T he nature of mining dictates that air, water and energy management, biodiversity protection and land rehabilitation will consistently be key focus areas of our environmental stewardship. The degree to which we manage these at each of our operations will be influenced by their different geographies.

At an operational level, our work is governed by our Group Environmental Policy, Standards and Guidelines. Adherence to these requirements is tested during combined assurance audits. This overarching architecture aims for a consistent approach across our global portfolio, while also allowing operations to adapt their environment management programmes to varying operational, geographical, climate and regulatory settings.

Each operating site’s unique suite of controls is also maintained through its Environmental Management System (EMS), which is certified to the ISO 14001:2015 standard. Collectively, these processes and systems provide the foundation for securing and enhancing our licence to operate.

We continue to progress towards further integration between key functions. For example, in preparation for the recommencement of operations at our Obuasi mine in Ghana, we developed an enhanced management operating system that sets out the accountabilities and workflow maps within the environment function and between the environment and line functions. It is anticipated that this integration will contribute to improved environmental outcomes for the site.

Water
Water is a valuable and often scarce resource, making water management a vital focus area for the company. Our water is imported from three major sources: utility companies; surface water sources, which include rivers and lakes; and groundwater sources, which include groundwater draining into mine pits and into deep underground workings.

A primary objective of water management at site level, is to minimise the volume of imported water, often working towards a site-specific target. We also track performance by monitoring the water recycling percentage and the volume of water imported per tonne of ore treated at site level. Another primary water management objective is to prevent the contamination of water resources by our activities. Although we operate some zero discharge sites, operations in wet climates typically treat and release excess water in keeping with regulatory water quality discharge limits.

In aligning our water reporting to the ICMM Consistent Water Reporting guide, we undertook an analysis of our operating sites water context using the WWF Water Risk filter. The results of this analysis were adapted with local site knowledge and are summarised graphically on page 28. In addition, we present a group overview of our interactions with water over 2019.

In South Africa at our West Wits operations, we continue to manage acid mine drainage (AMD) that flows from the disused neighbouring mines each day. We have carefully managed the risk of water spilling from the West Wits water circuit by balancing our site water inventories. This somewhat delicate balance has thus far been achieved by accelerated water evaporation technologies and by using the water for the reprocessing of old tailings storage facilities after its acidity has been neutralised.

At Geita mine in Tanzania, we have initiated a project where the potential for using bacteria to directly remediate sulphate in groundwater, is being assessed. After a successful proof of concept field trial, the project is scaling up to a larger scale field trial. If this in-situ remediation approach succeeds, it has scope to be applied at other company operations.

Tailings
In response to the Brumadinho Tailings Storage Facility (TSF) failure, a coalition comprising the ICMM, the Principles for Responsible Investment (PRI) and UNEP co-convened an independent review of global tailings management practice. The aim was to establish an international standard on TSF management that seeks to eliminate catastrophic failures of TSFs.

Professor Bruno Oberle was appointed by the co-conveners as independent chair of the Global Tailings Review (GTR) panel. The GTR panel issued a public consultation draft in November 2019. AngloGold Ashanti provided comment on the draft standard in 2020, and if it enjoys the support of all three co-convenors, it will be adopted by the ICMM as a requirement for its members.

The Brumadinho TSF failure also resulted in a significant global push for increased transparency around tailings facilities, prompting a coalition comprising the Church of England Pensions Board (CoE), the Swedish Council on Ethics and the UN-supported PRI to request that global mining companies publicly disclose essential information relating to their TSFs. Our response, which will be updated when appropriate, can be found on our mine tailings disclosure document.
### Site Water Risk by Type

- **100%** Physical (scarcity or excess)
- **67%** Reputational
- **33%** Regulatory

### Site Water Opportunity by Type

- **77%** Improved efficiency
- **50%** Cost saving
- **50%** Social licence to operate

### Percentage of Sites by Catchment Stress Category (%)

- High stress: 17%
- Moderate stress: 75%
- Low or very low stress: 8%

### Group Site Water Sources and Local Climate Type (%)

- Arid and semi-arid: 57%
- Arid and semi-arid (low quality groundwater): 25%
- Arid and semi-arid (utility water): 19%
- Arid and semi-arid (surface water): 13%
- Tropical (surface, ground and utility water): 30%
- Dry sub tropical (surface water): 13%

### Water Diverted to the Environment without Being Used in Production Tasks: 17,003ML

- **21,637ML** imported from surface water
- **16,380ML** imported from groundwater
- **9,880ML** imported from water utility suppliers
- **25,688ML** harvested from rain on process facilities

---

228,306ML reused water

301,890ML needed to sustain core operational site tasks of:

- Surface and underground mining
- Underground mine cooling
- Ore milling and processing
- Tailings transport and deposition
- Dust suppression
- Dewatering
- Water Sanitation and Hygiene (WASH) services

76% reused water

67,343ML consumed through evaporation, entrainment and other task losses

6,241ML treated and discharged to surface water

---

RESPONSIBLE ENVIRONMENTAL STEWARDSHIP CONTINUED
In Colombia, AngloGold Ashanti is evolving the concept of mining as a tangible tool for social, environmental and economic development, with a ground-breaking plan to create – and integrate – a park and biodiversity centre into its Quebradona copper-gold project, in Colombia’s Antioquia province. This park has been designed to preserve the local environment in the area and to restore elements of the eco-system to their natural state.

This project is in line with AngloGold Ashanti’s ambition of reducing – and wherever possible offsetting – impacts on biodiversity.

The initiative is intended to gradually facilitate the regeneration of more than 2,500 hectares of indigenous tropical dry forest and high mountain forest. The re-introduction of this flora will help regenerate the area’s unique ecosystem, which has been impacted by farming and other land uses. AngloGold Ashanti Colombia believes the Park, will incorporate a series of innovative architectural designs and has the potential to attract tourism to the area, complementing the development opportunities brought by the mine.

“Our environmental legacy will be to improve the connectivity of the region’s ecosystems, developing our project with cutting-edge technology and good global practice, that not only respects and protects biodiversity, but seeks to improve the natural capital of the region”, Felipe Márquez, Colombia AngloGold Ashanti Senior Vice President said.

The environmental impact assessment for our Quebradona copper/gold mine development was submitted in November 2019. The development of the park is anticipated to take place in 2021 and, in a departure from traditional mine development models, will be integrated into the Quebradona project during construction. 1% of the project’s value needs to be invested in environmental improvement projects and through development of the park, we aim to promote conservation of the region’s water sources, fauna and flora. Extensive engagement with local communities took place in preparation of the plan, including Jerico, the nearest town to the proposed development site.

Colombia’s Ministry of Environment has declared tropical dry forests as ‘strategic ecosystems’ because of their role in conserving the biodiversity of plants and animals unique to the area. These forested areas have been steadily denuded from Colombia’s landscape amid a growing logging industry and increasing demand for agricultural and grazing land. Today, only 8% of the original land of tropical dry forest in Colombia remains, the tropical dry forest of southwest Antioquia, near Jericó, has practically disappeared. In studies conducted by an independent body, the Humboldt Institute, it has been found that these forests can provide an ecosystem capable of supporting more than 2,600 species of plants, 230 species of birds and 60 species of mammals.

The park will include a research centre that focuses on species indigenous to the area’s unique ecosystem. As it develops and integrates with the tropical dry forest of Jericó, the intention is to reconnect the biological corridor that once existed between a number of rivers and streams, allowing for the conservation and resurgence of species of plants and animals in the area.

Energy and climate change

For more than a decade, AngloGold Ashanti has been proactive in acting on climate change, both through its own strategy and through industry associations. In 2008, the company provided early leadership when it committed to an ambitious greenhouse gas (GHG) emissions intensity reduction target of 30% by 2022.

In the context of mining, emission targets become progressively more challenging to meet, given that mining is by its very nature more energy intensive each year. Lower grades mean more rock shifted and as mining progresses further away from infrastructure, so longer distances are travelled, requiring more energy. The group target was successfully achieved in 2018, ahead of the 2022 target date.

In 2019, we continued to mitigate our carbon footprint, marginally increasing our GHG emissions intensity by 1%, 31.8kg (2019) versus 32.1kg (2018) of GHG per tonne treated, and kept our absolute GHG emissions flat. This was despite a 3.7% increase in the total energy we used to sustain production. These improvements were led by continued benefits from energy efficiency gains at our South African mines, and which despite a 9.3% increase in the South African grid emission factor, managed a 8.5% reduction in their absolute emissions and a 9.2% reduction in their emissions intensity, compared to 2018.

External investor and consumer pressure around ESG issues, especially climate change, continues to intensify. This has been particularly acute in the past year and among some of AngloGold Ashanti’s largest shareholders. While additional asset sales will naturally lead to further reductions in emissions intensity, it is crucial for the company to develop a comprehensive new climate change strategy. This will seek to develop updated emission reduction targets, ensure that we insulate our operations against physical climate risks that may impact both our operations and host communities, implement appropriate climate disclosure systems and maximise further opportunities for cost-saving energy efficiency programmes.

We will be guided by, among other things, the ICMM’s updated Climate Change Position Statement and through use of the ICMM-hosted Mining Climate Assessment Tool (MiCA), which we have already used to model impacts from climate change on TSF design and construction.
In 2020, we also intend transitioning our primary climate change disclosure platform, which has historically been done under the Carbon Disclosure Project, to disclosing in accordance with the Financial Stability Board’s Task Force on Climate-related Financial Disclosure (TCFD) recommendations.

**Carbon tax**

The South African carbon tax was signed into law by President Cyril Ramaphosa and gazetted in May 2019. The first phase of the act came into effect on 1 June 2019. This phase applies to Scope 1 emitters until 31 December 2022 and contains tax-free emission allowances. In 2019, our South African operation’s Scope 1 emissions were under 17Kt and will not attract material carbon taxes for the 2019 period.

**Integrated closure management**

There is an increased focus on managing the social aspects of closure as operations wind down, which is consistent with the ICMM’s recently updated guidance on closure management. 

The social impact of closure is perhaps the most difficult element of closure to gauge and manage effectively. There is growing emphasis on contributing toward resilient and sustainable communities during the life cycle of the mining operation.

We are working to achieve this goal by engaging with our communities, allowing them to identify the projects they would like to see developed in the areas of health, education, agriculture, small business and supply chain development. Simultaneously, we will continue to rehabilitate disturbed land as we mine, through this we face a number of challenges, which include ASM (see page 35).

In Mali, the implementation of the Yatela mine’s closure plan remains on hold while the share purchase agreement with the government of Mali, signed in April 2019 and awaiting ratification, is finalised.

At Sadiola, mine operations ceased in 2018, while stockpile processing continued. An integrated mine closure plan was submitted to the government in October. In December, AngloGold Ashanti (AGA) together with its joint venture partner, IAMGOLD Corporation (IMG) agreed to sell their interests in Société d’Exploitation des Mines d’Or de Sadiola S.A. ("SEOMS") to Allied Gold Corp ("Allied Gold"). SEMOS’ principal asset is the Sadiola Mine located in the Kayes region of Western Mali. AGA and IMG each hold a 41% interest in SEMOS with the remaining 18% interest held by the Government of Mali (see press release for more details).

At Geita in Tanzania, the mine submitted an integrated mine closure plan to the National Mine Closure Commission in October 2019. Discussions around the posting of a rehabilitation bond, in the form of a bank guarantee, will start once the mine closure plan is approved.
2019 Reportable environmental incidents

### Incident description

**In early September,** the Savuka Gold Plant’s residue tanks overflowed due to operational challenges. This resulted in tailings slurry being released into a network of drainage canals beyond the plant boundary and reaching the Wonderfonteinspruit watercourse via the Welverdiend canal.

**In late September,** a pipeline, conveying tailings from the Mine Waste Solutions Plant to the Kareerand Tailings Storage Facility, failed near the Koekemoerspruit crossing, a stream that flows into the Vaal River. Subsequent water quality monitoring at key locations in the Koekemoerspruit and at the Midvaal Water Company’s intake, downstream in the Vaal River, confirmed its effects were limited to the contained area.

**During October,** at Siguiri mine’s process plant, construction work for upgrading of the spillage containment infrastructure was in progress when operational challenges with reagent make-up was experienced. This caused cyanide-bearing solution to drain to a temporary spillage pond located inside the process plant fence. A valve on the pipeline connecting this internal pond to an external spillage pond, which served to increase spillage holding capacity, was in the open position. This allowed an estimated 80m$^2$ of the cyanide-bearing solution to reach the external pond, causing the death of a cow and 4 birds that consumed the water.

### Our response

**Immediate response measures** were put in place to stop, monitor and mitigate the effects of the spill, which impacted an estimated surface area of 6,000m$^2$. Potentially affected parties downstream were notified, as were the Department of Water and Sanitation and the National Nuclear Regulator. The plant’s residue pumping, and control system was reviewed to ensure that tailings slurry can consistently be delivered to the Savuka Tailings Storage Facility.

**Pumping operations were suspended** and a containment berm was constructed downstream. Regulators and the landowners adjacent to the watercourse, were notified of the incident. Recovery of the impacted section of the Koekemoerspruit will be assessed through in-stream bio-monitoring by an independent specialist, following clean-up of the watercourse and adjacent surface areas impacted by the spill, an estimated area of 11,000m$^2$.

**Upon discovery,** immediate actions were taken to isolate and detoxify the water in the external pond. Regulators and local government representatives from Siguiri, were immediately notified.
We continue to manage our TSFs to ensure that they are safe and well maintained.

**Tailings storage facility management in Brazil**

Following the collapse in 2019 of the Vale Feijão Mine tailings storage facility (TSF) near the town of Brumadinho in Brazil that tragically left hundreds of people dead, the Brazilian government’s regulation of TSFs has become more stringent and obtaining licence approval is increasingly challenging. As a result of this changing regulatory environment, we will be decommissioning Serra Grande’s upstream TSF and AngloGold Ashanti Brazil is assessing a change from conventional tailings disposal to the dry stacking method. We have also increased the frequency of third-party TSF reviews so that they now occur biannually.

We have seven tailings dams in Brazil, six in the state of Minas Gerais and one in Goiás: Cocuruto, Rapaunha and Calcinados, located at the Queiroz Industrial Plant (Nova Lima, MG); CDS I and CDS II at the Córrego do Sítio business unit (Santa Bárbara, MG); Cuiabá Complex at the Cuiabá mine (Sabará, MG); and Serra Grande at the Serra Grande business unit (Crixás, GO). All of our structures have robust management and control systems and we continue to manage our TSFs to ensure they are safe and well maintained.

We have engaged with concerned communities to demonstrate the effectiveness of our management systems. In 2019, more the 850 people from our nearby communities participated in visits to TSFs. Meetings and training sessions were also held to educate local residents and to clarify any doubts or concerns they might have.

All our structures have siren alarm systems that notify residents of emergencies. To reassure communities and help them prepare for any potential emergency scenario, AngloGold Ashanti Brazil held a number of practice drills, simulating emergency situations. In 2019, three drills took place: in Crixás, in Nova Lima/Raposos and in Santa Bárbara. These drills involved people going to public assembly points using designated safe routes.

These efforts help to secure our licence to operate, and show we are working in good faith and in compliance with Brazil’s laws and regulations. They also emphasise that our first priority is the safety and health of our employees and the community members near our sites.

https://thevault.exchange/?get_group_doc=143/1580011239-An gloGoldAshantiMineTailingsDisclosurecertifiedbytheChairmanandChiefExecutiveOfficer.pdf