Gold Fields

Water Disclosure

CDP 2013

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Introduction

Question Pathway for the Introduction

0.1 Introduction

Please give a general description and introduction to your organization.

In February 2013, Gold Fields unbundled its KDC and Beatrix mines in South Africa into a separately listed company; Sibanye Gold. This CDP submission, however, reports on Gold Fields under the previous structure, with a total of 8 predominantly gold mining operations in South Africa, Ghana, Peru and Australia.

The location and nature of Gold Fields operations are as follows:

The South African operations are all underground mines:

1. KDC West & KDC East (26° 24'S and 27° 36'E)
2. Beatrix (28° 15'S and 26° 47'E)
3. South Deep (26º 25' S and 27º 40' E)

The Ghanaian operations are all open pit mines:

1. Tarkwa (5° 15' N and 2° 00' W)
2. Damang (5° 11'N and 1° 57'W)

The Australian operations are a combination of underground and open pit mines:

1. St Ives (31° 12'S and 121° 40'E)
2. Agnew (27° 55'S and 120° 42'E)

Cerro Corona is an open pit copper and gold mine located in Peru (6° 45'S and 78° 37'W)

Company Revenue for the period of 01 Jan 2012 – 31 Dec 2012:

R45,469 million

ISIN number:
ZAE000018123

CUSIP number:
38059T106

SEDOL number:
6280215

0.2 Reporting Year

Please state the start and end date of the year for which you are reporting data.

Enter Periods that will be disclosed
(01)/(01)/(2012) - (31)/(12)/(2012)

0.3: Reporting boundary

Question 0.3: Please indicate the category that describes the reporting boundary for companies, entities, or groups for which water-related impacts are reported.

Companies over which financial control is exercised- per consolidated audited financial statements

Question 0.4: Are there any geographies, facilities or types of water inputs/outputs within this boundary which are not included in your disclosure?

No

Water Management and Governance

1. Water Management and Governance

1.1: Does your company have a water policy, strategy or management plan?
Yes

1.1a: Please describe your policy, strategy or plan, including the highest level of responsibility for it within your company and its geographical reach.

Geographical reach	Description of policy, strategy or plan (2,400 characters)	Position of responsible person
South African Region	In 2012, Gold fields commenced the development of a 'Water Management Action Plan' for both the South African and West African Region. Until the Water Management Action Plan for the South African region has been finalized, the existing Water Protocol and Water Strategy, remain in place. The Water Protocol (February, 2011) defined the following 4 water related environmental objectives, which will be implemented on the long term: 1. Zero discharge of process water; 2. Potable water quality discharge of fissure water; 3. Uranium (and other heavy metals) discharge elimination; 4. Minimisation of secondary impacts; The **vision** of the water management strategy underlying the Water Management Action Plan is to develop and implement innovative, effective and efficient mine water infrastructure strategies, structures, processes and systems – supported by optimal resourcing. The development of the Water Management Action Plan has commenced and strives to; ▪ Identify, characterize and model all water flows, substance concentrations and loads on the participating mines – during pre-operational, operational and post operational phases ▪ Optimize all water uses and discharges to the benefit of the mines, its partners and communities through the deployment and management of appropriate water engineering technologies and infrastructure. ▪ Develop and manage a business model that will result in an optimal relationship between total cost, benefit and risk of ownership ▪ Improve and maintain the compliance framework	In 2012, the highest level of responsibility for water management was the position of Group Head Water Management. In 2013, after the company restructuring, this is the responsibility of the Sustainable Development Head at the South African Region

	In addition, all South African operations are certified to comply with the International Cyanide Management Code and are ISO 14001 certified.	
West African region	A Water Management Action Plan is currently being developed for the West African Region. The vision of the Water Management Action Plan is to develop and implement innovative, effective and efficient mine water infrastructure strategies, structures, processes and systems – supported by optimal resourcing. In the West African region water balance and flow modelling has commenced. Until the Water Management Action Plan have been finalized, the previous strategic focus is maintained, namely; - Compliance with national regulations; - Compliance with ISO 14001 standard; - Compliance with the International Cyanide Management Code; - Reduction of non-toxic discharges into the environment; The West African operations are certified to comply with the International Cyanide Management Code and are ISO 14001 certified.	In 2012, the highest level of responsibility for water management was the position of Group Head Water Management. In 2013, after the company restructuring, this is the responsibility of the mine's environmental manager.
Australian region	The Australian region is in the process of developing a regional Water Management Plan. This regional Water Management Plan will replace the existing water strategies and identify operation specific actions. In 2012, significant operational changes took place at both Agnew and St Ives (for example, St Ives closed its heap leach and Agnew changed focus on underground mining due to the higher grade ore found). These operational changes resulted in changes to water requirements, water management practices and therefore the water balances. The water balances are currently being updated and form the basis of the regional Water Management Plan. Water related key performance indicators will be developed as part of the Water Management Plan and linked to the score balance card of the mine manager. For so long as the Water Management Plan remains in development, the water strategies continue in place to ensure regulatory compliance.	In 2012, the highest level of responsibility for water management was the position of Group Head Water Management. In 2013, the highest level of responsibility for water management became the Vice-President and Regional Head of Sustainable Development in Australia
South American region	As reported in previous CDP Water Disclosure submissions, water management is of high importance at Cerro Corona, due to the history of poor environmental management by other mining companies in the region. For the last few years, Gold Fields has been involved in a joint water monitoring programme led by the National Water	In 2012, the highest level of responsibility for water management was the position of Group Head Water

	Authority. In 2012, focus has been on becoming compliant with new water discharging and receiving water body quality regulations which will be implemented in 2014 and 2015, as well as on post mine closure water management. Apart from compliance with National Regulations, Cerro Corona's water management strategy describes the following objectives: - Increase awareness for the rational use of water in Cerro Corona and local communities; - Ongoing compensation of water to Pilancones, Coymolache and the Tingo River; - Supply of water to Hualgayoc (Banco Minero Dam) to compensate for a water deficit; - Assist with a project to improve the water quality and distribution in Tingo's community; - Contribute financially to rehabilitation of environmental liabilities (not related to Gold Fields) in the Tingo and Hualgayoc Basins;	Management. In 2013, after the company restructuring, this is the responsibility of Cerro Corona's 'Tailing and Water Resources Manager'.

1.1b: Does the policy, strategy or plan specify water-related targets or goals?
Yes

1.1c: Please describe these water-related targets or goals and the progress your company has made against them.

Geographical reach	Type of target/goal	Target/goal description	Additional information (progress)
South African Region	Quality of discharges	Reduced risk of AMD – improved quality of discharge	In 2012, approval was given to proceed with the Liquid Gold Project feasibility study (R31.5 Million). This project will determine both the short and long-term water management strategy at the South African deep mine operations. The project is investigating the provision of treated potable and industrial water pumped from closed operations as one of several possible options. Should this option be deemed feasible, the revenue from sales could be used to finance AMD avoidance measures, such as separate pumping and treatment of AMD affected water and clean fissure water, thereby improving both the short and long-term quality of discharges. Another avoidance measure investigated during the feasibility study will be the sealing of underground contact points between AMD affected water and clean fissure water, thereby minimising potential mixing.
South African	Absolute	The goal is to reduce	At the South African operations, absolute

Region	reduction	the volume of water that is required in the operational processes.	water use reduction, through increased recycling and implementation of water efficiency measures, have received considerable attention over the past few years.
West African Region	Quality of discharges	Reduce conductivity to below a level of 1500 mS/cm.	Two new clarification and 2 new water treatment plants have been installed at Tarkwa in 2012 to comply with national water quality targets.
Australian Region	Absolute reduction	Reduction of water usage in the operational processes through increased water recycling and water efficiency measures.	Over the last few years, the Australian operations have consistently reduced total water consumption. In 2012, 7% less water was used compared to 2011.
South American Region	Quality of discharges	Compliance with current discharge regulations. Additionally, more stringent water quality discharge regulations are to be implemented in 2014 (regulation related to water quality discharge) and 2015 (standard related to the quality of the receiving water body). Cerro Corona is preparing to ensure compliance with these new regulations.	Cerro Corona is being strictly monitored by local communities and national authorities with regard to its water discharge quality due to mining legacy issues in the Hualgayoc region. A new water treatment plant was installed in 2012 to allow for additional tailing water treatment as well as to improve the quality of discharge to ensure compliance with the new regulations.
South American Region	Absolute reduction	Minimised usage of water is another target identified in Cerro Corona's water management strategy.	Though ground water withdrawals increased between 2011 and 2012, Cerro Corona still only utilises approximately 20% of the amount of water allocated to it under its water use licence.

1.2: Do you wish to report any actions outside your water policy strategy or plan that your company has taken to manage water resources or engage stakeholders in water-related issues?

Geographical reach	Type of action	Action	Outcomes
South African Region	Direct operations	The Liquid Gold Project feasibility study was approved and commenced in 2012. This project is expected to provide the	The envisaged long-term outcome of this project is reduced short term

		deep underground mines in South Africa and possibly (depending on the results of the feasibility study) also Gold Fields' other surface mines with an optimized long-term strategy on water management. The first deliverable of this project, namely water balances and flow modelling, has commenced.	and long term acid mine drainage potential at South Deep and long term acid mine drainage potential at the other deep underground mines -through the implementation of avoidance measures. These measures are envisaged to be funded by the revenue created from the Liquid Gold Project, although this will be confirmed once the feasibility stage of the project has been completed.
South African Region	Direct Operations	In 2012, Gold Fields obtained a regulatory directive that permits the continuation of water uses at the KDC-West operation, while the license application is still being processed. Engagement with the South African Department of Water Affairs is ongoing to obtain revised water licenses for KDC-East, as well as South Deep. The Department of Water Affairs has advised Beatrix, which had pre-existing water permits of indefinite length, that its current water usage remains authorized and it need not apply for a new license. However, Beatrix has nevertheless proactively submitted a water use license application which is currently being processed.	Legal compliance and therefore reduced liability and exposure to fines.
West African Region	Direct operations	In pursuit of environmental best practice and to comply with a directive from the EPA, Gold Fields commissioned the construction of two water treatment plants at its North and South Heap Leach Facilities at Tarkwa. Clarifiers were also installed at the heap leach facilities and the on-site laboratory was upgraded. The latter was as a result of an internal review that was performed to further enhance water quality management.	Improved water quality of discharges.
West African Region	Community engagement	Gold Fields has established a water and sanitation committee (WATSAN) in Ghana with a mandate to increase community access to potable water,	This action is expected to improve the quality of life of communities living around Gold Fields

		educate community members on hygiene and sanitation and train community members to maintain the established water infrastructure.	operations as well as the workforce. Furthermore, it carries reputational benefits for Gold Fields' and as such, will strengthen its social license to operate.
All Regions	Direct operations	A Group Environmental and Legal Due Diligence took place at all Gold Fields operations in 2012. Water performance indicators were assessed and externally assured by KPMG for inclusion in our Integrated Annual Review.	Apart from identifying potential liabilities and risks, this process increased group-wide understanding of environmental performance and identified opportunities for further improvement of water management.
All Regions	Transparency	Gold Fields discloses on a regular basis information related to its operations and associated impacts. Water related reporting is contained in, amongst others, the company's Integrated Annual Review, the Dow Jones Sustainability Index and Water Disclosure Project.	Through transparency, Gold Fields aims to increase trust and therefore strengthen its social license to operate.
Australian Region	Direct operations	Due to water scarcity in the Australian region in which Gold Fields' operates, diversification of water resources to increase security of supply remains important. In 2012, additional water sources were secured. Access to the Daisy Queen pit at Barrick was obtained and a borehole was successfully drilled at the Crusader Pit. This borehole is currently being equipped with a pump.	Through water supply diversification Gold Fields will increase security of supply.
Australian Region	Direct operations	In 2011, trials with solar desalination of the water in the Thunderer Pit were completed at St Ives. The purpose of this project was to extract the water from the pit, with this specific technology providing an additional advantage of water desalination. It was found that to empty the pit using the solar desalination technology will take at least 16 years. For that reason it was decided not to implement the solar desalination technology on a larger scale, but to investigate the possibility of pumping and discharging the water using other (conventional) energy resources.	Gold Fields investigated the potential of using renewable energy (solar) to empty the Thunderer Pit. As this technology did not prove to be successful, other technology options are currently under investigation In this way, Gold Fields aims to make the Thunderer pit operational again.
South American	Direct operations	At Cerro Corona a new water treatment plant has been installed and	Environmental compliance (also with

Region		commissioned in 2012. This water treatment plant allows for larger water volumes to be discharged (from the Tailing Storage Facility into local streams) and ensures high water quality.	new, stricter regulations expected to be implemented in 2014 and 2015) will reduce the company's potential liability to potential fines or potential stoppages.
South American Region	Direct operations	At Cerro Corona new clay liners and grout curtains were constructed on and around the tailing storage facility to prevent seepage into the Tingo River.	This action is expected to considerably reduce potential leakage from the Tailing Storage Facility.
South American Region	Direct operations	In 2012, a study into the post-closure water treatment requirements was conducted. Based on the results from this study (that post-closure water treatment will be required), post closure plans had to be updated.	This action was required to ensure short-term environmental compliance (study was mandatory) as well as long-term environmental compliance (complying with all water management regulations even post-closure.
South American Region	Direct operations	At Cerro Corona, continuous monitoring of the Tailing Storage Facility takes place. Both Gold Fields' staff, as well as an independent review board assesses the stability of the Tailing Storage Facility, reviewing both management practices as well as physical characteristics of the Tailing Storage Facility.	Reduced incident risk and therefore liability.
South American Region	Transparency and community engagement	Cerro Corona has implemented a comprehensive water monitoring process. This programme is managed by the National Water Authority and provides assurance to local communities on water quality. The quality of these samples is tested externally every six months. In addition, Gold Fields requested an external and independent study on water quality in downstream areas, as well as precautionary monitoring at two springs close to Cerro Corona.	Through this external, independent verification of water samples, Gold Fields' provides transparency on its water management activities to local communities. The intended outcome of these actions is to maintain a good reputation and a continued social license to operate.
Other: Peru, Chucapaca exploration	Supply chain and watershed management	Gold Fields decided in 2012 to downgrade Chucapaca from a project stage back to an exploration/scoping stage based on the feasibility study	This project is developed in order to demonstrate our commitment to creating

		outcomes. Gold Fields, however, still investigates other ways of developing the project and in the mean-time honours its agreements with local communities. One such agreement consisted of the funding of a 30 Million m3 water reservoir. Of this water, 20 million m3 is for local use in agriculture, etc. The remaining 10 million m3 will be sold to the Gold Fields JV. The income created from these sales will be used to maintain the water reservoir's infrastructure and reduce the costs for the users of the 20 million m3. This water reservoir will be built before the mine starts operations, following Gold Fields commitment to take care of water issues before starting to mine. Plans around the reservoir remain unaffected, although the scale of the initiative does mean its completion will be contingent on mine construction.	shared value and thereby securing the company's social license to operate.

Risks and Opportunities

2. Risk Indicators

Operations

2.1: Are any of your operations located in water-stressed regions?

Yes

2.1a: Please specify the method(s) you use to characterize water-stressed regions.

Method used to define water stress	Please add any comments here:
World Business Council on Sustainable Development (WBCSD) Water Tool	**Mean annual relative water stress index** has been used. This index compares the total water availability to total water use (domestic, industrial and agricultural use).

2.1b: Please list the water-stressed regions where you have operations and the proportion of your total operations in that area.

Country or Region	River Basin	Proportion of operations located in this region (%)	Further Comments
South Africa – Gauteng and Freestate	Orange River Basin	46%	
Australia – Western Australia	Western Plateau River Basin	19%	

2.2: Are there other indicators (besides water stress) which you wish to report which help you to identify which of your operations are located in regions subject to water-related risk?

Yes

2.2a: Please list the regions at risk where you have operations, the relevant risk indicator and proportion of your total operations in that area.

Country or Region	River Basin	Risk Indicator	Proportion of operations located in this region (%)	Further Comments
Peru – Hualgayoc Region	Tingo Maygasbamba and Hualgayoc Arascorgue River Basins	Economic water scarcity	10%	Economic water scarcity occurs when low water supply is caused by inadequate water management practices due to lack of financial resources or capacity.
Ghana – South Ghana	Pra River Basin	Economic water scarcity	24%	Economic water scarcity occurs when low water supply is caused by inadequate water management practices due to lack of financial resources or

				capacity.

2.3: Please specify the total proportion of your operations that are located in the regions at risk which you identified in questions 2.1 and/or 2.2.

100%

2.4: Please specify the basis you use to calculate the proportions used for questions 2.1 and/or 2.2.

Basis used to measure percentage	Please add any comments here
Production volumes	Production contribution is a percentage of overall ounces produced.

Supply chain

2.5: Do any of your key inputs or raw materials (excluding water) come from regions subject to water-related risk?
Yes

2.5a: Please state or estimate the proportion of your key inputs or raw materials that come from regions subject to water-related risk.

Country or Region	River Basin	Input or material	Proportion of key input or raw material that comes from region at risk (%)	Unit used for calculating percentage	Further Comments
South Africa	Tugela River Basin	Timber	0%	Volume or weight of material purchased	The South African operations obtain timber for underground support from Mpumalanga and KwaZulu Natal, which are both not water stressed.
South Africa	Orange River (Vaal River)	Cyanide	100%	Volume or weight of material purchased	All of South Africa's cyanide is obtained from Sasol, Sasolburg which is situated in a water stressed region. This cyanide makes up 18% of the total cyanide bought by Gold Fields.
South Africa	Orange River	Electricity	100%	Volume or weight of material purchased	Majority of Eskom's power plants are situated in water stressed regions obtaining water from the Orange River Basin.
South Africa	Tugela (Engen) and Orange (Sasol) River Basins	Diesel	41%	Volume or weight of material purchased	41% of the diesel purchased for the South African operations is obtained from a water scarce area (Sasol, Sasolburg).

Ghana	Volta River Basin	Electricity	0%	Volume or weight of material purchased	
Ghana	Pra River Basin	Diesel	0%	Volume or weight of material purchased	
Australia	South West Coast River Basin	Cyanide	0%	Volume or weight of material purchased	
Australia	South Western Plateau River Basin	Electricity	0%	Volume or weight of material purchased	
Australia	South East Coast River Basin	Diesel	0%	Volume or weight of material purchased	
Australia	South East Coast River Basin	Cyanide	0%	Volume or weight of material purchased	The Ghanaian operations obtain their cyanide from a company on the South East coast of Australia.
USA	Mississippi River Basin	Cyanide	0%	Volume or weight of material purchased	Cyanide used at Cerro Corona (Peru) is obtained from Memphis in the USA, which is situated in the Mississippi River Basin and is not water stressed.
Peru	Not known	Electricity	0%	Volume or weight of material purchased	Both electricity and diesel are obtained from Chiclayo in Peru. It is not clear what River Basin this city is situated in.
Peru	Not known	Diesel	0%	Volume or weight of material purchased	

3. Risk Assessment

Operations

3.1: Is your company exposed to water-related risks (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes

3.1a: Please describe (i) the current and/or future risks to your operations, (ii) the ways in which these risks affect or could affect your operations before taking action, (iii) the estimated timescale of these risks, and (iv) your current or proposed strategies for managing them.

Country or Region	River Basin	Risk type	Potential business impact	Estimated time scale (years)	Risk management strategies
South Africa	Orange River Basin	Physical: flooding	Flooding of mines could result in: ○ Contamination of shallow ground water sources ○ Flooding of urban areas ○ Increased seismic activity ○ Safety risk to mine workers This could result in financial liability and disruption of production.	1-5 years	The risk of mine flooding is currently being managed and is expected to be managed in the future through water pumping, to separate mine water from fissure water. Clean water is released into the natural environment, while contaminated water is cleaned to required levels and measurement before discharge (if applicable; i.e. the requirements of South Deep water use license is zero discharge)
South Africa	Orange River Basin	Physical: Declining water quality	Due to the physical properties of the Gauteng based mines, there is a risk of acid mine water being decanted into the environment. Decanting of Acid Mine Drainage water could cause: ○ Serious negative ecological impacts ○ Regional impacts on major river systems and other water sources	1-5 years	This risk is currently managed through mine water pumping, cleaning and discharge. Gold Fields has put in place a monitoring programme to continually check the volume and quality of water that is released into the natural environment (if permitted by our water

			This could result in financial liability.		use licence). In addition other relevant actions were taken, such as: - Review of emergency scenarios in the event of flooding. - Active participation in the Dolomitic Westrand Association. - Expansion of a continuous water monitoring and analysis system across the West Wits catchment area. - Continuous support of local water forums, enhanced engagement with environmental monitoring groups and active cooperation with external consultants. This risk is expected to remain relevant to Gold Fields in the future, even after mine closure. However, the purpose of the Liquid Gold Project, which feasibility study has commenced in 2012, is to have a strategy in place to prevent potential acid mine drainage in both the long and the short-term. The Liquid Gold Project aims at long-term sustainability, by creating revenue from treated water and thereby creating funds for acid mine drainage mitigation even post mine closure. The viability of this strategy is subject to the results of the completion of the Liquid Gold Feasibility studies, which commenced towards the end of 2012.

South Africa	Orange River Basin	Physical: Other - tailing dam stability	In the case of extreme weather events, tailing dams could be at increased risk of collapse. A collapsed tailing dam would have an environmental impact and might, depending on its location, damage infrastructure and cause casualties.	1-5 years	Gold Fields tailing facilities are designed in accordance with best practice standards and regularly reviewed based on management practices and physical characteristics. In 2012, Gold Fields commissioned an external expert review of all its 'live' Tailings Storage Facilities'. A similar audit was carried out in 2009. The audit found that all TSFs are generally stable, the management of freeboard strong and that permits are in place and complied with. Recommendations for improvements were also provided. .
South Africa	Orange River Basin	Physical: Increased water stress	South African operations are situated in areas which experience medium water stress. Increased water stress might disrupt water supply. Water shortages might disrupt operations.	1-5 years	This risk is managed through increased water efficiency, water recycling and water storage at the operations. The Liquid Gold Project is envisaged to manage this risk in the future by increasing access to clean water sources and more optimised water balance management.
Peru	Tingo River Basin	Physical: other – Tailing dam stability	In the case of extreme weather events (cyclonic rainfall) and seismic events, tailing dams pose a risk of unplanned discharges and structural failure as a worst case scenario. A collapsed tailing dam would have an environmental impact and might, depending on its location, damage infrastructure and cause casualties.	Unknown	Gold Fields appointed an independent review board, consisting of international tailings dam experts, to monitor the tailings dam at Cerro Corona. This board meets four times per year and reviews construction of the dam wall, filling procedures, stability, water management and conducts site visits to investigate whether the tailings dam is hydrologically contained. The tailing dam at Cerro Corona has been designed to withstand

					seismic events.
Peru	Tingo River Basin	Physical: other - Acid Mine Drainage	Acid Mine Drainage (AMD) is considered both a short-term and long-term risk at the Cerro Corona mine. AMD could cause pollution of local rivers and streams and probably result in high cleaning costs and financial liability.	current	The AMD risk is currently managed in the following ways: - The implementation of a full lifecycle risk mitigation strategy. - Continuous and comprehensive leach testing. - Integration of AMD mitigation measures into the design of all the components of the operation. - Integration of AMD management into the mine's environmental management systems. This risk is expected to require continuous management in the future.
Australia	Western Plateau Basin	Physical: Increased water stress or scarcity	Australian operations are situated in water stressed areas. Water shortages might disrupt production capacity.	1-5 years	Process water for Australian operations used to be obtained from boreholes. In order to have a more secure supply, both mines have started to diversify their supply sources. In 2012, Agnew diversified its water resources by obtaining access to the Daisy Queen pit at Barrick and drilling a borehole under the Crusader Pit. No final decision has been made on the mosquito well project at Agnew. At St Ives, focus has been on development of an updated water balance.
Australia	Western Plateau Basin	Physical: flooding	Flooding can cause an employee health risk while working underground. Furthermore, it is likely that operations would be disrupted	Current	Both mines have developed storm water management plans to manage this risk.

Australia	Western Plateau Basin	Physical: Declining water quality	Gold Fields has identified the early development of an underground salt plume at a Tailing Storage Facility created by a previous mine owner at Agnew.	Current	A study to determine the extent of this risk was finalized in 2012. Though the geophysical assessment was completed, technical recommendations from the consultants are expected mid 2013.
Ghana	Pra River Basin	Physical: Increased water stress or scarcity	During the dry season, water shortages have been experienced at the Ghanaian operations. If water shortages are experienced over longer periods of time, this could cause disruption of operations.	Current	This risk is being managed through increased storage, recycling and water efficiency practices. Furthermore, new water balances are in the process of being developed as part of the new Water Management Action Plan. These water balances will entail the entire mine (instead of aspect specific) and differentiate between seasons. Based on a good understanding of the current situation, the Water Management Action Plan will formulate a response on how to deal with seasonal water shortages.
Ghana	Pra River Basin	Physical: flooding	During the rainy season, flash floods do occur at the Ghanaian operations. These flash floods can cause pit flooding which has resulted in stoppages and in some cases, longer disruptions.	Current	This risk is managed through the implementation of increased pumping capacity at the pits. In 2010 and 2011, disruptions were experienced due to pit flooding. In 2012, no pit flooding occurred, which has been attributed to the increased pumping capacity installed during 2010 and 2011, as well as the implementation of a water runoff control system.
Ghana	Pra River Basin	Physical: declining water quality	The nature of the mining operation might result in silting of surrounding water bodies in the event of the release of high TSS loads. Such potential pollution could cause a breakdown in relationships with the local communities and eventually weaken the	1-5 years	In 2012, 2 new clarification plants as well as 2 new water treatment plants were installed to reduce the discharge of suspended and dissolved solids in water. Additionally, new equipment was

			company's social license to operate.		purchased for the on-site laboratory to allow for enhanced water quality monitoring.
Other: Global		Regulatory: increased difficulty in obtaining operation permit	Conditions to renew or obtain water use licenses have become stricter at all operations. Stricter license conditions will increase the water cost for the company. If a water license cannot be obtained or renewed, this could either increase operational costs (water has to be purchased elsewhere) or potentially close down operations that do not have access to alternative water resources.	6-10 years	By complying with regulations, supporting local communities in clean water access (as is done in Ghana and Peru) and continuously showing its commitment to minimize its impact on water resources, Gold Fields continues to pursue its vision of being a valued and trusted mining partner. As a result of this positive reputation and sustained commitment, the likelihood that Gold Fields will secure new or renewed water licenses increases.

3.2: What methodology and what geographical scale (e.g. country, region, watershed, business unit, facility) do you use to analyze water-related risk across your operations?

Risk Methodology	Geographical scale
Integrated multi disciplinary risk management process	**Facility**

Supply Chain

3.3: Do you require your key suppliers to report on their water use, risks and management?

No

Evaluation of the means to undertake screening of suppliers is currently taking place. This screening will focus on human rights components, but is expected to also include water indicators.

3.4: Is your supply chain exposed to water-related risks (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes

3.4a: Please describe
(i) the current and/or future risks to your supply chain,
(ii) the ways in which these risks affect or could affect your operations before taking action,
(iii) the estimated timescale of these risks, and (iv) your current or proposed strategies for managing them.

Country or Region	River Basin	Risk type	Potential business impact	Estimate time scale (years)	Risk management strategies
South Africa	Orange River Basin	Physical: increased water stress or scarcity	Increased water stress or scarcity is expected to be experienced most severely in regions which are already classified as water stressed. The following Gold Fields products are currently obtained from water stressed regions: - Municipal Water (Rand Water) - Electricity - Diesel (Sasol portion) - Cyanide Increased water stress in these regions could cause a disruption of production and therefore a disruption of supply to Gold Fields. This is expected to either increase operation costs (as products will have to be sourced from elsewhere for a premium) or disrupt Gold Fields' operations.	1-5 years	Dependency on municipal water is decreased through increased water efficiency and the Liquid Gold Project, which has driven significant reductions in the use of municipal water. A disruption of supply of any of the other products is best managed through diversified supply and availability of other suppliers.
Ghana	Volta River Basin	Physical: increased water stress or scarcity	In 2009, power supply at the Ghanaian operations was disrupted due to a drought which reduced hydropower production. This initially caused a disruption with associated loss of income. Later, diesel generators where installed, which increased operational costs (from on average US$0.17/kWh to US$0.42/kWh in 2012), but allowed for continued operation.	Current	In response to this electricity disruption, back up diesel generators were installed. Additionally, investigations into alternative sources of electricity (clean coal and biomass) were commenced.
Australia	South	Physical: increased	At the Australian Gold Fields' operations,	1-5 years	The risk of water supply disruption is

	Western Plateau	water stress or scarcity	there is a risk of disruption to electricity and municipal water supply as water stress or scarcity occurrences increase. Disruption of water and electricity supply could disrupt the operations and / or increase operational costs.		managed by increased water efficiency and diversification of water resources. Electricity efficiency should decrease dependency on electricity supply.
Global	-	Regulatory: higher water prices	Water is increasingly recognized as a valuable commodity, partly caused by increased water stress experienced worldwide. Water prices have increased significantly over the past few years and are expected to continue increasing. Higher water prices for Gold Fields' suppliers are expected to cause increased product prices, which will increase (if passed through) Gold Fields' operational costs.		By encouraging good water management practices, by setting an example, Gold Fields aims to decrease the impact of increased water prices on its suppliers and its product prices.

4. Impacts to business

Question 4.1: Has your business experienced any detrimental impacts related to water in the past five years?

4.1a: Please describe (i) these detrimental impacts, (ii) their financial impacts, and (iii) whether they have resulted in any changes to company practices.

Country or Region	Impact indicator	Description of Impact	Response Strategy
Ghana	Flooding	At Tarkwa, the Teberebie pit flooded several times throughout 2010 and 2011. Mining activities were halted during each flood event, as the pit needed to be dewatered and cleaned up. In 2011, a total of 161,359 budget tonnes of ore was not mined due to disruption caused by flooding. At an average gold concentration of 0.03 ounce of gold/tonne ore, a total of approximately 5,000 ounces were not mined as a result of the floods. At an average gold price (during 2011) of R10, 642/ounce, income was reduced by R53.2 Million. At an average Notional Cash Expenditure of 39%, a profit of approximately R32.5 Million was lost.	In 2011, an additional 4 high lift pumps and accessories were installed, at a total cost of R6.7 Million, to manage this risk. In 2012, an improved storm water management system was implemented to reduce the risk of flooding. In 2012 no flooding occurred.
Ghana	Water Stress	Low rainfall in Volta River catchment area in Ghana reduced hydro power availability in 2009. The financial implications of this event are mainly related to the capital cost required to buy diesel generators and the cost of operating the diesel generators. To produce electricity with the diesel generator is approximately R1.6/kWh more expensive than electricity purchased from the grid.	To compensate for reduced power availability, on-site diesel generators were installed, which caused diesel consumption to be increased by 250%.
South Africa	Poor water quality	Prior to February 2011, the KDC-East operation had been in compliance with the license granted to it in 2008. However, from February 2011 to September 2011, the water discharged from one of the shafts of the KDC operation covered by the KDC-East license exceeded the discharge parameters specified by the license. Gold Fields informed the DWA and other relevant regulators and has investigated the cause of the increased discharge. One of the key findings of the investigation was that the increased discharge was	Water monitoring frequency at the KDC-East mine was increased during the time that water quality was found to have been impacted and is still ongoing to ensure compliance with the directive.

		most likely due to external variables beyond the control of the KDC operation. Based on this information, the KDC-East Directive included an increase to the discharge limits of that specific discharge point. As of December 9, 2011, the date of issue of the KDC-East Directive, the water discharged from the shaft covered by the KDC-East water use license has been in compliance with the discharge parameters specified in the directive.	
Peru	Tightening of regulations	In Peru, more strict water quality discharge regulations are to be implemented in 2014 (regulation related to water quality discharge) and 2015 (standard related to the quality of the receiving water body). The financial implications of this tightening of water discharge regulations are mainly related to the capital costs of implementing the new water treatment plant; US$ 3,876,485. In Peru, increased rainfall has been experienced, leading to increased discharge requirements from the Tailing Storage Facility. Before being able to discharge, the water needs to be cleaned. The new water treatment plant, apart from fulfilling discharge requirements of the new regulations, also allows for increased discharge amounts.	A new water treatment plant was installed in 2012 to allow for additional tailing water treatment as well as improve the quality of discharge to ensure compliance with the new regulations.

5. Opportunities

5.1: Do water-related issues present opportunities (current or future) that have the potential to generate a substantive change in your business operation, revenue or expenditure?

Yes

5.1a: Please describe (i) the current and/or future opportunities, (ii) the ways in which these opportunities affect or could affect your operations, (iii) the estimated time scale, and (iv) your current or proposed strategies for exploiting them.

Country or Region	Opportunity type	Potential business impact	Estimate time scale (years)	Strategy to exploit opportunity
Company wide	Other: Reduced mine closure liability due to good water management practices	Gold Fields has identified good water management practices as an opportunity to reduce its mine closure liability. For example at the South African deep underground operations, the Liquid Gold project is expected to separate clean and impacted water, which will reduce cleaning and management costs after mine closure.	11-20 years	Several water management projects which are expected to reduce mine closure liability are currently being developed or implemented. Examples of these are the Liquid Gold project in South Africa, new clay liners and grout curtains constructed on and around the tailings storage facility at Cerro Corona, as well as the Water Management Action Plan under development in Ghana.
Australia	Cost savings	At Agnew, the installation of a Reverse Osmosis water treatment plant is being considered to treat salty ground water and transform it into potable water for employees. This water plant is expected to save on water purchasing costs.	1-5 years	Gold Field's is considering the implementation of a Reverse Osmosis plant at Agnew.
Ghana	Increased brand value	Gold Fields has established a water and sanitation committee (WATSAN) in Ghana with the mandate to increase local community access to potable water, educate local people on hygiene and sanitation and to train local people to maintain the established water infrastructure. This action is expected to improve the life of local communities and Gold Fields' workforce and therefore improve Gold Fields' reputation, increase its brand value and therefore strengthen its social license to operate.	Current	Gold Fields' is currently exploiting this opportunity through continued support to WATSAN.

South Africa	Increased brand value & sales of new products or services	The Liquid Gold project aims at providing Gold Fields with a long-term strategy on water management for its deep underground mines in South Africa. If proven to be possible during feasibility phase, potable water, as well as other products extracted from the water will be sold and thereby make the project financially sustainable.	1-5 years	The Liquid Gold feasibility phase was approved in 2012 and has commenced. Gold Fields has allocated a total expenditure of R31.5 Million to this feasibility study.
Peru	Creation of Shared Value	The Chucapaca water reservoir project is expected to improve Gold Fields' relationship with local communities, thereby strengthening its social license to operate and improving its brand value.	1-5 years	The Chucapaca water reservoir project consists of the funding of a 30 Million m3 water reservoir. Of this water, 20 million m3 is for local use in agriculture, etc. The remaining 10 million m3 will be sold to the Gold Fields JV. The income created from these sales will be used to maintain the water reservoir's infrastructure and reduce the costs for the users of the 20 million m3.
Company wide	Other: Water being major driver for climate change awareness	Gold Fields has experienced that water related events, such as increased rainfall at its operation in Peru and increased water stress at its operations in Australia, has increased internal awareness of climate change. This increased awareness stimulates its internal climate change mitigation and adaptation actions and thereby supports its climate change strategy.	Current	In 2012, Gold Fields developed a group wide Integrating Energy and Carbon Management Strategy. This strategy aims at reducing the company's emissions and thereby contributes to climate change mitigation. Furthermore, Gold Fields' regularly publishes articles to increase climate change awareness within its internal magazine 'Golden Age'.

6. Managing trade-offs between water and carbon emissions

6.1: Has your company identified any linkages or trade-offs between water and carbon emissions in its operations or supply chain?

Yes

6.1a: Please describe the linkages or trade-offs and the related management policy or action.

Linkage or trade-off	Policy or action
Linkage: through the implementation of this project, not only energy (and therefore carbon emissions) but also water usage is reduced.	Energy efficiency in chilled water systems at underground operations. Mine cooling at underground operations is applied through chilled water which is pumped down shafts. An increase in energy efficiency of the system results in an associated reduction of chilled water requirements. Systems like Pelton wheel turbines and 3 chamber pipe feeder systems recover energy and reduce water consumption. New 3 chamber pipe systems have been installed at KDC-West 5# and KDC-East 4# shaft in 2012.
Linkage: through the implementation of this project not only energy (and therefore carbon emissions) but also water usage is reduced.	Low flow showerheads. At KDC West and East, both the high, as well as low density shower heads, have been replaced in 2012 to low flow showerheads. These low flow showerheads reduce the water flow and thereby the energy required to heat water.
Linkage: through the implementation of this project not only energy (and therefore carbon emissions) but also water usage is reduced.	Switch from water to ice for cooling purposes at underground operations. Traditionally, chilled water is pumped down shafts to supply cooling to underground workings. All water pumped down the shaft must be pumped out of the mine again at a high energy expense. One possible means to reduce this energy use entails the replacement of chilled water with ice. As the amount of energy carried down the shaft with ice is significantly more on a mass basis than water, the use of ice significantly reduces the amount of water that needs to be pumped out of the shaft again and thereby reduces the energy consumption of the mine. An ice plant is expected to be constructed at Gold Fields' South Deep operation.
Linkage: through the implementation of this project not only renewable energy will be generated (and therefore carbon emissions reduced) but also water cleaning facilitated.	Renewable Energy – Bio-energy The KDC-West renewable energy project feasibility study was finalized in 2012. This project proposes the establishment of energy crops (either fast growing grasses or trees) at the KDC-West property. This biomass will be used in energy technologies for the generation of electricity, while cleaning the soil from heavy metals, providing employment opportunities to the local community and reducing emissions associated with conventional electricity generating technologies. Part of the pumped mine water will be used at the energy

	plantation to increase growth of the energy crops, while at the same time cleaning the water. For this reason, phyto remediating crops, with the potential to incorporate heavy metals and other pollutants into its structure, will be used. These pollutants can be extracted from the fly ash after combustion has taken place. This project is currently awaiting a decision on how to proceed further.
Linkage: through the implementation of this project not only renewable energy will be generated (and therefore carbon emissions reduced) but also water consumption reduced.	<u>Renewable Energy – Solar</u> Gold Fields is currently in the process of partnering on a solar project, to be developed on its Beatrix property. Solar electricity, apart from reducing emission reductions, also consumes considerable less water than conventional electricity generating technologies[1].
Linkage: by supplying waste water to the areas of land being rehabilitated, not only a sustainable waste water solution has been found, but land rehabilitation improved and therefore carbon sequestration increased.	<u>Mine land Rehabilitation</u> In Australia, waste water from the Biomax plant has been used for irrigation since 2009. The waste water contains nutrients and therefore provides a good medium for growth, especially at the Australian operations, where mine land rehabilitation is found to be very challenging due to low rainfall and low nutrient levels in the natural soil.

[1] Water Consumption of Energy Resource Extraction, Processing and Conversion (2010), Mielke, et al., Harvard Kennedy School, Belfer Center.

Water Accounting

7. Withdrawals and Recycling

Question 7.1: Are you able to provide data, whether measured or estimated, on water withdrawals within your operations?
Yes

Question 7.1a: Please report the water withdrawals within your operations for the reporting year.

Country or Region	River basin	Withdrawal type	Quantity (ML/y)	Proportion of data that has been verified (%)	Comments
South Africa: Gauteng	Orange River Basin	Groundwater	46,186.16	76%-100%	The substantial increase of groundwater withdrawal compared to 2011 is due to an additional shaft (shaft 10) being included in the water report.
	N.A.	Municipal	12,442.74	76%-100%	
South Africa: Free State	Orange River Basin	Groundwater	6,523.72	76%-100%	
	N.A.	Municipal	3,482.14	76%-100%	
Ghana	Pra River Basin	Surface	3,486.5	76%-100%	Surface water withdrawal is from the Taman River (Damang only) and on-site pits
	Pra River Basin	Groundwater	1,818.08	76%-100%	Pit water discharge (in order to allow for mining, not necessarily for usage within the operations) is added to the groundwater extraction. The substantial decrease in groundwater withdrawal compared to 2011 is due to reduced rainwater runoff into the pits due to an improved controlling system having been implemented. Pit

					water pumping takes place irregularly as it is only required when a pit is being mined.
	N.A.	Municipal	72.16	76%-100%	
Australia	Western Plateau	Surface	920.73	76%-100%	This water is obtained from a nearby freshwater dam
	Western Plateau	Groundwater	9,494.60	76%-100%	Extracted from Fractured rock aquifers
	N.A.	Municipal	752.95	76%-100%	
Peru	Tingo River Basin	Surface	1,531.81	76%-100%	Water obtained from rainwater in Tailing Storage Facility
	Tingo River Basin	Groundwater	1,764.94	76%-100%	

Question 7.2: Are you able to provide data, whether measured or estimated, on water recycling/reuse within your operations?

Yes

Question 7.2a: Please report the water recycling/reuse within your operations for the reporting year.

Country or Region	River basin	Quantity (ML/y)	Proportion of data that has been verified (%)	Comments
South Africa: Gauteng	Orange River Basin	46,787.87	76%-100%	The Loopspruit, Wonderfonteinspruit, Leeuspruit, into which Gold Fields' KDC operation discharges are sub-catchments of the Mooi river. The Mooi river is a tributary of the Vaal River, which is the largest tributary of the Orange river.
South Africa: Free State	Orange River Basin	9,694.69	76%-100%	This operation is situated in the Orange river Basin, but does not withdraw directly from the basin as it operates a closed water system.
Ghana	Pra River Basin	12,397.96	76%-100%	Reported water recycling is high due to

				water from the tailings being part of internal system (i.e. plant), but not classified under 'withdrawal'.
Australian Region	Western Plateau Basin	2,351.77	76%-100%	The Australian operations at St Ives and Agnew are situated within the Western Plateau Basin.
South America	Tingo River	12,768.18	76%-100%	Reported water recycling is high due to utilisation of a closed circuit water system.

Question 7.3: Please use this space to describe the methodologies used for questions 7.1 and 7.2 or to report withdrawals or recycling/reuse in a different format to that set out above.

Water balances

Question 7.4: Are any water sources significantly affected by your company's withdrawal of water? This question specifically asks for impacts due to withdrawal of water: therefore excluded impacts due to other mining activities.

No

Question 7.4b: you may explain here why your company's withdrawal of water does not significantly affect any water sources.

Gold Fields ensures that all its water withdrawals are in accordance with its permits and therefore national regulations. Environmental Impact Assessments are conducted for all new operations as well as extensions to existing operations. An assessment of the impact on the water body from which water is withdrawn usually forms part of these assessment. Though the exact percentage of withdrawal in relation to the size of the water body from which is withdrawn, is unknown, the impact is deemed insignificant as otherwise no permits for withdrawal are expected to have been obtained.

None of the water bodies from which Gold Fields withdraws water is linked to a Ramsar listed wetland or other protected areas. Furthermore, it is not expected that any of these water bodies from which Gold Fields withdraws water are particularly sensitive, as all required permits for withdrawal were obtained. All (potential) impacts are listed below:

In Ghana, groundwater is extracted from wells, and fissure water ingress from open pits. Both water withdrawal practices could potentially cause aquifer drawdown. To prevent groundwater table level reduction, operations in Ghana aim at minimizing groundwater usage by recycling as much water as possible. Furthermore, a limited amount of water is obtained from the Taman River. As treated water is also discharged into this river, impact is expected to be minimal.

Water supply for the Cerro Corona (Peru) operation is obtained through ground water extraction from wells (from open pit dewatering) and from storage of rain water in the tailings storage facility. The impact due to the extraction of ground water is reduced water flow in the streams in the Hualgayoc valley. To reduce this impact, water is released into the Coymolache area (5l/s) and Tingo

River (10 l/s) during the dry season. Furthermore, water stored in the Tailings Storage Facility (Tailing Storage Facility) is recycled for use in the process plant, thereby reducing water consumption. Water compensation to the rivers with water obtained from the Tailing Storage Facility is still ongoing.

At the Australian operations, water is extracted from fractured rock aquifers. Due to the even spread of dewatering and abstraction on local aquifers, groundwater levels seem to be maintained. At St Ives, limited amounts of water are obtained from a freshwater dam. Agnew obtains water from a nearby decommissioned pit (rainwater storage).

Dolomitic compartments in the West Rand (South Africa) historically filled with water, have been drained due to continued mining activities (fissure water pumping) in the area. This is a result of all mining activities in the area and cannot be attributed to a single company. As water from compartments might leak into underground mines and cause Acid Mine Drainage it is undesirable to fill compartments with water. The current plans are to keep the compartments drained.

Gold Fields South Africa obtains about a quarter of its water supply from the regional bulk water supplier Rand Water. Rand Water sources majority of its water from the Vaal River, Tugela River and the Lesotho Highlands. This water is transferred into the Vaal dam from which it is extracted. Due to the large amounts of water extracted by Rand Water, water sources are expected to be **significantly** affected by Rand Water's actions. Less water will be available downstream of these rivers and water sources then would be the case without water diversion and extraction.

8. Discharges

8.1: Are you able to identify discharges of water from your operations by destination, by treatment method and by quality using standard effluent parameters?

Yes

8.2: Did your company pay any penalties or fines for significant breaches of discharge agreements or regulations in the reporting period?

No

8.2a Please describe the location and impact of the discharge that was the subject of the significant breach(es), the associated fines and any actions taken to minimise the risk of future non-compliance.

Not applicable

8.3: Are any water bodies and related habitats significantly affected by discharge of water or runoff from your operations?

No

8.3b: You may explain here why your company's discharge of water does not significantly affect any water bodies or associated habitats.

Gold Fields monitors all of its water discharges and ensures that its discharges are in accordance with its permits and therefore national regulations. Though the exact percentage of discharge volume in relation to the volume of the water body into which it discharges is unknown, the impact is deemed insignificant as otherwise no permits for discharge are expected to have been obtained.

None of the water bodies into which Gold Fields discharges water are linked to Ramsar listed wetlands. Furthermore, it is not expected that any of these water bodies are particularly sensitive, as all required permits for discharge were obtained. All (potential) impacts are listed below;

The South African Beatrix operation operates a closed water circuit and South Deep has a zero discharge license. In 2012, overflows of the return dams at South Deep did occur, which resulted into low pH water discharge into the surrounding watercourse and shallow groundwater. These incidents were reported to the relevant regulators and measures agreed on with the regulator put in place. The KDC operations discharge permitted levels of treated water into Loopspruit, Wonderfonteinspruit and Leeuspruit. This water is partly relied on by downstream communities and for downstream agricultural practices. The 'Liquid Gold' project, currently in feasibility phase, investigates the potential of potable water production from the dolomitic aquifers in the West Wits Area. This activity might reduce water discharge into surrounding water bodies, though Gold Fields will at all times comply with the minimum amount of water that should be discharged to fulfil downstream water demand (as determined by the Department of Water Affairs). The Liquid Gold project focus will however be on long-term guarantee of water quality discharged into the environment.

At Damang, Ghana, the risk of Acid Mine Drainage has been identified, though found to be currently at immaterial levels. At Tarkwa, Ghana, non-toxic solids are discharged into the environment below

pollution limits set by the Environmental Protection Agency. The mineral deposit that is mined at Tarkwa is inert, and therefore there is no risk of Acid Mine Drainage. However, the nature of the mining operation can result in silting of surrounding areas. To prevent this from happening, water purification procedures are monitored and final water quality is tested on a regular basis (in 2012, the onsite laboratory was upgraded to allow for an expansion of water quality testing methods). In 2012, two new water treatment plants and 2 new clarifiers were installed at Tarkwa to ensure the quality of the water discharged into the environment meets the required standards.

The potential impact of Cerro Corona (**Peru**) on the Mesa de Plata and Corona creeks is mainly due to 'total suspended solids' seepage into the creeks by runoff water. The following actions have been undertaken to minimize the potential impact of 'total suspended solids' seepage into the creeks:

- Design, implementation and maintenance of diversion channels and erosion control practices.
- Design and implementation of a sediment pond and an automatic flocculation system to control sediments.

Due to these actions, sediment concentrations comply with the Peruvian Maximum Limits for discharge.

Cerro Corona's most important potential impact is from water discharge from the Tailing Storage Facility into the Tingo River. Water is stored in the Tailings Storage Facility (Tailing Storage Facility) for usage in the process plant. The Tailing Storage Facility has ponds to capture seepage from the dam and new ponds are going to be implemented to improve hydraulic contention of the Tailing Storage Facility. Water levels and quality in the Tailing Storage Facility are continuously monitored and water discharged from the Tailing Storage Facility complies with National Water Standards. A new water treatment plant was commissioned in 2012 to allow for increased amounts of discharge and to ensure compliance with more stringent water quality discharge regulations to come into effect in Peru in 2014 and 2015.

In Australia, St Ives discharges water into Lake Lefroy which is within the lease boundary and therefore not reported as discharge. Agnew has no discharge as the mine works with a closed system. Almost all of the water is reused except for excessively salty water which is placed within a tailing dam to allow for evaporation to take place.

Further Information

Though Gold Fields was not fined for any breaches, in July 2012, Ghana's Environmental Protection Agency (EPA) directed Gold Fields to suspend all discharges of water from its North and South Heap Leach facilities at Tarkwa. The EPA further required that instead of utilising longstanding dilution methods, which had ensured that discharging occurred within regulated limits, all such discharges should be treated through a water treatment plant to reduce conductivity levels (i.e. the amount of dissolved salts rather than any indication of toxicity per se). Although the EPA had permitted the dilution method for several years, Gold Fields:

- Suspended discharges;
- Commissioned the construction of two water treatment plants at the mine

In August 2012, the EPA lifted its suspension of activities at Tarkwa's Heap Leach facilities and – along with Ghana's Ministry of the Environment, Science and Technology – approved the continued dilution and discharge of excess water within existing legal limits, pending the completion of two new water treatment plants by 31 December 2012.

9. Water Intensity

9.1: Please provide any available financial intensity values for your company's water use across its operations.

Country or region	River basin	Financial metric	Water use type	Financial intensity (US$/ML)	Please provide any contextual details that you consider relevant to the understand the units or figures you have provided
South Africa: Gauteng	Orange River Basin	Revenue	Withdrawn	34,014	
South Africa: Free State	Orange River Basin	Revenue	Withdrawn	47,752	
Ghana	Pra River Basin	Revenue	Withdrawn	274,646	
Australia	Western Plateau Basin	Revenue	Withdrawn	93,712	
Peru	Tingo River Basin	Revenue	Withdrawn	168,833	

9.2: Please provide any available water intensity values for your company's products across its operations.

Country or Region	River basin	Product	Product Unit	Water Unit	Water Intensity	Water Use Type	Please provide any contextual details that you consider relevant to the understand the units or figures you have provided
South Africa: Gauteng	Orange River Basin	Gold	Ounce	kL	48.65	Withdrawn	
South Africa:	Orange River	Gold	Ounce	kL	34.62	Withdrawn	

Free State	Basin						
Ghana	Pra River Basin	Gold	Ounce	kL	6.75	Withdrawn	
Australia	Western Plateau Basin	Gold	Ounce	kL	17.81	Withdrawn	
Peru	Tingo River Basin	Gold	Ounce	kL	9.78	Withdrawn	