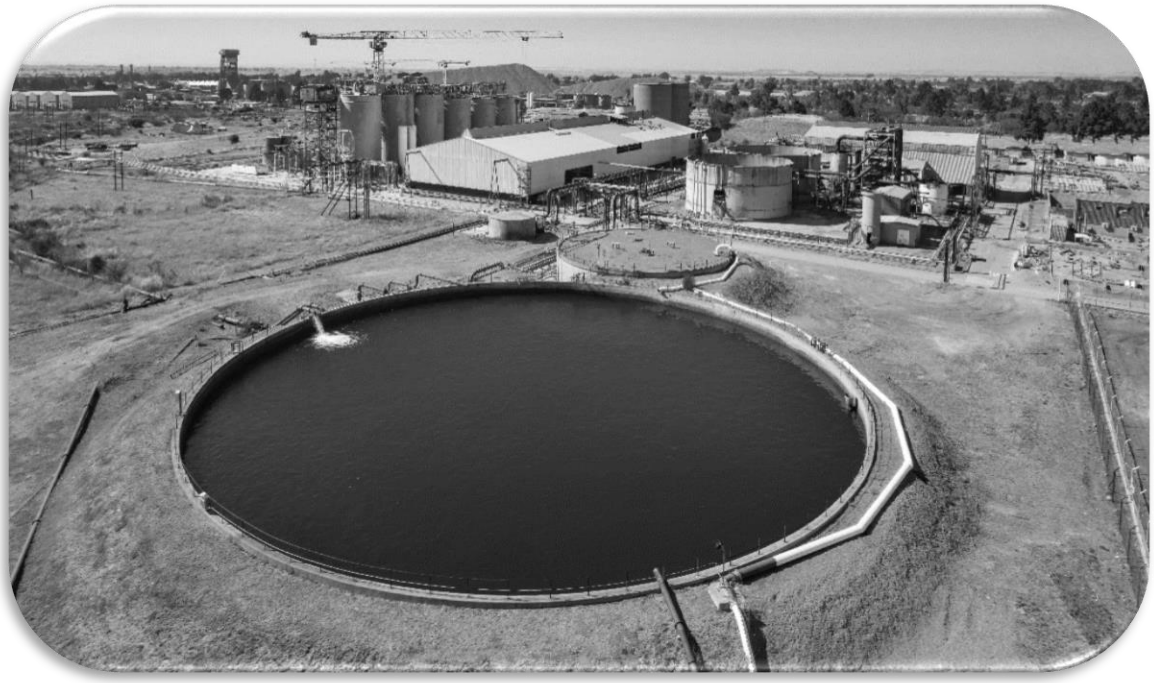
Harmony Gold Mining Company's Water Management Strategy for South Africa



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1. Introduction

Mining operations are inherently energy and water-intensive. We at Harmony are aware of the significant implications that climate change holds for our business activities, and recognize that water is a fundamental resource, which plays a vital role in the socio-economic well-being in the regions where we operate.

In recent years there have been growing concerns surrounding water availability and conservation in most of the water scarce areas where we operate. We understand that addressing water-related challenges is essential to our long-term growth strategy. As a result, our dedication to reducing water use is fundamental in our effort to achieve our sustainability goals. While we remain dedicated to the responsible development of mineral resources to generate profits for our shareholders, we also prioritize the adoption of cutting-edge technologies and strategies to minimize our water consumption and mitigate the environmental and social impacts associated with our activities.

Ensuring the security of our water supply is, therefore, an imperative cornerstone of our expansion efforts. The substantial volumes of water required for the development and expansion of our assets underscore the critical importance of managing its availability, accessibility, quality, and active stewardship. These factors are now key differentiators in our journey towards ensuring the sustainability of our business.

2. Scope

Selectiveness of controls are based on site specificity. As such, not all mitigation measures may be applicable to each and every one of Harmony's operations in South Africa.

3. Cornerstones of Harmony Water Management Strategy

Water management in mining is crucial for ensuring the sustainable and responsible extraction of minerals while minimizing environmental impacts and complying with regulations. Harmony therefore considered the following principles for the development of the South African water management strategy:

3.1 Water balance assessment to mitigate rising water costs

Rising water costs pose significant risks to Harmony, including increased operational expenses and reduced profit margins. Regulatory compliance costs and strained community relations can further impact our operations. Proactive water balances are essential to maintain financial stability and operational resilience.

3.2 Water supply security

It is imperative that Harmony become water-independent with the recent water constraints that local municipalities are facing. We are therefore prioritising the use of sustainable water sources, such as recycled or treated mine water, to reduce the impact on natural water bodies.

3.3 Water conservation and water demand management (WCWDM)

The conservation of water quality and quantity of surface and groundwater is integral to our planning process. Harmony aims to conserve water as a natural resource by improving the company's water

efficiencies through conservation initiatives such as, reusing and recycling. We aim to work efficiently guided by internal targets and peer benchmarking as it relates to water usage where applicable.

3.4 Water discharge and quality management

Water discharge and quality management in mining operations can pose significant environmental and health risks. The discharge of untreated or poorly treated water from mining activities can contaminate local water bodies and therefore Harmony and therefore Harmony strives to ensure compliance with local legislation and reduce our impact, thereby ensuring that we prevent environmental and health risks as far as practicably possible.

3.5 Tailings management

The long-term stability and environmental impact of tailings storage facilities require continuous monitoring and maintenance to detect leakage or seepage of hazardous substances into the soil and water. Where seepage poses a risk to pollution, mitigation measures are put in place to address this.

3.6 Silt and sediment control

Given the nature of the materials involved in our operations, silt and sediment control stands as a critical element in ensuring the integrity and effectiveness of our operational and pollution control dams, specifically in maintaining an acceptable freeboard level. Operational dams that require silt and sediment control will have effective measures implemented.

3.7 Monitoring and reporting

Harmony recognizes the need to account for water use in terms of current operations, especially considering the impact of climate change on its future growth strategy. Water management and accountability call for an interdisciplinary and multidisciplinary synthesis to achieve success.

3.8 Community engagement

Harmony recognizes that early and consistent community engagement and investment is valuable to its operations and project implementation. We will aim to understand and manage the company's operations to avoid an impact on communities and provide support where possible. Local communities, as part of the WULA process, to ensure that the risk of water unavailability is managed appropriately.

3.9 Emergency response planning

Proper documentation of all water incidents is essential, and the implementation of mitigation strategies is crucial to minimize their impact. Storm events can lead to inadvertent untreated water releases from our active tailings dams and return water dams, highlighting the necessity for mitigation measures that include maintaining adequate freeboard and establishing action plans to address such incidents promptly.

3.10 Reclamation and closure impact

Mine closure planning encompasses an assessment of both latent and residual effects stemming from mining activities, including their repercussions on water resources and bodies. The management of legacy challenges like acid mine drainage and potential water decant is an integral component of

Harmony's decommissioning and closure programmes, underscoring our dedication to responsible closure practices.

3.11 Innovation and Technology

In mining, innovation and technology have revolutionized water management. Remote sensors, data analytics, and advanced treatment methods optimize water use, reduce environmental impact, and enhance safety. Harmony will strive to optimise opportunities in our water management practises through innovation and technology.

3.12 Climate change adaption

Operations plan and design for adaptation to climate change where necessary and where possible. This drives conservation and design criteria for the storage and treatment of water in areas with increased or reduced rainfall. It also ensures that appropriate adaptation measures are in place to respond to changing climatic parameters sustainably.

3.13 Stakeholder engagement and management

Multi-stakeholder engagement is required with technical partners, communities, industry partners and government. Harmony recognizes that it competes with other local users for valuable water resources. Harmony engages with this important stakeholder grouping of other users to minimize the potential for competition and conflict over the scarce resource. As such, Harmony is facilitating water management with local government to try and assist in the managing of sanitation and water clean-up.

4. Water management strategy

With the above fundamental principles underpinning effective water management, we have formulated a comprehensive seven-point strategy aimed at integrating these principles into our operations. Each of these strategic points serves as a vital checkpoint where we thoroughly assess the material risks associated with our water management practices and subsequently devise and implement robust mitigation strategies to safeguard our company's interests and the environment.

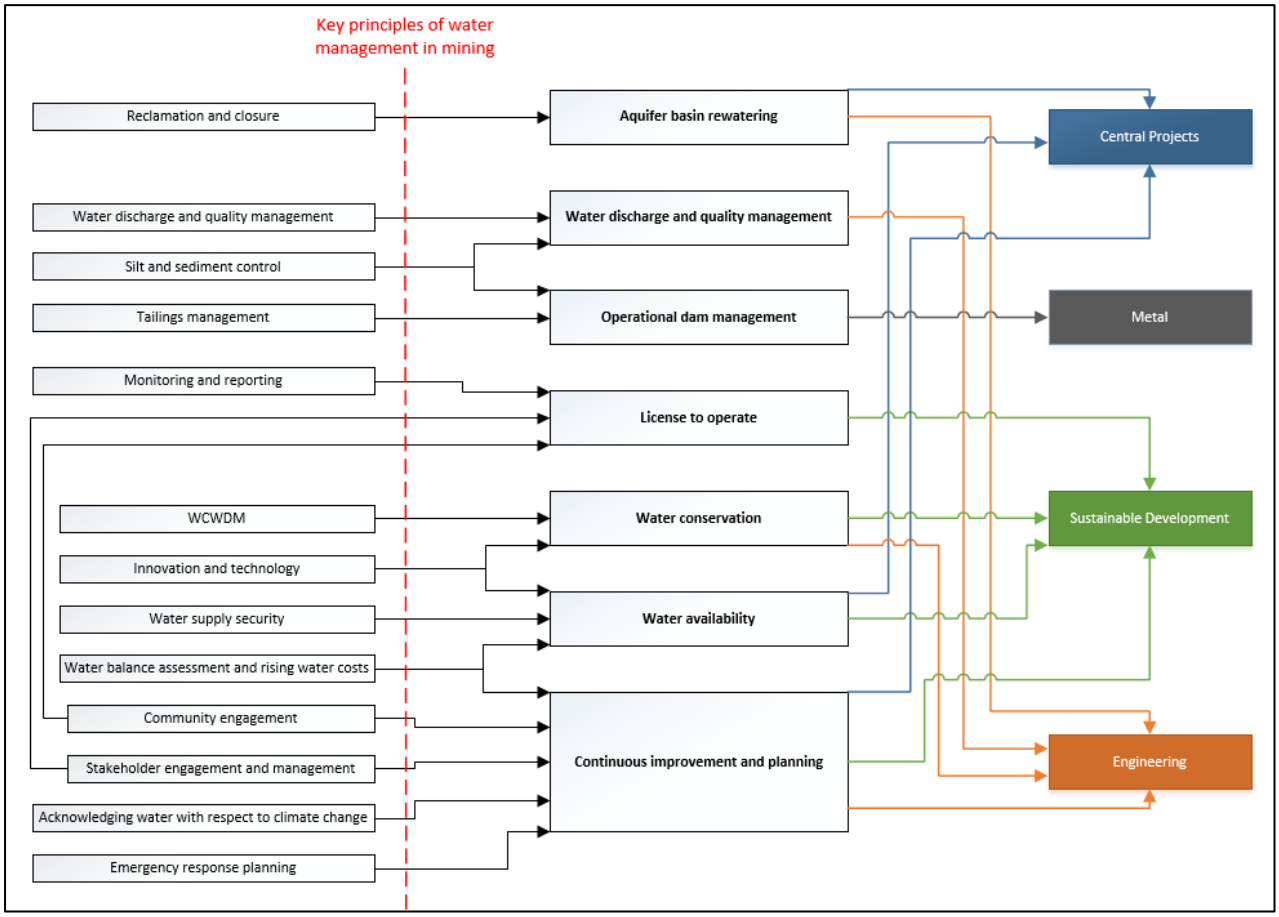

Figure 1: Harmony seven-point water management strategy

4.1 Aquafer basin rewatering

Our mining operations face a growing threat of water influx as we delve deeper into the aquifer and activate non-renewable subterranean water sources, often referred to as fissure water. This risk is exacerbated as we close operations, and we're witnessing a surge in water influx during our ongoing operations. Given the absence of efficient storage options underground, we must release this increasing underground water into surface water bodies.

4.1.1 Our material risks

- Increasing risk of flooding at the operations.
- Competitors' water inrush to our operations due to re-watering of old basins and unscheduled closure of neighbouring mining operations.
- Flooding of competitors due to our mining operations.
- Increasing pressure on underground pumping and water storage infrastructure.

4.1.2 Mitigation strategies

- Undertake hydrogeological assessments to identify the associated risks.

- Upgrades to underground water storage containment and plumbing.
- Identify and equip additional uses of fissure water.
- Reverse Osmosis (RO) plant installations to supplement the potable water supply and treat excess mining water, which will aid Harmony in becoming water independent.

4.2 Water Discharge

As the underground pressure on our water storage continues to rise, we are compelled to release treated mine affected water in accordance with regulatory mandates. In line with our unwavering commitment to safeguarding the communities where we operate from any potential risks stemming from our mining activities, we have established a zero-discharge objective for our South African operations, where possible. This goal underscores our dedication to responsible and environmentally conscious practices in the regions we serve.

4.2.1 Our material risks

- Mine licencing and authorisation rejections due to uncontrolled water discharges.
- DWS directives and fines.
- Pollution of surrounding water sources.
- Community unrest due to the perception of pollution and flooding.
- Shareholders and investors perception.

4.2.2 The mitigation strategies

- Active monitoring of water quality (surface water and groundwater), which will assist in Identifying the impact of our operation on the communities and environment.
- Implementing digital strategies, which will assist in proactive management.
- RO plant installations to supplement potable water supply and treat excess mine affected water.
- Increase surface water storage to improve water recycling and conduct feasibility studies to increase water storage to align with the life of mine.
- Developing and implementing desilting plans – future endeavour.
- CAPEX investment in water conservation strategies, which includes improvements in metering infrastructure and the implementation of water conservation and water demand management.
- Conducting water availability studies, which will assist in identifying and equipping additional users of excess water.

4.3 Water Availability

The escalating water scarcity issue at our South African operations has become a pressing concern. The intermittent interruptions in our access to clean drinking water and the uncertainty surrounding water availability for our upcoming mining ventures pose significant risks to the long-term sustainability of our business. The rising cost of having access to clean drinking water is also placing constraints on our business profitably.

4.3.1 Our material risks

- Local municipalities can no longer guarantee a stable potable water supply.
- Climate change resilience (droughts resulting in increased external water reliance).
- Potable water costs are rising.
- Financial loss due to operational disruptions.
- Future mining endeavours (growth) and exploration halted due to water constraints.

4.3.2 The mitigation strategies

- Development and maintenance of reliable water balances (current); and assessment of water availability and surety of supply for our operations (current and future).
- RO plant installations to supplement potable water supply and treat excess mine affected water.
- Surface pumping infrastructure and water storage improvements, to reduce future risks.
- To proactively address these challenges, we plan to collaborate with local municipalities, where feasible. Our strategy involves supporting municipalities with struggling wastewater treatment facilities, injecting capital for upgrades, and negotiating offset agreements for the treated wastewater, where feasible. This initiative aims to substantially reduce the volume of untreated sewage currently discharged into nearby surface water bodies. This endeavour underscores our steadfast commitment to enhancing the well-being of the communities in which we operate.
- Alignment of mine closure strategy with water availability at the operation in future.

4.4 Licence to operate

Maintaining a positive relationship with the local government and various stakeholders is crucial for the success and sustainability of any business. Ensuring strict compliance with these regulatory requirements demonstrates a company's commitment to responsible and ethical practices. It also helps build trust and credibility with the local government, community members, and other stakeholders because it shows that the company respects the legal framework in place to protect the environment and public health.

4.4.1 The risk:

- Mine licencing and authorisation issuing, rejections and withdrawal due to non-compliance.
- DWS (and other authorities) directives and fines.
- Shareholder and investor perception.
- Business Reputation.

4.4.2 The mitigation strategies

- Improve understanding of water uses at each of our operations for license conditions and compliance purposes.
- Understand the inter-relationship between our regional operations and neighbouring mines – future endeavour.
- Continuously updated water balances and data traceability.
- Data-driven reporting.
- Ensure the accuracy of reporting to different stakeholders.
- CAPEX investment in water conservation strategies.

4.5 Water conservation

Water conservation and demand management are vital in mining due to the industry's substantial water requirements and potential environmental impacts. Mining operations often rely on large volumes of water for various processes, making efficient use and conservation essential to minimize freshwater consumption and reduce strain on local water sources. Additionally, responsible water management through the recycling of mine affected water helps mitigate the risk of water scarcity, ensures compliance with regulations, and demonstrates the industry's commitment to sustainable practices, thus safeguarding the environment and maintaining positive relations with communities and stakeholders.

4.5.1 Our material risks

- Not achieving water efficiency requirements as per ESG targets.
- DWS licencing upkeep requires improvement in water efficiency benchmarks.
- Stakeholder and investor perception.
- Financial loss due to uncontrolled leaks and increasing pumping costs.

4.5.2 Mitigation strategies

- Enforcing water use hierarchy at all operations (prioritisation).
- Intensive pipe leak detection and repair initiatives.
- Data-driven process optimization (Improve metering).

- Awareness and employee training.
- Technology and capacity upgrades for intensive water users. Development of operation specific KPIs - future endeavour.

4.6 Operational tailings dam management

The effective and safe management of an operational dam in mining is paramount for water-related reasons. A well-maintained TSF ensures that tailings, which may contain potentially harmful substances, are securely contained to prevent water pollution or environmental contamination. Proper monitoring, maintenance, and engineering practices safeguard against dam failures, which can release vast amounts of water and tailings, posing significant risks to surrounding ecosystems and communities.

4.6.1 Our material risks

- Operating TSF outside of prescribed standard operating procedures (SOPs)
- Phreatic level within the TSF.
- Climate change increasing the intensity of storm events (1:50 and 1:100 years).
- Cyanide management and certification (The cyanide code).
- Uncontrolled release of surface water.
- Groundwater pollution through seepage.
- Dust pollution.

4.6.2 Mitigation strategies for operational dams

- Appointment of specialist geotechnical engineers.
- Compliance to legislative requirements.
- Enforcing water use hierarchy at all operations (prioritisation).
- Decanting system (Penstock and floating barge).
- Cycloning and Day-walling.
- Grassing and irrigation.
- Plume control through interception boreholes.
- Stormwater management of operational dams.
- Identifying priority dams for future desilting.

4.7 Continuous improvement and planning

The various mitigation strategies will need to be managed and prioritised. Central projects will be responsible for aquifer basin rewatering, water availability and improvement and planning. Engineering will be responsible for aquifer basin rewatering, water discharge and quality

management, water conservation and improvement and planning. Metallurgy will be primarily responsible for operational tailings dam management, whilst sustainable development will be responsible for water discharge and quality management monitoring, water availability, reporting and license to operate (compliance).

It is greatly important that the Harmony's water management strategy be dynamic and continuously evolving to changes in operation and climate. Furthermore, the water management strategy is an interdepartmental responsibility and therefore we need to ensure that the mitigation strategies are prioritised and rolled out.

Harmony aims to empower communities and employees throughout and beyond the life of our mines by being responsible to our environment during operations, restoring mining impacted land for alternative economic use post-mining and having approved mine closure commitments.

5. Governance

Harmony's systems and procedures are underpinned by effective governance and active management, and enables us to proactively evaluate, manage and mitigate risks.

We are committed to transparent and accurate reporting. We aim to go beyond compliance to continue building a profitable and sustainable company, guided by our purpose, which creates value for all stakeholders.

Harmony obtains assurance on selected key performance indicators (KPIs), such as our water KPIs through an external auditor, who applies the International Standard on Quality Control, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

The proposed 5-year Group target for water intensity improvements, water recycling and reduction in portable water consumption, are illustrated in the table below.

Water KPIs	**Proposed 5-year baseline target (FY2023-2027)**
	Recommended target
Water intensity improvements (% Kl/tonne treated)	10% by 2027
Water recycling (water recycled % of total water)	50% by 2027
Reduction in portable water consumption (% of total water used)	10% by 2027

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Sustainable Development Executive
Harmony Gold Mining Company Ltd

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