

PART 10: ENVIRONMENTAL AWARENESS PLAN

10.1 INTRODUCTION

In accordance with Regulation 51(b)(vi) of the MPRDA¹ (2002) an EAP² is needed which states that an EMP³ contemplated in Section 39(1) of the Act must include an EAP as contemplated in Section 39(3)(c) of the Act. According to Section 39(3)(c) of the MPRDA, (2002): “an *applicant who prepares an environmental management programme or an environmental management plan must develop an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment*”.

De Beers Kimberley Mines is committed to ensuring that a high level of environmental awareness and conduct is maintained, which will also enable the mine to comply with the requirements of ISO⁴ 14001 EMS⁵ standard. In order to achieve this, a SHE⁶ Policy is currently in place at De Beers Kimberley Mines.

In addition to the SHE Policy, various Standard Procedures were developed regarding environmental awareness and training to be implemented at De Beers Kimberley Mines, amongst other, the Standard Procedure KM-EM-PR-01 ‘*Environmental Policy*’, dated Feb 2013 attached hereto in **Appendix F9**, as well as the Standard Procedure KM-EM-PR-22 ‘*Environmental Competence, Training and Awareness*’, dated July 2012, attached hereto in **Appendix F10**. Refer to the above-mentioned Standard Procedures for detailed information on the procedure to be followed, including the responsible persons regarding implementation of the relevant procedures

According to the Standard Procedure on Environmental Competence, Training and Awareness, dated July 2012, the mine aims to train its employees and contractors to ensure competency, thus also eliminating possible negative impacts on their safety, health, as well as to the environment. Subsequently, an EAP has been formulated with the aim to approach the training of the employees and contractors in such a way as to encourage an awareness and

¹ MPRDA: Mineral and Petroleum Resources Development Act, Act No. 28 of 2002.

² EAP: Environmental Awareness Plan.

³ EMP: Environmental Management Programme.

⁴ ISO: International Organisation of Standardisation.

⁵ EMS: Environmental Management System

⁶ SHE: Safety, Health and Environmental

understanding, including an appreciation for the environment. It is anticipated that this will contribute to the optimisation of the environmental management currently in place at De Beers Kimberley Mines. An EAP will further more lead to the conscious prevention of environmentally harmful events (e.g. oil spills due to negligence), and an increased efficiency of the reporting of environmental emergencies.

As part of the EAP, a slide show has been developed and is attached hereto as **Appendix S**. The slide show has been explained in detail below, and can be used by the trainer as a guide for the intended purpose of the slide show. It is important to take into consideration that the level of education and literacy of the receiving audience might vary greatly and the explanations within the slide show are therefore kept simple.

10.2 OBJECTIVES OF THE ENVIRONMENTAL AWARENESS PLAN

In accordance with the requirements of Section 39(3)(c) of the MPRDA (2002), the objectives of this EAP are to:

- Inform employees and contractors of any environmental risks which may result from their work.
- Inform employees and contractors of the manner in which the identified possible risks must be dealt with in order to prevent degradation of the environment.

In general, the purpose of implementing an EAP is to optimise the awareness of those partaking in the mining and related activities which have the potential to impact negatively on the environment (e.g. reclaiming the identified tailings resources), and in doing so, promote the global goal of sustainable development.

10.3 CONTENT OF ENVIRONMENTAL AWARENESS PLAN

A number of key elements have been included in the EAP since it is considered that the majority of the workforce that undergo the environmental awareness training is generally not informed about the environment. The key elements include the following:

- An explanation of the basic key concepts.
- The importance of the environment, including the management thereof.
- Examples of environmental degradation.
- The role that the employees have in protecting the environment.
- Examples of pollution.
- Simple, easy-to-follow rules to protect the environment.
- South African laws which protect the environment.

Each of these aspects has been described in more detail below, and corresponds to the slides in **Appendix S**.

10.3.1 THE IMPORTANCE OF THE ENVIRONMENT TO MANKIND

Slide 1

The word environment is what we use to describe our natural surroundings. It is made of two main building blocks: non-living elements, and living elements. The non-living elements are air, water and soil, while the living elements are micro-organisms, plants, animals, and humans. The living elements all depend on the non-living elements for survival.

Slide 2

The natural environment is a system of energy, where energy is caught up by the plants, which in turn are used by consumers to live. Energy is put back to the energy cycle by scavengers and micro-organisms thriving on waste.

Slide 3

Ecosystems describe the relationships between the non-living and living building blocks of the environment, and these systems keep the energy cycle in balance.

Slide 4

People are part of this cycle. We rely on nature for our energy, and to get rid of our waste. Because of new machines, new products and ways of living, people are using too much energy. Too much waste is made too fast for nature to be able to break it down, and put the energy back into the energy cycle. This has caused the ecosystem to be disturbed and caused the energy cycle to be unbalanced. People will not be able to survive, unless a way to copy nature's way of balancing energy and waste can be found soon.

The main problem with this is that no one has been able to copy nature yet, and they probably won't be able to for a long time to come. That is why we have to look after the environment that we have now.

Slide 5

Mining makes money, and the people who work on the mines can make money to support their families.

Slide 6

The main problem is that mining can also destroy the environment, if care is not taken to protect it.

Slide 7

Sometimes it is possible not to affect the environment, but where part of the environment has to be destroyed so that we can mine, it can be put back when mining is finished, and we can try to make it like it was before mining. Slowly, natural processes will begin to take over, and the energy balance will be returned to what it was before mining.

Slide 8

Although the environment is thought about as one thing, it is made up of those building blocks we spoke about – non-living, and living elements. We need to protect each of the pieces of the building blocks, so that the whole environment can be protected. This is the reason that an Environmental Management Programme has been designed for De Beers Kimberley Mines.

10.3.2 WHAT IS AN ASPECT?**Slide 9**

An aspect is any part of an organisation's activity, product or service that can interact with the environment, e.g. oil, fuel and chemicals, or dust, or water.

10.3.3 WHAT IS AN IMPACT?**Slide 10**

It is any change to the environment, good or bad, which happens because of an organisation's activity, product or service. Some examples are:

- The pollution of the ground which makes the soil infertile, so nothing can grow in it.
- The pollution of the water which makes it unhealthy for people to drink or use to wash, and also for plants to use it to grow, or for animals to drink.

Some impacts can affect the environment more than others, and so some are more important than others.

Slide 11

Important environmental impacts all have:

- Unpleasant outcomes,
 - Legal liability.
 - Death and injury.
 - Pain and suffering.
 - Diseases.
 - Damage to property and equipment.
 - Financial costs.
 - Lost productivity.
- Contributing factors (things that cause them to happen).

- There is always a reason for an environmental accident.

WHAT IS ENVIRONMENTAL MANAGEMENT?

Slide 12

Environmental management is the control of human activities so that they don't affect the natural environment very much. It makes sure that there is no pollution (too much waste), and that the people living in the environment are healthy and are also mentally well.

Slide 13

How do we manage the environment at De Beers Kimberley Mines?

- We have a Safety, Health, Environmental, Quality and Community (SHEQC) Policy Statement which is posted in places where people will be able to read it easily, as well as communicated to all employees.
- We have an Integrated Management System in place, which makes sure that the mine does things the right way, and that the people and the environment at the mine are protected at all times, especially during the occurrence of emergencies.

10.3.4 WHY DO WE NEED TO MANAGE THE ENVIRONMENT?

Slide 14

We need to manage the environment because:

- No workplace can function without affecting the environment.
- The law says that we must look after our environment.

Slide 15

- Sometimes impacts can be felt away from the site, e.g. dust, and are very hard to fix.

Slide 16

- Impacts can sometimes be felt for a very long time.
- If nothing is done, the impacts can add to other impacts, and can become very expensive and hard to fix.

Slide 17

- Local communities, government and other Interested and Affected Parties (I&APs) expect to take care of the environment, so that their children and their children's children can use it if they want to.

10.3.5 WHAT CAN WE DO?**Slide 18**

- You must report all impacts that you see to your supervisor within 24 hours. They will then arrange for someone to find out what caused it, and what to do to fix it, and to stop it from happening again.
- Always work carefully so that you don't damage the environment.
- Always obey the environmental rules of the mine.
- You have the right to refuse work that may harm the environment.

10.3.6 EXAMPLES OF POLLUTION?**Slide 19****Example 1: Industrial waste on-site**

Aspect(s)	Industrial waste lying on-site outside the designated disposal area.
Result(s)	Industrial waste will not deteriorate or decompose due to natural processes.
Impact(s)	Industrial waste outside the designated disposal areas will pollute the natural environment.
	Industrial waste on-site will have a negative visual impact on the environment.
What to do	Dispose all industrial waste within the selected areas as set aside for disposal to avoid polluting the environment.
	Do not dump waste in the veld.

Slide 20**Example 2: Spilling of domestic waste**

Aspect(s)	Domestic waste outside the designated disposal areas.
Result(s)	Domestic waste not handled correctly will result in spillage of domestic waste onto the soils and / or areas outside the designated disposal areas.
Impact(s)	Spillage of domestic waste on the surface cause soil and groundwater pollution.
	The soil, groundwater and surface water will be polluted and will be less usable to people, animals and plants.
Impact(s)	The aesthetic value of the environment is impacted upon.
What to do	Dispose all domestic waste within the selected areas set side for disposal to avoid polluting the environment.
	Do not dump waste in the veld.

Slide 21**Example 3: Disposal of hazardous waste**

Aspect(s)	Hazardous waste not handled and / or disposed of correctly, which has lead to spillage or exposure of hazardous waste.
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Result(s)	Spillage will seep and pollute the surface and groundwater.
Impact(s)	Exposure of hazardous waste will pose a major safety risk depending on the toxicity thereof.
	The surface and groundwater quality will be impacted upon.
What to do	Handle all hazardous material in a responsible manner to limit potential spillage as well as limit the associated safety risk thereof.
	Store all hazardous waste within the selected areas.
	Report any spillage of hazardous waste to your supervisor immediately.

Slide 22**Example 4: Excessive erosion of surface areas**

Aspect(s)	Excessive erosion of soil within the mine boundary of De Beers Kimberley Mines.
Result(s)	Erosion of the surface removes soil from the area.
Impact(s)	The soil and vegetation of the relevant areas will be disturbed.
	The surface water flow patterns will be changed due to erosion.
	Soil will end up in the surface water, thus making it undrinkable to people and impacting on the surface water quality.
What to do	Report any excessive erosion to your supervisor as soon as possible.

Slide 23**Example 5: Sliding of tailings material**

Aspect(s)	Sliding of tailings material due to the instability thereof.
Result(s)	Tailings material might cover undisturbed soil.
Impact(s)	This poses a possible safety risk.
	Soil covered by tailings material will be sterilised.
What to do	Report any sliding of tailings material and / or instability of tailings resources to your supervisor within 24 hours.

Slide 24**Example 6: Leaking pipes**

Aspect(s)	Spillage of water due to leaking pipes.
Result(s)	Clean water spilling from a leaking pipe will flow to the surrounding environment.
Impact(s)	Leakage of clean water will result in contamination of clean water and therefore be less usable to people, animals and plants.
	Ponding of surface water will impact on the groundwater quality and quantity.
What to do	Report any leaking pipes to your supervisor immediately.

Slide 25**Example 7: Contaminated water on surface**

Aspect(s)	Contaminated storm water on surface.
Result(s)	Contaminated storm water will seep to the groundwater.
Impact(s)	Seepage of contaminated water as a result of contaminated water on surface will impact on the groundwater quality.
	Ponding will impact on the surface water impact.
What to do	Report any standing surface water to your supervisor within 24 hours.

Slide 26**Example 8: Blocked trenches**

Aspect(s)	Excessive silt blocks the storm water trenches within the Plant areas.
Result(s)	Contaminated water contained within the storm water trenches will flow to the surrounding environment.
Impact(s)	The surface water quality will be impacted upon.
	Potential ponding of contaminated surface water will impact on the groundwater quality and quantity due to seepage.
What to do	Report any blocked / damaged trenches to your supervisor within 24 hours.
	Regularly clean storm water trenches within the Plant areas to prevent silting.

Slide 27**Example 9: Blocked drains**

Aspect(s)	Blockage of domestic wastewater drains
Result(s)	Spillage of domestic waste water from a blocked drain will flow to the surrounding environment.
Impact(s)	Spillage of domestic waste water will impact on surface water quality and be less usable to people, animals and plants.
	Seepage of domestic waste water will impact on the groundwater quality and quantity.
What to do	Report any blocked drains and/ or spillage of domestic waste water to your supervisor immediately.

10.3.7 RULES TO PROTECT THE ENVIRONMENT

The following principles will be communicated effectively to newly appointed employees, employees returning from annual leave, as well as to contractors and visitors upon entering the mining area:

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- 1) Always stay on designated pathways.
- 2) Always stay within the speed limits on the mine.
- 3) Never overload haul trucks.

Slide 29

- 4) If you see any leakages from any of the dirty water management dams, or damage to any other management measures such as trenches, it must be reported to your supervisor immediately.
- 5) If you see that any boreholes are open or unlocked, report it to your supervisor immediately, or as soon as possible within 24 hours.
- 6) If you see any fires, including veld fires, notify your supervisor immediately.

Slide 30

- 7) Always separate waste according to the waste management procedure (e.g. separate domestic waste from industrial mining waste).
- 8) Never litter and throw all domestic waste into the designated bins / plastic bags.
- 9) Notify your supervisor immediately if there is an oil spill.

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- 10) Always use the toilets provided for your use. Never use the environment.
- 11) If any animals are seen within the Plant areas, within any of the pollution control dams, or in a situation where their lives or well-being may be in danger, notify your supervisor immediately.
- 12) No poaching (hunting of wild animals) is allowed on the site.

Slide 32

- 13) If you see anything wrong with the soil stockpiles or the discard dump / tailings resources, such as extensive erosion or potential collapse, report it to your supervisor immediately, so that it can be prevented or corrected.
- 14) Do not enter any of the rehabilitated areas at any time. Only designated employees or specialists may enter these areas for monitoring and repair purposes, and

Slide 33

- 15) If you see any water collecting on the surface in areas other than in dams, report it to your supervisor within 24 hours.

Failure to comply with these environmental rules will have severe consequences, and may even lead to dismissal.

10.3.8 LAWS WHICH PROTECT THE ENVIRONMENT IN SOUTH AFRICA

The following South African laws govern the protection of the environment, and as such must be adhered to:

Slide 34

- National Water Act, 1998 (Act 36 of 1998).
- National Environment Management: Air Quality Act, 2004 (Act 39 of 2004).
- Hazardous Substances Act, 1973 (Act 85 of 1973).
- National Environmental Management Act, 1998 (Act 107 of 1998).

Slide 35

- Constitution of the Republic of South Africa Act, 1996 (Act 18 of 2002).
- Constitution of the Republic of South Africa Amendment Act, 2001 (Act 34 of 2001).
- Constitution of the Republic of South Africa Amendment Act (Act 2 of 2003).

Slide 36

- National Road Traffic Act, 1996 (Act 93 of 1996).
- Mine Health and Safety Act, 1996 (Act 29 of 1996), and
- Occupational Health and Safety Act, 1993 (Act 15 of 1993).

10.3.9 CONCLUSION (OF SLIDE SHOW)

Slide 37

- Always be aware of the environment, and
- If we all do our part to protect the environment, our children's children will have the chance to use the resources of the earth, which we have today.

10.4 CONCLUSION

The awareness training of employees, supervisors, sub-contractors, contractors and visitors will ensure that co-operation in terms of environmental management will occur. This will contribute to the success of the environmental management programme, and thus to the environmental sustainability of the mine.

In addition, it will ensure the success of the mine regarding compliance with legislation, and avoid possible future liabilities and legal action as a result of a lack of environmental awareness.