections.

An increasing HIV-TB co-infection rate spurred on by non-compliance to ART's and employee behaviour is a concern. The risk factors contributing to a high prevalence of HIV in mines are also the same factors identified in the high TB prevalence – these include high mobility of employees and contractors, access to and availability of sex workers, stress, alcohol and drug abuse, misinformation or lack of knowledge of HIV and TB.

VCT for couples is emerging as a key strategy for reducing HIV transmission and also encouraging behaviour change as a prevention tool. It is an important element of a prevention strategy since HIV transmission is driven by risky behaviour. There are merits of addressing TB at the same time when offering counselling and services to spouses and families.

The use of wellness programmes, which promote positive living, nutritional support, advice and awareness, access to testing, care and counselling can be an effective tool for support in the mining environment if also extended to spouses and families. Wellness programmes must create trust between employees and supporter to improve the acceptance of the condition and better compliance with treatment and disease management protocols.

Several key interventions in the mining industry have been shown to be effective in the fight against HIV/AIDS. Compulsory annual medical assessments and on-demand health services provide an entry point to the continuum of care, prevention and support for HIV, TB and other high-risk diseases like diabetes. These could also potentially reduce employees' fears and overcome the stigma, social pressure and confidentiality issues.

The Department of Health has issued HIV/AIDS Policy Guidelines on various Interventions, including Testing for HIV; Rapid HIV testing; Management of occupational exposure to HIV; Ethical considerations for HIV/AIDS clinical and epidemiological research; Prevention and treatment of opportunistic and HIV-related diseases in adults; and TB and HIV/AIDS. Guidelines including the norms and standards for prevention, treatment, care and support for HIV and AIDS have been established by the National Department of Health. They include standard treatment guidelines, diagnostic laboratory tests, drug protocols, frequency and types of visits with health professionals and other standards for the treatment and care of people living with HIV/AIDS.

Leading Practice

Mines to adopt HIV best practices and programmes to control the spread of both HIV and TB. Address management of HIV, and TB management will be automatically addressed.

Leading Practice

Address TB concurrently when offering counseling and services to spouses and families, on HIV programmes.

Shown to Benefit

- Employees in large and small mines
- Employees in all commodities
- Peri-mining communities

Example of Implemented Practice

Implats, Northam and Anglo Coal have an HIV/AIDS and TB policy that ensures patient confidentiality and non-discrimination.

Sasol HIV/AIDS response programme focuses on preventing new infections and support services to HIV-positive employees and their families through a comprehensive disease management programme.

De Beers and Pan African Resources manage TB in close collaboration with public health facilities. De Beers also make testing available in communities near their operations. ART is available free to employees and their life partners where it can be provided in a responsible and sustainable manner. If treatment is not otherwise available, they provide life-long ART upon retirement or retrenchment.

Harmony has implemented a community programme that curbs STI and HIV/AIDS infection rates and focused programs on sexual dynamics peculiar to migrant employees. They use healthcare professionals, trained community-based peer educators in fixed sites, mobile units and outreach community programmes.

Anglo American Platinum's testing through their wellness programme is the entry point to their comprehensive programme of prevention, care, support and treatment for HIV/AIDS. They have also extended their ART programme to include the partners of HIV-positive employees.

Detect and Manage Non-Communicable Diseases

Context

Research experts and mines with integrated health programme monitoring; have recognised the increasing trends in non-communicable diseases (NCD).

The NCD burden is steadily increasing. Several NCDs, such as diabetes mellitus, alcohol use disorders and smoking-related conditions, are responsible for a significant proportion of TB cases. Steps are therefore required to address NCDs and their risk factors. This presents an opportunity to provide better care through increased case-detection activities, improved clinical management and better access to care for both TB and NCDs. Hastening the global decline in TB incidence may be assisted by strengthening these types of activities.

Leading Practice

Provide integrated HIV, TB and chronic disease screening and diagnosis in medical assessments, conducted at least once a year, and the provision of on-demand comprehensive health services that cover all high-risk diseases.

Shown to Benefit

- Employees in large and small mines
- Employees in all commodities

Example of Implemented Practices

Aquarius has expanded its wellness campaigns to include non-communicable diseases. They commented that employees are more willing to participate in these campaigns and records indicate improved adherence to medical treatment regimens.

Booysendal identified obesity, hypertension, diabetes, NIHL and fatigue as Booysendal's primary health risks and has responded with a comprehensive wellness programme.

Sasol's screening programme for lifestyle illnesses and HIV/AIDS reveals high incidences of abnormal body mass index, and an increase in lifestyle illnesses and associated effects.

Prevent Silicosis

Context

The gold mining sector in South Africa reports the highest TB incidence in the industry. A major contributor to the spread of the disease in this sector is the exposure to silica dust, which has been identified as one of the big risk factors.

There have been many developments in the last few years attempting to reduce the level of exposure of employees to silica dust, but the industry has not been successful in fully eliminating this risk.

Leading Practice

Encourage linkage of care between occupational health and occupational hygiene departments of the mines.

Leading Practice

Use administrative and engineering controls to reduce silica - bearing dust.

Shown to Benefit

- Employees in large and small mines
- Employees in all commodities but especially gold and platinum mines
- Employees in high silica dust environments

Example of Implemented Practices

AngloGold Ashanti manages this by reducing the level of exposure of employees to silica-bearing dust. This is achieved through administrative and engineering controls, improvements to personal protective equipment and personal preventative measures, implementation of multi-stage filtration systems at ore transfer points, footwall treatment, mechanisation, improved ventilation, dust suppression and statutory limitations on the length of service in high-risk occupations.

Harmony uses a range of engineering controls to minimise dust. Mining Industry Occupational Safety and Health leading practices such as the fogger system at strategic underground areas and the implementation of foot and side wall treatment in identified intake airways to allay dust have been adopted. In addition, multi-stage dust filtration systems have been installed. They have also installed winch covers for all their winches. Training and awareness programmes address dust control in workplaces, and all development ends are equipped with water blasts to settle dust directly after a blast.

At **Zondereinde** the use of hydro-power itself gives rise to a significant reduction in dust in the workings. The group has adopted a zero tolerance policy towards safety infringements.

Sasol has also made further progress in dust suppression, and direct exposure to dust has reduced significantly due to the implementation of new technology.

Manage Patient Mobility to Prevent MDR-TB

Context

(See also Manage Circular Migration of Miners under Preventative Practices)

The factors that are believed to contribute to the spread of TB in migrant miners are:-

- Employees being left without treatment (treatment confiscated at borders);
- Access to services in labour-sending areas;
- Returning to local clinics without referral letters;
- Employees unwilling to tell family;
- Increased time spent with TB positive family/community;
- Miners seeking services from different providers when in transit (mine, public, private);
- Inadequate linkage of care and communication.

Confiscation of drugs at the borders has also resulted in non-treatment when travelling home and this has resulted in an increase in drug-resistant TB.

One of the contributing factors to the high TB treatment defaulter rates is that the TB regimens may differ slightly between countries and that the medication manufactured by different pharmaceutical companies differs in appearance even though the active ingredient is the same. In these instances, miners may stop taking their medication because they think they think they have been issued with the 'wrong' medication. As part of the World Bank funded programme, URCSA is undertaking a project providing education on the TB treatment regimes and drug products utilised across the region in an attempt to mitigate this challenge.

Leading Practice

DoH to educate border controls to prevent confiscation of TB drugs at border.

Leading Practice

Health facilities to educate patients about different TB regimens in different countries e.g. education of medication differences between different pharmaceuticals companies.

Leading Practice

DoH to develop a mapping and referral system so that when health facilities are referring patients from one clinic to another, they can already establish referral linkages. These patients should be tracked and monitored. There must be linkage of care and communication between referrals.

Leading Practice

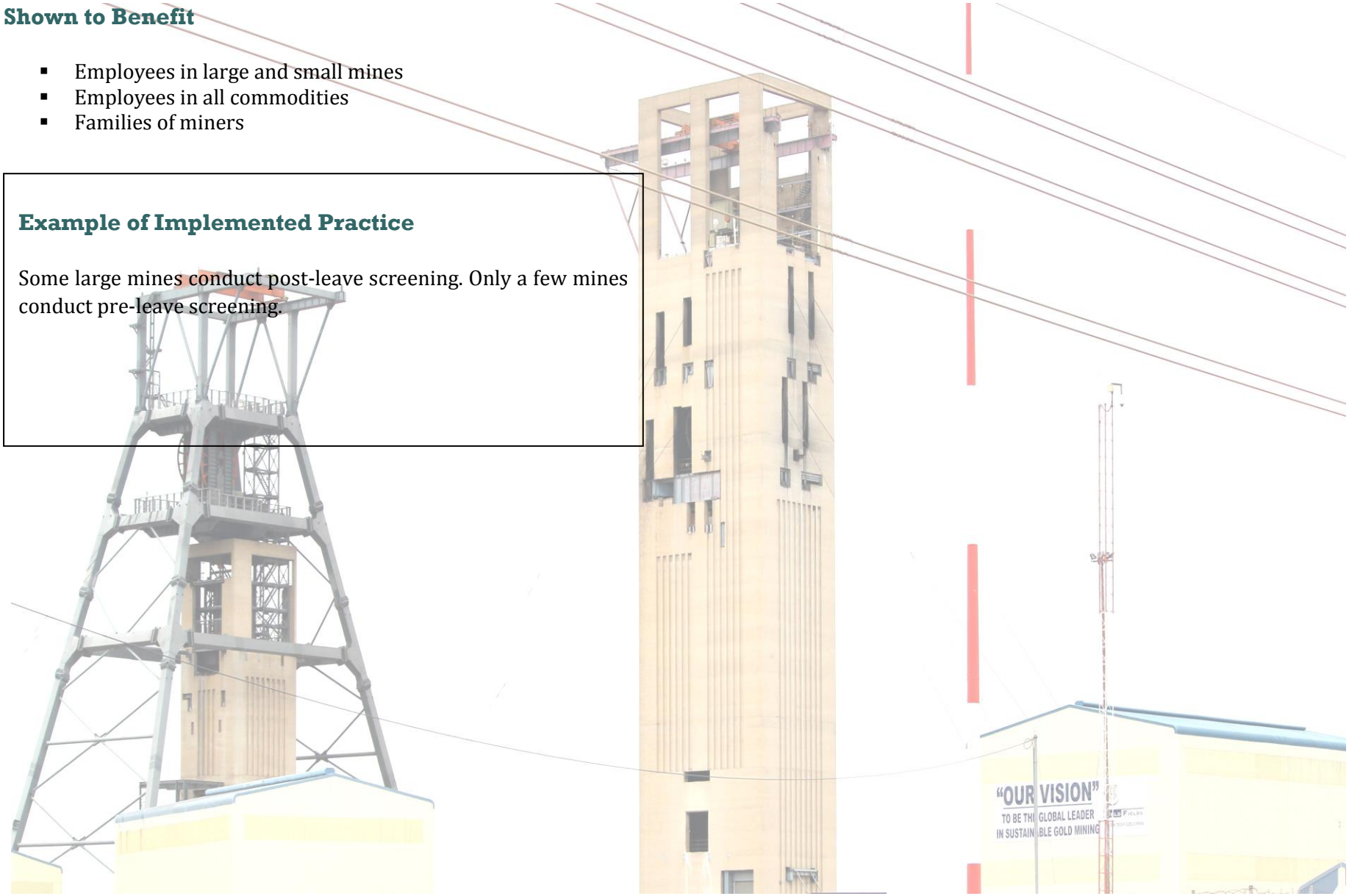
The patient should be provided with a letter detailing the diagnosis, results of smear, culture and susceptibility tests, and treatment received to date. The letter should also indicate the expected date for follow up at the mine health centre.

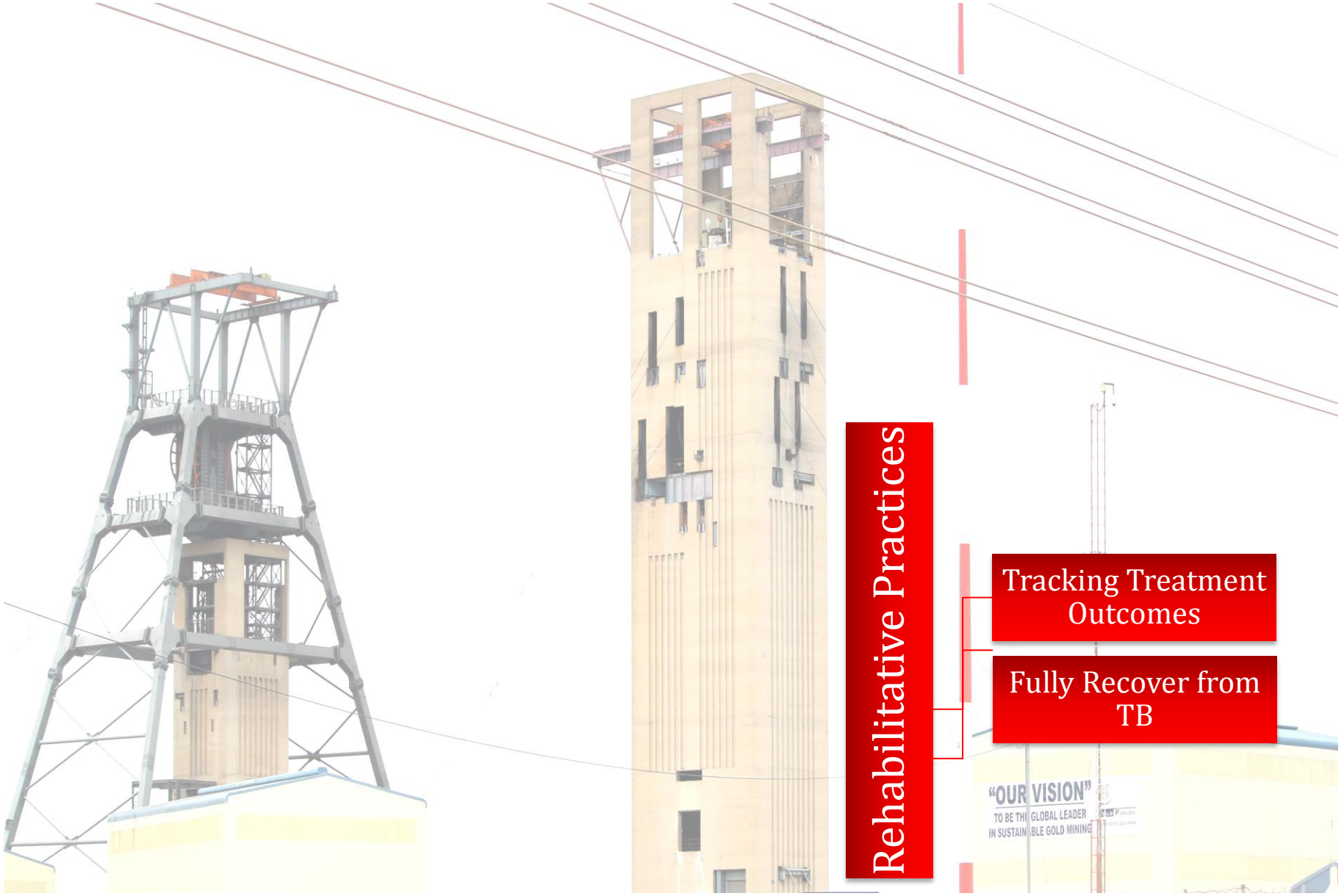
Shown to Benefit

- Employees in large and small mines
- Employees in all commodities
- Families of miners

Example of Implemented Practice

Some large mines conduct post-leave screening. Only a few mines conduct pre-leave screening.




Rehabilitative Practices
Tracking Treatment Outcomes
Fully Recover from TB
"OUR VISION"
TO BE THE GLOBAL LEADER
IN SUSTAINABLE GOLD MINING

Treatment Outcomes and Recovery

4.1 Tracking Treatment Outcomes

Context

Monitoring the outcome of treatment is essential in order to evaluate the effectiveness of any intervention. Follow-up of treatment is thus necessary.

Where an employee is separated while on treatment, the mine should make reasonable efforts to ensure continuous treatment and determine the final outcome. The mine should, as reasonable practice, try to arrange for the patient to return for assessment (at the end of treatment). If this is not possible, alternative arrangements must be put in place to determine the outcome.

Leading Practice

Monitor and track treatment outcomes of employees to evaluate the effectiveness of the TB treatment.

4.2 Fully Recover from TB

Context

Evaluation of fitness to return to work must be performed on all individuals who are now smear-negative after TB treatment. Individuals should be clinically well.

The assessment for fitness to perform work should be conducted by the occupational medical practitioner following, which an individual should either be fit to perform their previous work or referred for vocational assessments and possible retraining for alternative job placement.

Loss of income and disability should be managed in accordance with ODMWA, COIDA and conditions of employment.

Leading Practice

All smear-negative employees should be assessed by an occupational medical practitioner to evaluate their fitness to return to work.

Leading Practice

Alternative job placement, with vocational assessments and possible retraining, should be offered to employees who are not fit to perform their previous work.

Leading Practice

Ensure appropriate referrals to relevant bodies and ensure that employees are educated about compensation regulations and processes - loss of income and disability should be managed in accordance with ODMWA, COIDA and conditions of employment.

Shown to Benefit

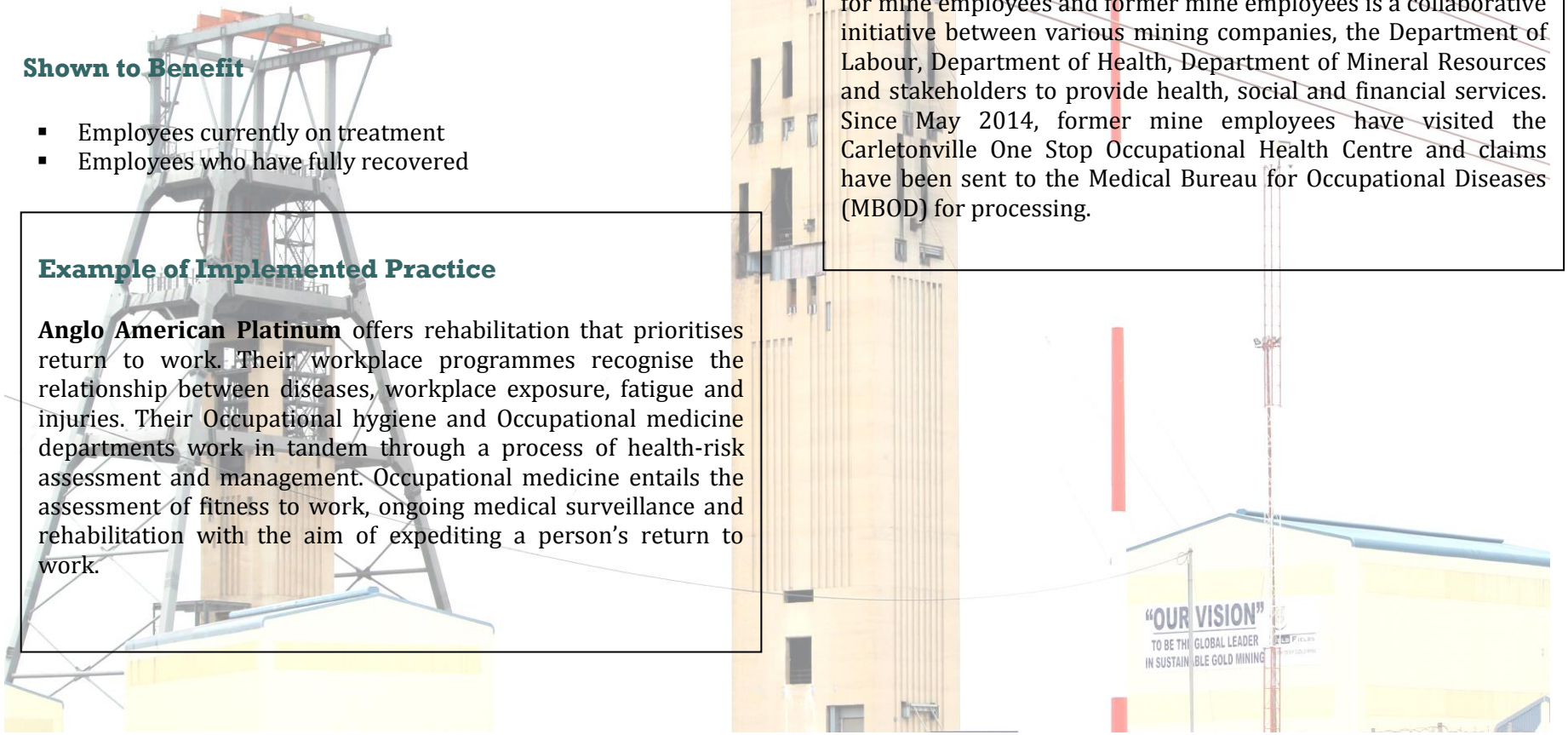
- Employees currently on treatment
- Employees who have fully recovered

Example of Implemented Practice

Anglo American Platinum offers rehabilitation that prioritises return to work. Their workplace programmes recognise the relationship between diseases, workplace exposure, fatigue and injuries. Their Occupational hygiene and Occupational medicine departments work in tandem through a process of health-risk assessment and management. Occupational medicine entails the assessment of fitness to work, ongoing medical surveillance and rehabilitation with the aim of expediting a person's return to work.

The focus on acute and vocational rehabilitation through the implementation of RFA, physiotherapy, wellness and other health programmes is designed to optimise the return to work of all affected employees after illness or injury. Those employees who are unable to recover fully from their injuries or diseases are referred to the medical boarding process.

The **Carletonville One Stop Occupational Health Centre** service for mine employees and former mine employees is a collaborative initiative between various mining companies, the Department of Labour, Department of Health, Department of Mineral Resources and stakeholders to provide health, social and financial services. Since May 2014, former mine employees have visited the Carletonville One Stop Occupational Health Centre and claims have been sent to the Medical Bureau for Occupational Diseases (MBOD) for processing.




Workplace Policy
Pre-employment Screening
Policy for Families and Contractors
Policy and Rights Awareness
Address TB Management during Labour Unrest and Strikes

Pre-Employment Screening

Example of Implemented Practice

Most mines perform pre-employment screening.

Context

Pre-employment screening is done at most mines. However, these tests focus on job requirements rather than comprehensive, holistic screening e.g. TB testing may not be compulsory for certain positions. On being employed, some mines perform holistic tests and investigations to attain baseline data for that individual.

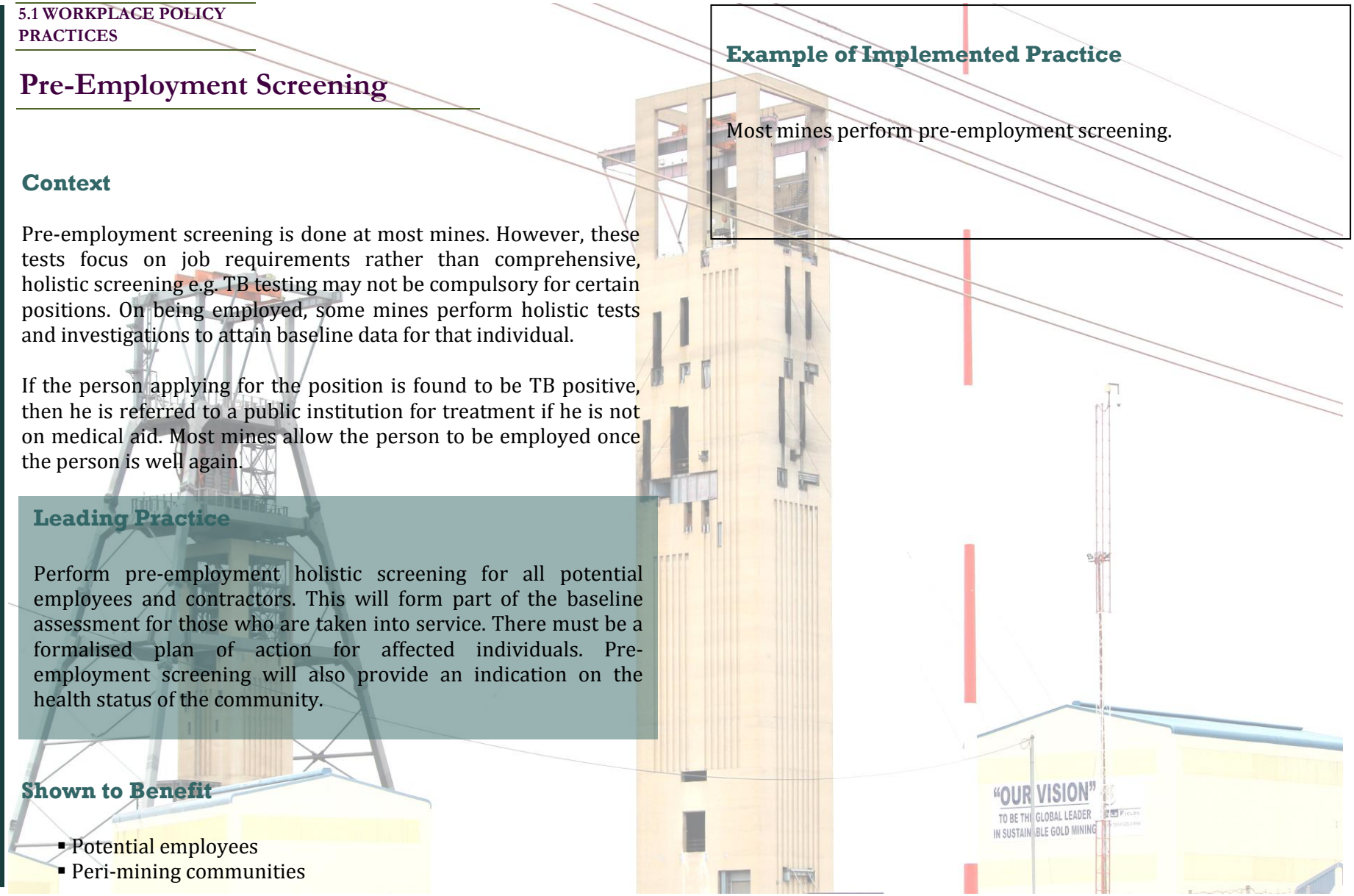
If the person applying for the position is found to be TB positive, then he is referred to a public institution for treatment if he is not on medical aid. Most mines allow the person to be employed once the person is well again.

Leading Practice

Perform pre-employment holistic screening for all potential employees and contractors. This will form part of the baseline assessment for those who are taken into service. There must be a formalised plan of action for affected individuals. Pre-employment screening will also provide an indication on the health status of the community.

Shown to Benefit

- Potential employees
- Peri-mining communities



Policy for Family and Contractors

Context

Most mines have medical aid policies in place for their employees. Most large mines medical schemes are based on the same principle. Some mines are extending cover and healthcare services to multiple spouses/partners, children and contractors.

The introduction of family-style accommodation has changed the dynamic of the community as many miners now live with their immediate families.

Leading Practice

Provide free HIV, TB testing to immediate partners and families.

Shown to Benefit

- Families of miners
- Contractors
- Employees in all commodities

Example of Implemented Practices

De Beers offers HIV testing to all employees, spouses, life partners and contractors. ART is available free to employees and their life partners where it can be provided in a responsible and sustainable manner.

Merafe ensures that all their policies and programmes are accessible to employees and contractors and that they are available in all the employee spoken languages.

Harmony's health hubs provide an integrated, proactive healthcare service to employees and contractors in close proximity to the mine, improving the quality of health care and decreasing the costs of centralised healthcare services. The benefit of these health hubs includes improved health insurance cover for most employees, which is also extended to contractors.

Sibanye employees and contractors are offered and afforded the option to HIV testing.

Aquarius employees and their dependents also have access to comprehensive health-benefit schemes, as well as on-site primary health and occupational health services.

Anglo American Platinum has various TB and HIV/AIDS programmes in the workplace. They have also extended their ART programme to include the partners of HIV-positive employees.

Workplace Policy

Policy and Rights Awareness

Context

Some mines are aware that their responsibility does not end at termination, retrenchment or retirement of employees. Other large mines ensure that miners are free of TB before they exit employment.

It is recommended that all ex-miners and TB-positive employees be informed of their rights, in a structured exit pack. Miners exiting the service should be made aware of the ODIMWA requirement that ex-miners should undergo a health examination every 2 years.

Documented policies for the management of TB on mines must be made accessible to all miners and healthcare workers. Copies of the current NTBCP guidelines, as well as other practice standards, should be available in all health centres, which treat TB.

Leading Practice

Inform and educate TB positive employees and ex-miners of their rights.

Leading Practice

Companies to provide free transportation to check ups, where these services do not exist.

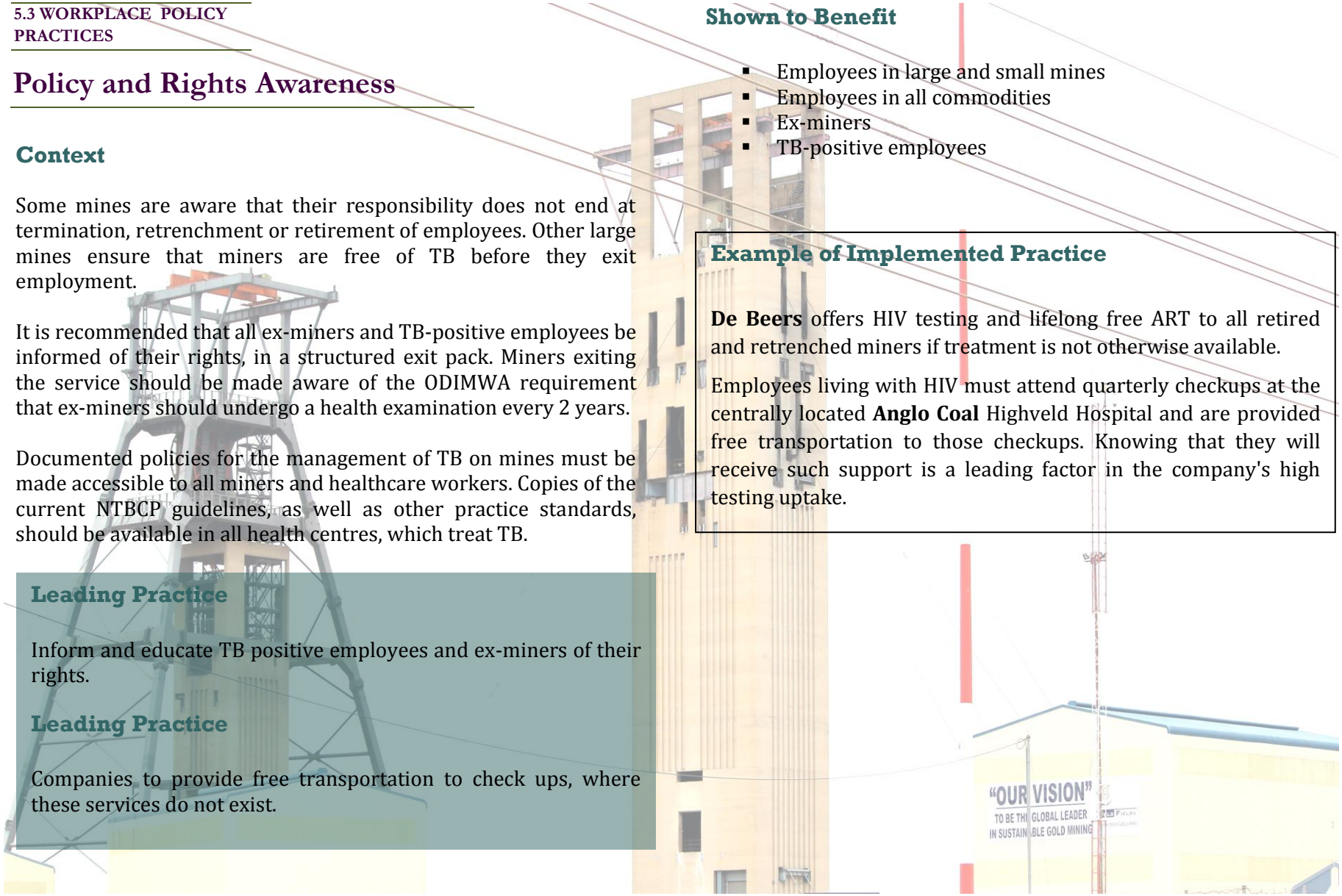
Shown to Benefit

- Employees in large and small mines
- Employees in all commodities
- Ex-miners
- TB-positive employees

Example of Implemented Practice

De Beers offers HIV testing and lifelong free ART to all retired and retrenched miners if treatment is not otherwise available.

Employees living with HIV must attend quarterly checkups at the centrally located **Anglo Coal** Highveld Hospital and are provided free transportation to those checkups. Knowing that they will receive such support is a leading factor in the company's high testing uptake.



Address TB Management During Labour Unrest and Strikes

Context

Protracted strikes increase both TB incidence and MDR-TB incidence at the mines. Miners, especially migrant miners returning to labour-sending areas are particularly hard hit. During periods of labour unrest or strikes, screening of employees is not conducted, treatment is interrupted either due to lack of access to services, unavailability of drugs or non-adherence to treatment.

Leading Practice

Have documented protocols in place for labour unrest and strikes.

Shown to Benefit

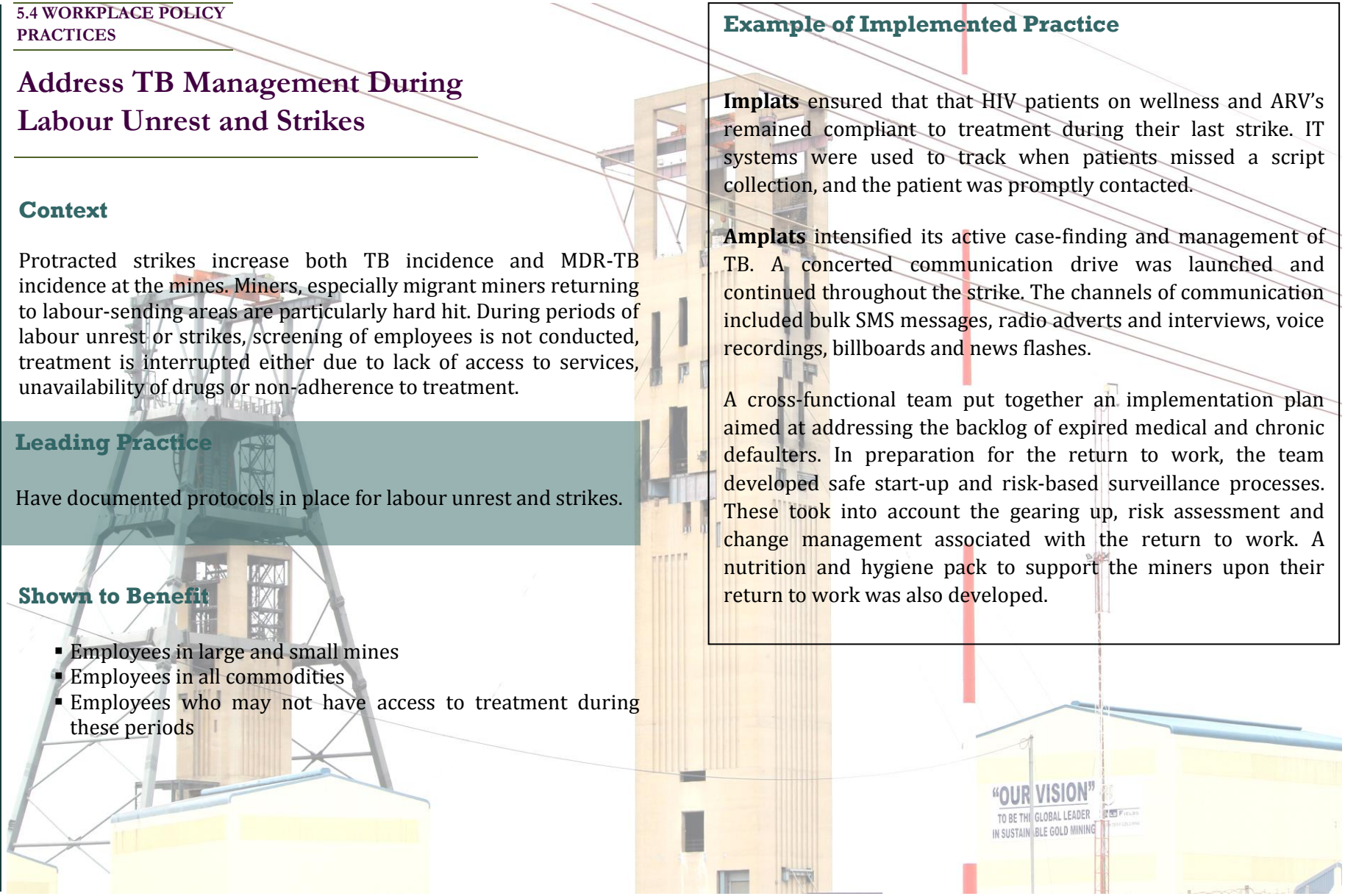
- Employees in large and small mines
- Employees in all commodities
- Employees who may not have access to treatment during these periods

Example of Implemented Practice

Implats ensured that that HIV patients on wellness and ARV's remained compliant to treatment during their last strike. IT systems were used to track when patients missed a script collection, and the patient was promptly contacted.

Amplats intensified its active case-finding and management of TB. A concerted communication drive was launched and continued throughout the strike. The channels of communication included bulk SMS messages, radio adverts and interviews, voice recordings, billboards and news flashes.

A cross-functional team put together an implementation plan aimed at addressing the backlog of expired medical and chronic defaulters. In preparation for the return to work, the team developed safe start-up and risk-based surveillance processes. These took into account the gearing up, risk assessment and change management associated with the return to work. A nutrition and hygiene pack to support the miners upon their return to work was also developed.




Monitoring & Evaluation
Document to Learn from the Process
Monitor and Evaluate TB Control Effort
Enhance Performance Reviews
"OUR VISION"
TO BE THE GLOBAL LEADER
IN SUSTAINABLE GOLD MINING

Document to Learn from the Process

Context

Data recording and reporting is vital in the control of TB at the mines. Availability of high-quality data ensures that successes and challenges can be documented and corrective action taken to address identified problems. Monitoring and evaluation assists in:-

- monitoring trends in the TB epidemic;
- identifying progress in the treatment of miners and ensures continuity of care when miners are referred between health-care facilities; and
- planning for, implementing and evaluating TB control programmes.

The DMR has proposed in the new TB Guidance Note [2] an annual industry-wide TB review to be conducted annually and an external review to be conducted every five years.

Leading Practice

Information and data collected from each mine via the DMR must be annually collated, analysed and disseminated timeously to all stakeholders e.g. COM, DMR, DoH, Mines. These reports to include individual mine performance against industry, commodity, regional targets and benchmarks.

Shown to Benefit

- Healthcare Staff
- Mine Management
- Mines who currently do not report TB statistics
- Provincial and Regional DoH departments

Example of Implemented Practice

The **electronic TB register (**ETR.net) is a programme management tool used at sub/district level. The information submitted to the sub/district is entered into the electronic register and data validation and analysis is done using this tool.

The following reports can be generated by the system for a specified period or as a summary over time:

- Reports on TB patients registered
- Reports on Sputum Conversion
- Reports on Treatment Outcome
- Facility Profile Reports.

Data is transmitted electronically from the sub/district level to the provincial level where it is aggregated and analysed before it is passed on to the national level. Specific data elements are exported to the district health information system (DHIS) at sub/district level [1].

Monitor and Evaluate TB Control Efforts

Context

Tracking progress in reaching and serving miners at risk for TB is critical to achieving goals. At some mines, clearly defined targets do not exist and healthcare staff, as well as key influencers, are not engaged in the performance monitoring and review processes.

The DMR 164 and 165 reporting tools have assisted in identifying and standardizing the collection of TB data. However, in addition to this, the large mines also use multiple indicators to monitor TB. The metrics used in monitoring and reporting, are a host of metrics as lead or lag indicators to assist in monitoring e.g. TB incidence rate, TB mortality rate, cure rate, new cases (per week, month, mine), completion of treatment, number of employees and contractors enrolled on the TB Programme, monitoring of CHC appointments, number of employees who are given time off to attend the clinics and absenteeism rates. Where implemented, this is encouraging.

Current reporting systems range from complex health information systems providing real-time data of holistic patient monitoring (including TB screening, diagnostics, chronic conditions and risk identification) and excel spreadsheet reporting collated by healthcare staff on a weekly or monthly basis to paper-based systems collated once a year. It is therefore recommended that the automation of data collection will not only expedite the collection of statistics but also improve the quality of reporting and analysis of data.

Most of the smaller mines, who do not have the capacity and resources to actively monitor HIV and TB cases on a regular basis and become dependent on public clinics or hospitals for these services, often present incomplete statistics due to a lack of feedback from public clinics or employees. Where screening and diagnostic services are not offered, and access to health services is limited, low TB incidence reported may also not present an accurate status of TB at the mines. It is therefore recommended that by partnering with DoH facilities and medical schemes currently serving employees, mutual benefits can be derived.

By standardizing reporting and key dashboard metrics and by developing an industry index for TB and/or HIV monitoring using key metrics, a dashboard for easy monitoring and evaluation will be created. This will assist mines to benchmark against and will assist stakeholders in tracking performance to their medium to long-term plans and targets.

It is recommended that in high TB Incidence environments, like the gold sector, it may be justifiable to use the national TB incidence rate as the benchmark i.e. the gold sector average incidence rate is far higher than the national average.

Although no differences were observed in the frequency of reporting and the TB Incidence rate, increased frequency of reporting does create a heightened awareness of TB in mines where services do not exist or small mines who report annually.

Leading Practice

Each mine must have a quality assured standardized TB reporting tool, which reports holistically on a basket of health related metrics. The tool should include a minimum data set of DMR 164, DMR 165 and suitable lead and lag indicators (customize per mine), which includes for example, dust levels, housing, incidence rates, cure rates and loss to follow-up. To enable effective monitoring and buy-in mines should choose from 1 to 5 indicators that will be monitored and clearly communicated to all stakeholders at the mine.

Leading Practice

Mines to increase frequency of reporting at frequency intervals that will enable them to take proactive and preventative measures against the spread of the disease. It is recommended that this be done bi-annually as a minimum and quarterly in high-risk environments. Frequency of reporting at an industry level should also be collected at a minimum annually as is current practice but increasing frequency to bi-annually will not only improve monitoring but also create an awareness amongst mines who currently do not report at all and high risk mines.

Shown to Benefit

- Mine management, including those involved in resource allocation and management

Example of Implemented Practices

AngloGold Ashanti's programme is tracked through regular monitoring of key indicators such as silica dust exposure and the incidence of Silicosis, TB incidence, TB cure and mortality rates, MDR-TB rates, and the use of process indicators, which directly measure the performance of the TB control program systems and processes. AngloGold Ashanti also allows for quarterly and annual recording of case-finding and reporting of treatment outcomes by cohort analysis.

Anglo Coal has a dashboard of key indicators for its mines. Results are published within the company and sent to each mine to enable them to benchmark themselves against the good performing mines. Progress is evaluated in real time to ensure the programme remains on course. This system has been successfully implemented and used in the management of HIV and TB. The success of the implementation, however, does not only lie in the IT system but also in the robust processes and committed and skilled people using the systems. Hurdles in implementation were overcome with employee education and awareness drives and an access control system that restricted access to confidential employee information even to healthcare staff, further fostering trust between employees to seek healthcare services. Anglo Coal uses a system that offers real time information on each employee - enabling prompt risk identification and management. Reports of risks, trends, potential threats etc. generated by the system are disseminated to all staff and discussed daily at the Health & Safety meetings.

Enhance Performance Reviews

Context

Regular external monitoring and evaluation is required to ensure and improve the performance of TB programmes. The purpose of reviewing the activities of a TB programme is to evaluate progress in response to TB in the context of the goals, objectives and targets that have been specified in the strategic plan to control TB. It thus provides an opportunity to assess the implementation of interventions, the quality of TB care and control services, and the progress that has been made towards reaching the programme's targets.

Reviews should assess programme outputs, outcomes and impact, including the quality of TB care, equity in relation to access to care and control services as well as to the quality of care received by all patients, the effectiveness of the care, and responsiveness. Reviews may also significantly contribute to identifying best practices challenges to implementation and potential solutions identified problems. Reviews should identify the strengths, weaknesses and challenges of TB prevention, care, control of services and service improvement.

Leading Practice

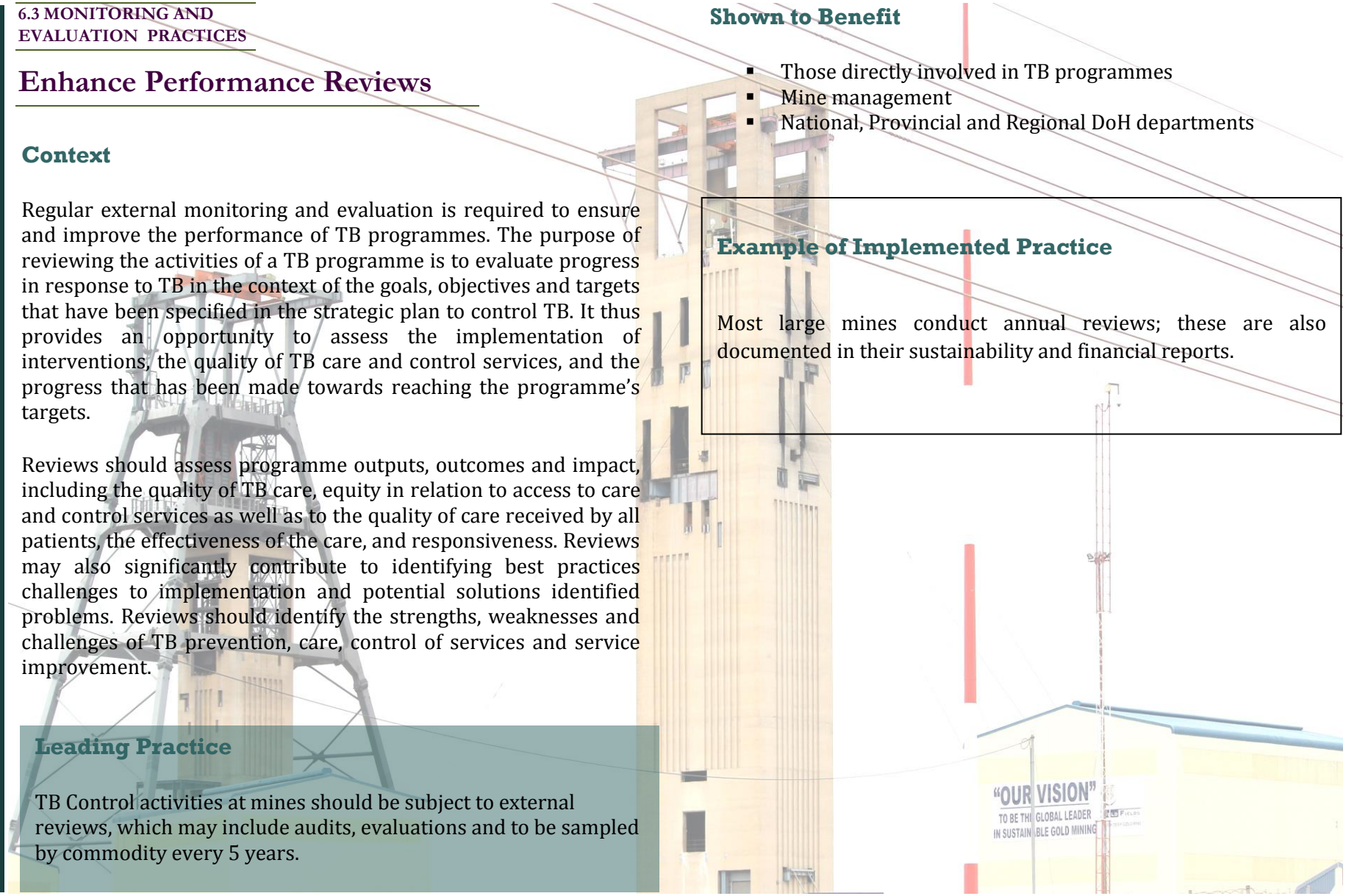
TB Control activities at mines should be subject to external reviews, which may include audits, evaluations and to be sampled by commodity every 5 years.

Shown to Benefit

- Those directly involved in TB programmes
- Mine management
- National, Provincial and Regional DoH departments

Example of Implemented Practice

Most large mines conduct annual reviews; these are also documented in their sustainability and financial reports.



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[1] South African Gold Mining Initiative, “This is Gold. Fact Sheet: Housing and Accommodation,” 2014.

[2] Department of Health, “National Tuberculosis Management Guidelines,” 2014.

[3] Department of Mineral Resources, “TB Guidance Note,” 2015.

[4] World Health Organisation, “Guidance for National TB programmes on the Managment of TB for Children,” 2014.

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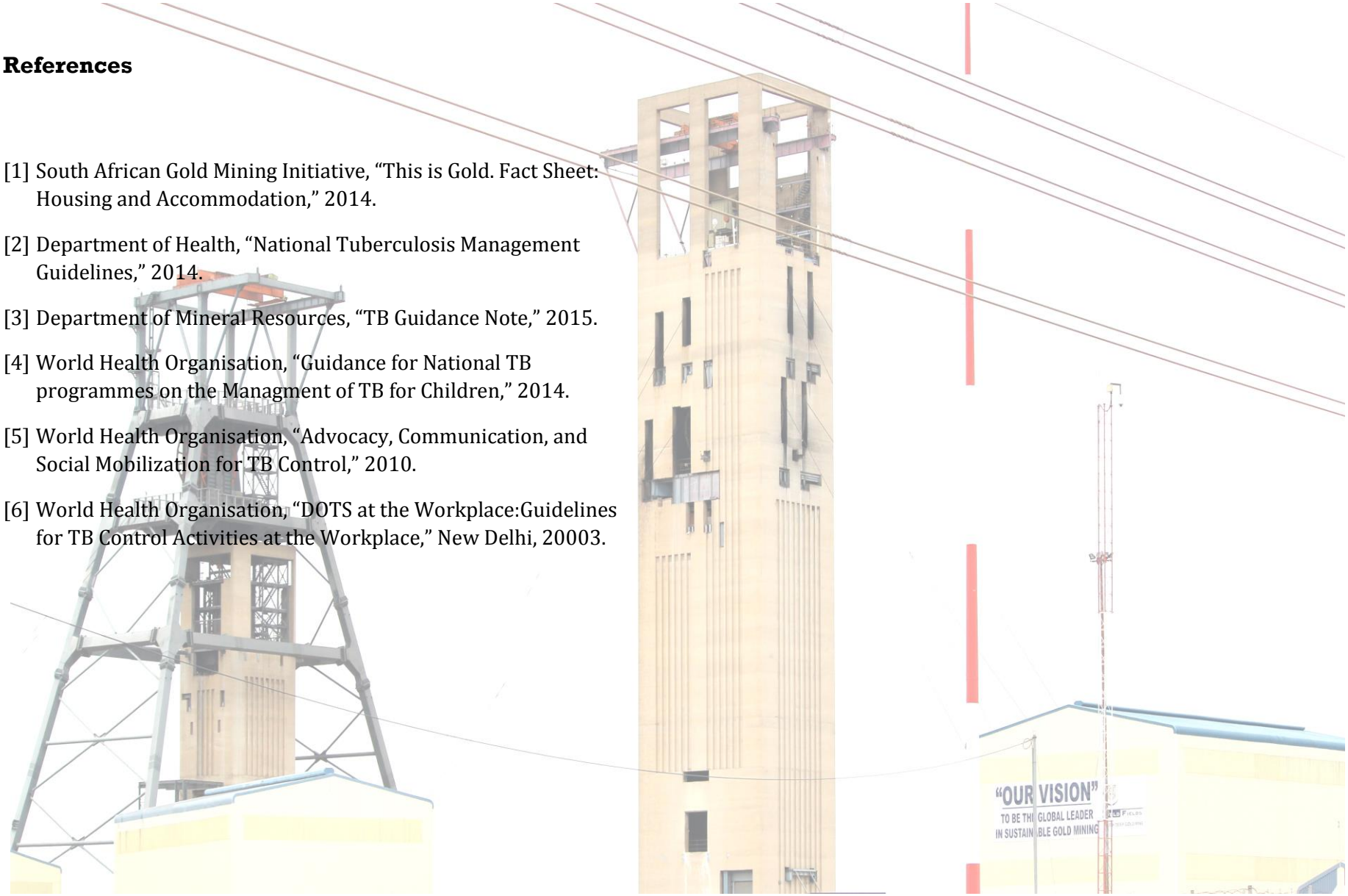

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