Module: Introduction

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W0.1

Introduction

Please give a general description and introduction to your organization.

Gold Fields Limited is an unhedged, globally diversified producer of gold with eight operating mines in Australia, Ghana, Peru and South Africa. Together these mines have an attributable annual gold production of approximately 2.2 million ounces. In February 2013, Gold Fields unbundled the Sibanye Gold assets which included the Beatrix and KDC mines in South Africa. Gold Fields expanded its presence in Western Australia by acquiring the Yilgarn South Assets (Darlot, Granny Smith and Lawlers mines) from Barrick Gold in October 2013.
Gold Fields has attributable gold mineral reserves of 46 million ounces and mineral resources of 102 million ounces. Attributable copper mineral reserves total 532 million pounds and mineral resources 910 million pounds. Gold Fields has a primary listing on the JSE Limited, with secondary listings on the New York Stock Exchange (NYSE) and the Swiss Exchange (SWX).
For more information please see the Integrated Annual Report (https://www.goldfields.com/pdf/reports/iar-2015.pdf) pages 97 – 101 relating to water.

Foreword by Nick Holland, CEO Gold Fields:

Gold Fields recognises that water stress is a growing global concern that any organisation doing business in the 21st century needs to understand and respond to. It is a material issue for Gold Fields due to:

- Water is becoming an increasingly scarce and expensive commodity globally
- Climate change is impacting water availability and storm intensity
- Water supply and quality is a critical concern for many of the communities close to our operations.

The Gold Fields Group water management guideline, implemented in 2014, focused on water stewardship, including identifying opportunities to enhance water reuse, recycling and conservation practices at all operations. In 2015, the operations focused on identifying projects to support these objectives and by year-end a total of 20 initiatives were listed, such as the use of in-pit tailings at our St Ives and Tarkwa mines. A number of these initiatives are already being implemented and they are expected to deliver multiple benefits. These include cost savings, reduced impact in water scarce areas, improved regulatory compliance, identification and mitigation of water-related risks, reduction of mine closure liabilities and enhancing Gold Fields' social licence to operate.
In recognition of the fact that responsible water management is a vital component of Gold Fields' licence to operate, Gold Fields has, since 2011, voluntarily submitted information relating to our water usage, goals and water-related risks to the CDP Water Disclosure Project.
We remain committed to responsible leadership to mitigate the impact that Gold Fields has on the water resources we use at our mines. Underpinning this is a commitment to transparent reporting on these impacts.

W0.2

Reporting year

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

Period for which data is reported
Thu 01 Jan 2015 - Thu 31 Dec 2015

W0.3

Reporting boundary

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

Companies, entities or groups over which financial control is exercised

W0.4

Exclusions

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

No

W0.4a

Exclusions

Please report the exclusions in the following table

Exclusion	Please explain why you have made the exclusion

Further Information

Module: Current State

Page: W1. Context

W1.1

Please rate the importance (current and future) of water quality and water quantity to the success of your organization

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital for operations	Important	Primary use of freshwater in Gold Fields' direct operations is vital for gold production. Water is used both in the mining and milling process. It is particularly important for transporting tailings slurries, dust suppression, washing of ores, underground refrigeration and the processing plant. In addition good quality freshwater is critical for maintaining the health of Gold Fields' employees. Primary use of freshwater in Gold Fields' value chain is important for gold production. The production processes of electricity, cyanide and diesel require sufficient amounts of good quality freshwater. Insufficient good quality freshwater therefore has the ability to impact Gold Fields' supply chain and in turn mine production. In addition freshwater is also particularly important for the downstream refining of gold.
Sufficient amounts of	Important	Important	Primary use of non-freshwater in Gold Fields' direct operations is important. Water re-use, recycling

Water quality and quantity	Direct use importance rating	Indirect use importance rating	Please explain
recycled, brackish and/or produced water available for use			and conservation is a key priority for Gold Fields. Rainwater is stored and reused at the Cerro Corona operation. In South Africa, the South Deep operation has 3 reverse osmosis plants that can treat 2-4Ml of water a day which saved water purchase costs by an estimated US$9000–12000/month. However, drought conditions reduced the volumes of available process water and forced the RO plants to be shut down during October 2015. In addition Gold Fields' Australian operations Granny Smith and St Ives withdraw brackish (hypersaline) water. Primary use of non-freshwater in Gold Fields' supply chain is important. In South Africa, Gold Fields' purchases electricity from Eskom (national power utility). Eskom has introduced desalination of polluted mine water for use at its power stations, in order to reduce the amount of freshwater used for electricity production.

W1.2

For your total operations, please detail which of the following water aspects are regularly measured and monitored and provide an explanation as to why or why not

Water aspect	% of sites/facilities/operations	Please explain
Water withdrawals- total volumes	76-100	All of the operations owned by Gold Fields (100%) are required to measure, monitor and report the total volume of water withdrawn on a monthly basis. The total withdrawal volumes are measured for water performance metrics. The metric used by Gold Fields is the volume of water withdrawn per ounce of gold produced. Gold Fields' total water withdrawals are reported as part of the GRI G4 reporting guidelines under indicator EN8. Measuring and monitoring the water withdrawals at frequent intervals also ensures that the withdrawal volumes fall within the water use license boundaries.
Water withdrawals- volume by sources	76-100	Gold Field's measures and monitors all withdrawals at each operation (100% of operations) per abstraction source. The eight Gold Fields operations withdraw water from four sources: Renewable groundwater, municipal water, fresh surface water and brackish (hypersaline) water. All eight operations withdraw renewable groundwater. Municipal water is withdrawn by four operations: South Deep, Tarkwa, St Ives and Granny Smith. Fresh surface water is withdrawn by four operations: South

Water aspect	% of sites/facilities/operations	Please explain
		Deep, Damang, Tarkwa and Cerro Corona. Gold Fields' Granny Smith and St Ives operations withdraw brackish (hypersaline) water. Certain water sources are vulnerable with respect to the integrity of the surrounding environment. These sources are actively measured and monitored at each of the operations. Frequent measurements and monitoring of each individual source allows Gold Fields to monitor withdrawal trends and to inform management decisions based on these trends.
Water discharges- total volumes	76-100	Gold Fields measures and monitors the total discharge volume of each of the operations that discharge water (100% of operations). The total discharge volumes require measurement and monitoring to ensure that each of the operation's discharged water falls within the required qualitative and quantitative parameters stipulated in its water usage license. Additionally, total discharge volumes are tracked to ensure that water balances are accurate and updated regularly.
Water discharges- volume by destination	76-100	Gold Fields requires all of its operations that discharge water (62.5% of operations) to measure and monitor the water volume discharged to each discharge destination. This is done to ensure that sufficient treatment of the discharged water is maintained and that volumes discharged to each source do not exceed the licensing boundaries and regulations. Fresh surface water discharge destinations are utilised by South Deep, Tarkwa, Damang and Cerro Corona. Granny Smith is the only operation that discharges water to a brackish destination. Agnew, St Ives and Darlot all operate within closed water cycles which result in zero water discharges.
Water discharges- volume by treatment method	76-100	As Gold Fields' operations have numerous processes, the volume of water discharged per treatment method needs to be measured and monitored for all operations (100% of operations). This is done to ensure that the quality and volume of the discharged water meets the licensing requirements. In addition the volume per treatment method is measured and monitored to ensure the maintenance of an accurate water balance between all processes.
Water discharge quality data- quality by standard effluent parameters	76-100	The water discharge quality data is measured and monitored at all discharge points of Gold Fields' operations (100% of operations). This is done to ensure that the quality of the water which is discharged is kept within the range permitted by the licensing requirements. Additionally, the measurement of discharge quality is reported in the Global Reporting Initiative questionnaire which requires water discharge quality as a parameter per discharge source.
Water consumption- total volume	76-100	Gold Fields measures and monitors the total amount of water consumed at each of its eight operations (100% of operations). Water consumption per ounce of gold produced is a performance metric that Gold Fields utilises continually to ensure that its operations are running as efficiently as possible.
Facilities providing fully-functioning WASH services for all workers	76-100	At Gold Fields, employee health is considered to be a vital aspect of business. As such, all operations (100% of operations) ensure that employees are provided with sufficient volumes and adequate access to clean and potable wash water for drinking and sanitation services.

W1.2a

Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
Fresh surface water	8357.43	Higher	The total fresh surface water withdrawals increased in this reporting year by 20% when compared to the previous reporting year's figure. The increased fresh surface water withdrawals occurred at four Gold Fields facilities: Cerro Corona (increased by 38%), Tarkwa (increased by 32%), Damang (increased by 16%) and South Deep (which in 2014 had no fresh surface water withdrawals). The Cerro Corona and Tarkwa operations account for 80% of the total fresh surface water withdrawals at Gold Fields (Cerro Corona accounts for 38% while Tarkwa accounts for 42%).
Brackish surface water/seawater	924.94	Lower	The Granny Smith operation is the only Gold Fields operation that withdraws brackish surface water. In the current reporting period, the Granny Smith operation reduced its brackish surface water withdrawal by 6.31 ML. This resulted in an overall decrease of 1% when compared to the withdrawal recorded in the previous reporting year. It is important to mention that the St Ives operation's renewable groundwater is also of a brackish nature. Due to it not being surface water, it is reported under the renewable groundwater category and fully accounted for in that category.
Rainwater	0	Not applicable	None of Gold Fields' operations can avoid taking in rainwater as it enters directly into its facilities. It is therefore difficult to separate these figures from the overall withdrawal of the operations. Surface water runoff that collects in the mining pits, is pumped back into the water system of the operation and accounted for as groundwater/pit water abstraction. Rainwater that accumulates on tailings dams of operations is treated and discharged if the amount of water is material when compared to withdrawals from other sources. Such water withdrawal is included in the overall operational water balance. In some cases the rainwater accumulating on tailings dams may be immaterial due to the large scale surface area or relatively low rainfall compared to water withdrawal.
Groundwater - renewable	23881.86	Higher	The withdrawal of renewable groundwater at Gold Fields' operations increased by 21% when compared to the withdrawals made in the previous reporting period. The overall increased withdrawals could be attributed to individual withdrawal increases at five operations: St Ives (22%), Agnew (49%), Cerro Corona (19%), Granny Smith (14%) and South Deep (180%). The increase could have been much larger, if renewable groundwater withdrawals at the Tarkwa and

Source	Quantity (megaliters/year)	How does total water withdrawals for this source compare to the last reporting year?	Comment
			Damang operations did not decrease by 15% and 51% respectively in the current reporting year. When comparing the quantity of renewable groundwater that South Deep withdraws to that of the other Gold Fields operations, it is relatively small. The South Deep operation accounts for 4% of the total renewable groundwater withdrawn while St Ives and Granny Smith account for 41% and 33% respectively. St Ives and Granny Smith thus account for the majority of the increased renewable groundwater withdrawals in the current reporting period.
Groundwater - non-renewable	0	Not applicable	None of the Gold Fields operations make use of non-renewable groundwater
Produced/process water	0	Not applicable	None of the Gold Fields operations make use of produced/process water from a third party source.
Municipal supply	2082.87	Lower	The 17% decrease in municipal supply withdrawals in the current reporting period was attributed to decreased withdrawals at the following operations: South Deep (13%), Tarkwa (36%), St Ives (28%) and Granny Smith (70%). South Deep accounts for 78% of the total municipal supply water withdrawals at Gold Fields.
Wastewater from another organization	0	Not applicable	None of the Gold Fields operations make use of wastewater from another organization.
Total	35247.10	Higher	Total water withdrawal increased by 17% during this reporting year. The higher withdrawals were attributed to increased fresh surface water (20% increase) and renewable groundwater (21% increase) withdrawals. The fresh surface water withdrawn accounts for 24% of the total water withdrawals for Gold Fields in the current reporting year while the renewable groundwater withdrawals account for 68%. As the combined withdrawal of these water sources account for 92% of Gold Fields' withdrawals, the increase in these two sources lead to a higher withdrawal figure than that of the previous reporting year. The increase in fresh surface water can be attributed to increased production and drought conditions.

W1.2b

Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
Fresh surface water	11043.82	Much higher	Gold Fields discharge to fresh surface water destinations increased by 98% in the current reporting period when compared to that of the previous period. The sharp increase in discharge to fresh surface water destinations could be attributed to increased water discharge at three operations: South Deep, Damang and Cerro Corona. South Deep's discharge increased from 231.51 ML to 495.05 ML (114% increase when compared to the previous reporting period). Damang, which had zero discharge in the previous reporting period, discharged 5487.92 ML in the current reporting period (accounting for 50% of the total fresh surface water discharge). Cerro Corona's water discharge to fresh surface water destinations increased from 1824.99 ML to 2632.31 ML (increase of 44% when compared to the previous reporting period).
Brackish surface water/seawater	7447.70	Higher	Granny Smith is the only Gold Fields facility that discharges water to a brackish surface water source. In the previous reporting period, 5955.08 ML was discharged from the Granny Smith facility. In the current reporting period, 7447.7 ML was discharged. This resulted in a discharge increase of 25% when comparing the value of the current period to that of the previous period.
Groundwater	0	Not applicable	No discharges were made to groundwater discharge destinations by any of Gold Fields' operations during the current reporting period.
Municipal/industrial wastewater treatment plant	0	Not applicable	None of Gold fields' operations discharged water to municipal facilities for treatment in the current reporting period.
Wastewater for another organization	0	Not applicable	None of Gold Fields' operations discharged water to another organisation in the current reporting period.
Total	18491.52	Much higher	The total water discharged increased by 60% when compared to the previous reporting period's figure of 11542.81 ML. The substantial increase could be attributed to larger quantities of water discharged at two operations: Damang and Granny Smith. Damang's discharge increased from 0 ML in the previous reporting period to 5487.92 ML in the current reporting period. Damang's discharge accounts for 30% of the total volume of water discharged in the current reporting period. Granny Smith's discharge increased by 1492.61 ML, 25% when compared to the previous reporting period. Granny Smith's facility accounts for 40% of the total discharge volume in the current reporting period. As these two

Destination	Quantity (megaliters/year)	How does total water discharged to this destination compare to the last reporting year?	Comment
			operations account for 70% of the total water discharged by Gold Fields, the increased discharges at these two operations resulted in an overall discharge increase.

W1.2c

Water consumption: for the reporting year, please provide total water consumption data, across your operations

Consumption (megaliters/year)	How does this consumption figure compare to the last reporting year?	Comment
16755.58	Lower	The total water consumption at Gold Fields reduced by 10% when compared to the consumption of the previous reporting year. Damang's water consumption figure for the current reporting period was -4029.72 ML, which indicates that more water was discharged than consumed at the operation. The large reduction in consumption at Damang was the main factor for reduced consumption at Gold Fields. Darlot and Granny Smith reduced their respective consumption figures by 7% and 30% when compared to the previous year's consumption figures. Darlot's consumption figure reduced from 542.07 ML to 504.26 ML while Granny Smith's consumption figure reduced from 1888.06 ML to 1322.22 ML. The large increase in water discharge at Damang and the subsequent decrease in water consumption offset the increased consumption at other Gold Field's operations. Consumption increased at South Deep (10%), St Ives (11%), Agnew (49%) and Cerro Corona (18%) mainly due to increased production output and tonnes of ore milled.

W1.3

Do you request your suppliers to report on their water use, risks and/or management?

No

W1.3a

Please provide the proportion of suppliers you request to report on their water use, risks and/or management and the proportion of your procurement spend this represents

Proportion of suppliers %	Total procurement spend %	Rationale for this coverage

W1.3b

Please choose the option that best explains why you do not request your suppliers to report on their water use, risks and/or management

Primary reason	Please explain
Important but not an immediate business priority	Gold Fields has conducted limited water engagement with its material suppliers. Material supplier engagement on water issues will be reviewed again during 2017, when the Group water objectives are revisited. During 2013, Gold Fields' South Deep operation engaged with Bedrock, who was at the time its primary supplier of timber. The engagement included discussions around climate change and the impacts of drought.

W1.4

Has your organization experienced any detrimental impacts related to water in the reporting year?

Yes

W1.4a

Please describe the detrimental impacts experienced by your organization related to water in the reporting year

Country	River basin	Impact indicator	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
South Africa	Orange	Phys-Drought	Plant/production disruption leading to reduced output	Gold Fields' South African operation, South Deep, conducts re-mining of its slimes dam. This process required large amounts of water at start-up. South Africa is currently in a drought cycle that is one of the worst in 40 years, which could continue for between 3-5 years. The drought disrupted the re-mining process of the slimes dam.	Approximately 6 months	The cost of downtime on Gold Fields' re- mining activities due to water constraints in the reporting period came to approximately US$ 900 000.	Infrastructure investment Other: water agreement with neighbouring mine.	Gold Fields' has two response strategies for this impact: 1. South Deep installed additional pipelines to better balance the water on site. 2. Gold Fields entered into an agreement with neighbouring company, which requires that company to discharge additional fissure water to enable South Deep to abstract in accordance with the mine's water use license.
Ghana	Volta	Phys-Increased water stress	Higher operating costs	Tarkwa and Damang source electricity from the Volta River Authority and the Electricity Company of Ghana. Hydropower schemes contribute some 47% of Ghana's	Approximately 1 month	The cost of running diesel generators at the Ghanaian mines was in excess of US$D10 million. The capital cost of the two Genser-	Supplier diversification Other: running of diesel generators	To address the current load shedding requirements, Tarkwa and Damang initiated a number of actions during 2015 as part of their five-year energy security plan. This included, making

Country	River basin	Impact indicator	Impact	Description of impact	Length of impact	Overall financial impact	Response strategy	Description of response strategy
				power, but with dam levels dropping rapidly, security of electricity supply is under threat. As a consequence Tarkwa and Damang experienced daily load-shedding initiated in Q4 of 2014 and continued through 2015. Daily load-shedding ranged between 25% – 30%. Apart from higher operating costs, electricity disruptions at Gold Fields' facilities led to an increase in diesel consumption.		owned gas turbine power plants is estimated at US$ 82 million.		more extensive use of diesel generators at Damang, amid relatively lower diesel prices, and reaching a power management agreement with the Energy Ministry for our Ghanaian mines. An important mitigating strategy is a 20 year PPA with independent US-based power producer, Genser Energy. Implementation of this plan commenced in 2015 and permits have been received from the Environmental Protection Agency (EPA) for the construction of two Genser-owned gas turbine power plants near the mines. By January 2018, Genser should be in a position to provide 100% of the power supply needs at Tarkwa and Damang.

W1.4b

Please choose the option below that best explains why you do not know if your organization experienced any detrimental impacts related to water in the reporting year and any plans you have to investigate this in the future

Primary reason	Future plans

Further Information

Module: Risk Assessment

Page: W2. Procedures and Requirements

W2.1

Does your organization undertake a water-related risk assessment?

Water risks are assessed

W2.2

Please select the options that best describe your procedures with regard to assessing water risks

Risk assessment procedure	Coverage	Scale	Please explain
Comprehensive company-wide risk assessment	Direct operations and supply chain	All facilities and suppliers	Gold Fields' risk assessment is based on the Enterprise-wide Risk Management (ERM) process which is aligned with the ISO 31000 international risk management standard, as well as the risk management requirements of South Africa's King III Code. The Group's top 10 risks and 5 regional risks are identified though the ERM process which prioritizes risks on the basis of probability and severity. Water risks are identified within the ERM process for both Gold Fields' direct operations and supply chain. In 2015, "water discharges/pollution and supply" is ranked at number 9 in the Group's top 10 risks. In addition to the overarching risk assessment, each operation implements an Environmental

Risk assessment procedure	Coverage	Scale	Please explain
			ManagementSystem (EMS), through which it assesses, manages, monitors and reports on water use and the quality of its discharges (where these occur).

W2.3

Please state how frequently you undertake water risk assessments, what geographical scale and how far into the future you consider risks for each assessment

Frequency	Geographic scale	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Facility	>6 years	Risk assessments are led by the highest levels of Gold Fields' management structure. The Audit Committee, a subcommittee of the Board, is responsible for the overall risk assessment system. This work moved to the reconstituted Risk Committee in early 2016. Managers undertake ongoing workplace risk assessments as per international standards (e.g. ISO 31000, ISO 14001 and SAMREC guideline), to ensure that all identified risks have the necessary control measures and mitigating strategies in place.

W2.4

Have you evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy?

Yes, evaluated over the next 5 years

W2.4a

Please explain how your organization evaluated the effects of water risks on the success (viability, constraints) of your organization's growth strategy?

Water quantity and quality have material effects on Gold Fields' growth strategy. One of the key risks relating to gold production (and therefore the company's growth strategy) relates to the requirement for sufficient amounts of good quality freshwater. Factors relating to water imports or purification therefore need to be considered. Furthermore, Gold Fields' water management actions have a bearing on the company's social licence to operate, which also directly affects the organisation's growth strategy. Gold Fields therefore remains committed to responsible water stewardship, which enables security of supply for its operations and shared benefits for its stakeholders.

Gold Fields' process to evaluate how water risk impacts its growth strategy includes a catchment-based water management approach. The social, cultural, economic and environmental value of water at the catchment scale is assessed to identify material water stewardship risks and provide context for operational water management. Each mine implements an Environmental Management System, through which it assesses, manages, monitors and reports on water use and quality. The aim is to maximise resource sustainability to achieve operational flexibility and cost savings, which positively impact the company's growth strategy.

The assessment of water risk impacts on the growth strategy are driven by the highest management levels. The Audit Committee, a subcommittee of the Board, is responsible for the identification and mitigation of new and existing risks, including climate change and water related risks. This work moved to the reconstituted Risk Committee in early 2016.

All new and existing water risks are taken into account when developing Gold Fields' growth strategy. In terms of growth, new mining projects are particularly susceptible to the loss (or non-achievement) of a social license to operate. For example, water scarcity risks at the Cerro Corona mine represent significant long-term challenges. The mine has therefore proactively implemented a range of responsible water management initiatives, including rain water storage and reuse, supply of potable water to nearby communities and water monitoring. Such approaches have played a key role in protecting Cerro Corona from the kinds of social tensions affecting other nearby mining operations.

W2.4b

What is the main reason for not having evaluated how water risks could affect the success (viability, constraints) of your organization's growth strategy, and are there any plans in place to do so in the future?

Main reason	Current plans	Timeframe until evaluation	Comment

W2.5

Please state the methods used to assess water risks

Method	Please explain how these methods are used in your risk assessment
Internal company knowledge WBCSD Global Water Tool Other: IMIU (International Mining Industry Underwriters) (yearly, as part of insurance risk assessment)	Internal knowledge of water risks is managed by the Board Audit Committee which is responsible for the identification and oversight of new and existing water risks across all operations. This work moved to the reconstituted Board Risk Committee during 2016. The water risks form part of the Group wide company risk register. Internal knowledge of water risks from each of Gold Fields' operations is also included through mine level water risk assessments. All risks identified have control measures and mitigating strategies in place. Gold Fields' uses the WBCSD tool because it assists with assessing and communicating company specific water use and risks relative to water availability. The tool compares a company's water use with validated water, sanitation, population and biodiversity information on a country and watershed basis. It also provides input into the WDP response which is then reviewed by the Vice President of Group Sustainable Development who is involved with the oversight of key water risks at a group level. The WBCSD tool is chosen to assess water risks as it assists Gold Fields in further understanding its water impacts and risks at a detailed regional and watershed level across all operations. The WBCSD tool is applied to all of Gold Fields' operations. Each year as part of Gold Fields' insurance risk assessment, the International Mining Industry Underwriters assess water risks for each operation. This method is used to identify water risks because it provides insight into possible insurance liabilities, e.g. extreme weather and water impacts, that Gold Fields' operations may be exposed to.

W2.6

Which of the following contextual issues are always factored into your organization's water risk assessments?

Issues	Choose option	Please explain
Current water availability and quality parameters at a local level	Relevant, included	Current water availability at a local level is addressed through operational level water balances. All of Gold Fields' operations are required to develop a dynamic and predictive water balance. In addition historic weather data and current weather patterns are monitored to assess the impact on water availability. Each mine's water use license requires that current water quality is monitored. Gold Fields has three reverse osmosis plants, one at Tarkwa, one at Damang and one at South Deep which clean process water before re-use, recycling or discharge. Internal company knowledge and the WBCSD Global Water Tool is used to assess this issue. This includes identifying key water

Issues	Choose option	Please explain
		availability and quality issues and risks, and reporting these on a quarterly basis to the SH&SD Committee of the Board. Water availability and quality issues forms part of the input to the company risk register
Current water regulatory frameworks and tariffs at a local level	Relevant, included	Risks associated with changes in regulations and water tariffs form part of the quarterly reporting requirements of the operations to the SH&SD Committee of the Gold Fields Limited Board. Key regulatory changes and risks associated with regulatory changes or tariffs would also be reported to the audit committee. Legal alerts regarding significant changes to water and environmental legislation are monitored by Gold Fields. Internal company knowledge is used to assess this issue.
Current stakeholder conflicts concerning water resources at a local level	Relevant, included	Many mining companies face increasing pressures over their social licence to operate. Whilst formal permission to operate is ultimately granted by host governments; the practical reality is that many operations also need the permission of host communities and other influential stakeholders to carry out their operations effectively and profitably. Internal company knowledge is used to assess the issue of current stakeholder conflicts concerning water resources at a local level. Gold Fields actively engages with the following groups – both formally and informally: • Central, regional and local government and their agencies; • Community-based organisations; • Traditional authorities; • NGOs; • Civil society; • Organised labour; and • Local businesses. All of Gold Fields' operations are required to implement culturally appropriate stakeholder engagement plans for all stages of the life-of-mine. It is a Gold Fields' requirement that all mines establish mechanisms through which communities can voice their grievances and complaints relating to social and environmental issues. Gold Fields' aims to assess and resolve any issues raised. Stakeholder issues relating to water are included in the group wide company risk register.
Current implications of water on your key commodities/raw materials	Relevant, included	This issue is assessed as part of Gold Fields companywide risk register. Key commodities/raw materials include: diesel, LPG, blasting agents, cyanide, cement, caustic soda, water and lime. This assessment of water risks associated with key commodities is conducted if there are indications that water supply/quantity might be an issue. Water risks also take into account water scarce areas and areas that have been previously exposed to water impacts. Internal company knowledge is used to assess the issue of current implications of water on key commodities/raw materials.
Current status of ecosystems and habitats at a local level	Relevant, included	All operations are required to be in compliance with applicable environmental regulations. Part of the environmental compliance consists of assessing water related risks and the potential impacts on ecosystems and habitats as part of Environmental Impact Assessments and the ISO 14001 certified environmental management systems. Water related impacts on ecosystems and local habitats would also be assessed as part of the group wide risk management process. Gold Fields' Ghanaian operations are actively managing this issue as they recently conducted a Biodiversity Baseline Project which included a flora and fauna assessment in the active mining area. This covered aquatic life, an ecological study, water quality, and plant and animal population figures. The project cost in the region of US$ 63 000 for the Tarkwa mine. A further amount of US$ 16 000 is expected to be spend on biodiversity management in 2016. In addition Gold Fields' South African operation South Deep undertakes annual wet and dry season aquatic bio-monitoring. This is

Issues	Choose option	Please explain
		completed by an external consultant.
Current river basin management plans	Relevant, included	Gold Fields adopts a catchment-based water management approach. This means understanding the social, cultural, economic and environmental value of water at the catchment scale. This is done in order to identify material water stewardship risks and provide context for operational water management. Internal company knowledge is used to assess the issue of current river basin management plans. In Cerro Corona aspects of catchment based plans are included. Gold Fields' has implemented a number of shared value water projects in Cerro Corona: • Joint water monitoring with the host community, to provide assurance around the mine's water impacts; • Construction of the Coymolache drinking water system to provide water connections to 35 families; • Rehabilitation of the main infrastructure that provides potable water to Hualgayoc City; • Completion of the first phase of Cuadrature drinking water system benefiting 85 families; • Replacement of 18 km of local water pipeline systems, including enhancement of water collection points, costing an estimated US$ 4.5 million. Current river basin management is not included at any of the other Gold Fields' operations.
Current access to fully-functioning WASH services for all employees	Relevant, included	Water is an important vector for the potential spread of pollution, making it a critical compliance issue as well as being a risk to the environment and human health if not responsibly managed. As employee health is vitally important to Gold Fields, all operations ensure that the workforce obtain access to clean potable and wash water for sanitation services. This issue is managed through internal company knowledge.
Estimates of future changes in water availability at a local level	Relevant, included	Estimates of future changes in water availability at a local level are assessed through internal company knowledge and the WBCSD Global Water Tool. This includes regional application of the Group Water Management Guideline as well as the development and implementation of Water Management Action Plans. All operations were required to develop updated Water Management Action Plans in line with the Group Water Management Guideline by the end of 2015. During 2015, all of the operations undertook a self-assessment gap analysis to produce Water Management Action Plans. All of Gold Fields' operations are required to have a dynamic and predictive water balance in place to assess future water availability at a local level. The water balance is a fundamental tool for understanding current and future water management requirements. Water balances enable decision making regarding the current and future security of Gold Fields' water supply.
Estimates of future potential regulatory changes at a local level	Relevant, included	All of Gold Fields' regions have representatives that regularly engage with Government, via associations or directly, on water issues and potential regulatory changes. Tracking of key regulatory changes is also undertaken at a Group level. Any risks highlighted form part of the group risk register. The feedback from these engagements is then used to identify risks related to regulatory changes and the associated mitigation measures. Estimates of future potential regulatory changes at a local level are assessed through internal company knowledge.
Estimates of future potential stakeholder conflicts at a local level	Relevant, included	All of Gold Fields operations are required to implement culturally appropriate stakeholder engagement plans for all stages of the life-of-mine. It is a Gold Fields requirement that all mines establish mechanisms through which communities can voice their grievances and complaints about

Issues	Choose option	Please explain
		the group. Estimates of future potential stakeholder conflicts at a local level is assessed using internal company knowledge.
Estimates of future implications of water on your key commodities/raw materials	Relevant, included	The assessment of water implications on key commodities is conducted if there are indications that this might be an issue; i.e. in water scarce areas and based on past impacts such as flooding of access roads in the Australian region. Key commodities/raw materials include: diesel, LPG, blasting agents, cyanide, cement, caustic soda, water and lime. Estimates of future implications of water on Gold Fields' key commodities/raw materials is assessed through internal company knowledge as part of Gold Fields company wide risk register.
Estimates of future potential changes in the status of ecosystems and habitats at a local level	Relevant, included	The status of an ecosystem or a species is usually updated through legislation. Therefore if a particular ecosystem or habitat becomes endangered then this will generally be updated in the local environmental legislation. Legal alerts regarding local environmental legislation are monitored by Gold Fields head of compliance as well as other key regional management. Any associated risks are assessed by the group wide company risk register. Estimates of future potential changes in status of ecosystems and habitats at a local level are assessed through internal company knowledge.
Scenario analysis of availability of sufficient quantity and quality of water relevant for your operations at a local level	Relevant, included	Scenario analysis for quantity and quality of water for operations at a local level is assessed through internal company knowledge. This includes two methods namely water balances and weather monitoring and data. All of Gold Fields' operations are required to have a dynamic and predictive water balance in place. Gold Fields' Australian operations monitor weather through the Australian Government Bureau of Meteorology. Risks associated with quantity and quality of water form part of the input to the company risk register.
Scenario analysis of regulatory and/or tariff changes at a local level	Relevant, included	Regulatory changes and tariffs which may impact on Gold Fields' business are considered at a group and regional level. Any risks associated with this issue are identified as part of the group wide risk assessment process as well as business as usual assessments related to the purchase cost of key inputs such as water. All of Gold Fields' regions have representatives that regularly engage with Government, via associations or directly, on water issues and potential regulatory changes. Scenario analysis of regulatory and or tariff changes at a local level are assessed through internal company knowledge.
Scenario analysis of stakeholder conflicts concerning water resources at a local level	Relevant, included	Future risks are identified as part of the group wide risk assessment. If future risks have the potential to significantly impact on the operations but are still uncertain, scenario analysis will be conducted. Such analysis can provide an estimated range of potential implications of the risk.
Scenario analysis of implications of water on your key commodities/raw materials	Relevant, included	Future risks are identified as part of the group wide risk assessment. If future risks have the potential to significantly impact on the operations but are still uncertain, scenario analysis will be conducted. Such analysis can provide an estimated range of potential implications of the risk.
Scenario analysis of potential changes in the status of ecosystems and habitats at a local level	Relevant, included	Future risks are identified as part of the group wide risk assessment. If future risks have the potential to significantly impact on the operations but are still uncertain, scenario analysis will be conducted. Such analysis can provide an estimated range of potential implications of the risk.
Other	Not relevant,	Not applicable

Issues	Choose option	Please explain
	explanation provided	

W2.7

Which of the following stakeholders are always factored into your organization's water risk assessments?

Stakeholder	Choose option	Please explain
Customers	Not relevant, explanation provided	Gold Fields delivers its product to refineries and does not engage directly with customers beyond a refinery level. Therefore customers are not factored into the company's water risk assessments. It is also important to note that gold is an inert material.
Employees	Relevant, included	All relevant employees at a corporate, regional and operational level are engaged with and included as a stakeholder in Gold Fields' water risk assessments. Gold Fields' method of engagement with employees includes comprehensive employee surveys which provide a holistic view of employee concerns. These are run every second year with shorter surveys taken annually.
Investors	Relevant, included	Investors, specifically Environmental, Social and Governance (ESG) investors, require proof of sound water management practices. As water management is of interest to this stakeholder, they are factored into the company's water risk assessments. Gold Fields' method of engagement with investors is via the Investor Charter which aims at regaining and growing investor confidence in Gold Fields.
Local communities	Relevant, included	Gold Fields recognises that local communities are an integral part of water management practices. Even if Gold Fields appropriately plans and manages its own water requirements, the company runs a risk of losing its social license to operate if local communities are exposed to water related impacts. Therefore, local communities are factored in as a stakeholder and form part of water management practices, planning and risk assessments. Gold Fields' method of engagement with local communities includes formal and informal meetings with community based organisations, traditional authorities and local businesses and government. All of Gold Fields' operations are required to establish mechanisms through which communities can voice their grievances and complaints about the group. Gold Fields then aims to have the issues assessed and resolved.
NGOs	Relevant, included	Gold Fields engages with key NGOs on water risks and water management practices, where appropriate. Gold Fields actively identifies and engages with the representatives of NGOs on a regular bases both formally and informally. For example in South Africa, Gold Fields engages on a formalized basis with the Federation for a

Stakeholder	Choose option	Please explain
		Sustainable Environment, which has a strong focus on water issues.
Other water users at a local level	Relevant, included	Where relevant, other water users at a local level are also incorporated in water risk assessments. Examples of other water users with whom Gold Fields engages at a local level, are farmers and communities of nearby towns. Gold Fields' method of engagement with other water users at a local level includes formal and informal meetings with community based organisations, traditional authorities and local businesses. In South Africa communities in nearby towns such as Westonaria, Bekkersdal and Simunye are engaged with. In Australia the remote locations of the operations has resulted in fewer neighbouring water users at a local level.
Regulators	Relevant, included	Gold Fields engages with regulators at a local level to gain insight into possible future regulatory changes. Through this engagement, regulators at a local level are factored into water related risk assessments. All of Gold Fields' regions have representatives that regularly engage with Government, via associations or directly, on water issues and potential regulatory changes.
River basin management authorities	Relevant, included	Gold Fields engages with river basin management authorities at a local level to gain insight into possible water quality and availability risks as well as future regulatory changes. Through this engagement, river basin management authorities at a local level are factored into water related risk assessments.
Statutory special interest groups at a local level	Relevant, included	Relevant local statutory special interest groups are factored into Gold Fields' water risk assessments. An example is Gold Fields' active engagement with the Far West Rand Dolomitic Water Association in South Africa. Gold Fields actively identifies and engages with the representatives of statutory special interest groups at a local level on a regular basis through formal and informal meetings.
Suppliers	Relevant, included	If suppliers operate within water scarce areas and if Gold Fields' believes that it has a direct impact on business then they would be incorporated into the risk assessments.
Water utilities/suppliers at a local level	Relevant, included	Water utilities and suppliers are an important stakeholder for Gold Fields due to the importance of ensuring water security. Therefore these stakeholders are factored into water related risks assessments and engagement takes place regularly. Gold Fields actively identifies and engages with the representatives of water utilities/suppliers at a local level on a regular basis through formal and informal meetings.
Other	Not relevant, explanation provided	Not applicable

W2.8

Please choose the option that best explains why your organisation does not undertake a water-related risk assessment

Primary reason	Please explain

Further Information

Module: Implications

Page: W3. Water Risks

W3.1

Is your organization exposed to water risks, either current and/or future, that could generate a substantive change in your business, operations, revenue or expenditure?

Yes, direct operations and supply chain

W3.2

Please provide details as to how your organization defines substantive change in your business, operations, revenue or expenditure from water risk

Each of Gold Fields' operations are exposed to water related risks with potentially substantive impacts. Water risks form part of Gold Fields' risk assessment. Risks are classified as strategic and operational, as the materiality of the two differ. Therefore separate matrixes are used for strategic and operational risks. The two risk matrixes are used to assess the severity and probability of each risk. Depending on the risk score, Gold Fields will decide if the risk warrants a position on the Group Risk Register. The risk score determines the position on the register. Gold Fields' definition for substantive change is based on one day loss of production if the probability of the incidence occurring is high such as once a week, once a month or once every fortnight. Substantive change from water risks applies to Gold Fields' operations as well as its suppliers that have a direct impact on operational performance.
The most important water related risks in 2016 for Gold Fields are:
- Losing social license to operate across all operations. The establishment and maintenance of a strong social licence to operate from Gold Fields' host communities – and regional and national governments – is essential for the sustainability and growth of the business. Gold Fields manages this risk through the implementation of Shared Value initiatives, community engagement and investment so as to avoid delays or disruptions at operations caused by communities
- Losing license to operate from a compliance perspective across all operations. Gold Fields is required to comply with regulations under its permits and licenses.

Failure to do so could result in the curtailment or halting of production at the affected locations
- The risk of water reductions for operations in South Africa and Australia, as these regions are classified by the WBCSD tool as water stressed. South Africa is currently experiencing one of the worst drought cycles in 40 years, and as a result South Deep's reverse osmosis plants have not been operational since October 2015. Australian operations have difficulty obtaining good quality freshwater, as the naturally available water is hypersaline. This water needs to be treated before it can be used in mine processes increasing operational costs. Though currently not experienced, the risk of reduced water availability has the potential to disrupt operations.

W3.2a

Please provide the number of facilities* per river basin exposed to water risks that could generate a substantive change in your business, operations, revenue or expenditure and the proportion this represents of total operations company-wide

Country	River basin	Number of facilities exposed to water risk	Proportion of total operations (%)	Comment
South Africa	Orange	1	11-20	Gold Fields defines facilities as operations which include mining and processing.
Australia	Other: Western Plateau	4	31-40	Gold Fields defines facilities as operations which include mining and processing.
Ghana	Other: Ankobra	2	21-30	Gold Fields defines facilities as operations which include mining and processing.
Peru	Other: Tingo	1	11-20	Gold Fields defines facilities as operations which include mining and processing.

W3.2b

Please provide the proportion of financial value that could be affected at river basin level associated with the facilities listed in W3.2a

Country	River basin	Financial reporting metric	Proportion of chosen metric that could be affected within the river basin	Comment
South Africa	Orange	% global production capacity	11-20	Gold Fields defines facilities as operations which include mining and processing. All of Gold Fields' operations due to the nature of mining are affected in some way to water related risks, however this is at varying degrees and all risks are covered by management activities.
Australia	Other: Western Plateau	% global production capacity	31-40	Gold Fields defines facilities as operations which include mining and processing. All of Gold Fields' operations due to the nature of mining are affected in some way to water related risks, however this is at varying degrees and all risks are covered by management activities.
Ghana	Other: Ankobra	% global production capacity	21-30	Gold Fields defines facilities as operations which include mining and processing. All of Gold Fields' operations due to the nature of mining are affected in some way to water related risks, however this is at varying degrees and all risks are covered by management activities.
Peru	Other: Tingo	% global production capacity	11-20	Gold Fields defines facilities as operations which include mining and processing. All of Gold Fields' operations due to the nature of mining are affected in some way to water related risks, however this is at varying degrees and all risks are covered by management activities.

W3.2c

Please list the inherent water risks that could generate a substantive change in your business, operations, revenue or expenditure, the potential impact to your direct operations and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
South Africa	Orange	Reputational-Community opposition Other: AMD Management	Other: Ongoing Acid Mine Drainage generation	Water stress is an ongoing threat for significant parts of South Africa. As such water availability and water management is a sensitive public issue. Furthermore, South Deep is situated in an area of Gauteng which suffers from the historical impacts of more than 100 years of intensive, deep-level gold mining. High levels of Acid Mine Drainage (AMD) are a legacy feature of these	>6 years	Unlikely	Medium-high	Other: Mine Closure Planning	During 2014, South Deep spent around US$2 million. No additional costs were incurred during 2015, as the response strategy was a continuation of 2014.	In 2015 there were no material cases of AMD reported. In the event of AMD incidents Gold Fields has remedial action plans in place as well as a range of preventative measures. Gold Fields has established a comprehensive water management plan which considers the long term impacts of historical impacts of AMD into its monitoring. In 2015, additional technical studies were initiated as a solution for

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				operations that have long since shut down. South Deep is not contributing to local AMD. However, as the mine is likely to be one of the last operating mines in Gauteng it may feel additional social and regulatory pressures to address the surrounding issues of AMD as the surface waters are affected. These pressures associated with AMD are therefore identified as a risk for						managing potential AMD generation in the underground workings post closure. Underground AMD generation is well managed during the operational phase by ongoing pumping to the surface of the underground water. Other key water management initiatives implemented in 2015 at South Deep include: • Plume mitigation measures have been piloted at the Doornpoort TSF and groundwater

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				Gold Fields' South African operations, South Deep.						extraction wells at the old TSFs; • Further revegetation of the mine's two historic TSFs; • The removal of the old South Shaft waste rock dump, which was a potential source of AMD; and • Commissioning of the Post Closure Water Management Plan (Phase 1, Concept Study) undertaken by external consultants to determine the extent of post closure liability.
South Africa	Orange	Physical-Increased water stress	Higher operating costs	South Africa currently finds itself in	Current-up to 1 year	Highly probable	Medium-high	Other: promote water re-use,	The cost of responding to increased	The implementation of water re-

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				a drought cycle that is one of the worst in 40 years and which, some experts indicate, could continue for between three to five years. The drought has negatively impacted South Deep's water supply. South Deep has typically (over the past two years) treated process water through the use of three reverse osmosis (RO) plants, which reduced the intake of				recycling and conservation practices; and develop a water scarcity management plan to look at long term water supply options.	water stress is covered by standard operational costs, and is difficult to specify.	use, recycling and conservation practices is particularly critical at the South Deep mine. South Deep compiled a risk-based water scarcity management plan in Q4 2015, which evaluates the key drought related risks and proposes a variety of solutions to ensure that the mine continues to obtain a secure supply of water for its employees and production purposes, while minimizing the impact of its water use on

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				Rand Water supply. However the plants have not been operational since October 2015 due to water shortages. South Deep is therefore required to purchase additional water from Rand Water, thus increasing operational costs. South Deep typically makes use of recycled process water and a small amount of underground fissure water.						the environment and other water users in the catchment. In the short-term these measures include: • Considering options to obtain water supplies from neighboring mines; • Further improving storage and distribution of recycled water within the South Deep water system; and • Investigating the potential of withdrawing underground water from old workings behind South Deep plugs, that minimise the inflows of

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										water from interconnected mines.
Peru	Other: Tingo	Other: AMD Management	Other: Ongoing Acid Mine Drainage generation	Acid Mine Drainage (AMD) at the Cerro Corona mine has been identified as a current operational and mine closure risk to Gold Fields. The drainage of acid mine water could potentially have damaging social and/or environmental impacts to the surrounding area. Without effective management strategies, such as mine closure	Current-up to 1 year	Unlikely	Medium-high	Other: Mine Closure Planning	In FY2015 Gold Fields began a US$4.5 million project to upgrade water pipeline systems as part of its support of the Hualgayoc region in Peru. Managing this risk increased capital expenditure for Gold Fields by 0.71%. The cost estimate was derived from actual costs incurred in	The tailings and waste rock facilities at Cerro Corona were specially designed to mitigate the risks of AMD. As new technical information becomes available the strategies within the mine's closure plan are also updated. A more detailed post-closure water management plan will be developed during 2016 to add to the existing body of technical work.

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				strategies, Gold Fields could face reputational and financial liabilities.					FY2015.	However, Gold Fields has not been able to develop reliable estimates of the total potential impacts of AMD despite its numerous technical studies at Cerro Corona. In 2015 work began on upgrading water pipelines in the Hualgayoc region of Peru at a cost of US$4.5 million. This project aims to remediate legacy mining activities (not associated with Gold Fields) that are contaminating a local stream.

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										The cost estimate was derived from actual costs incurred in FY2015 in order to manage this risk.
Peru	Other: Tingo	Other: tailing storage facility stability	Other: Environmental and infrastructure damage	The tailing storage facilities at all of Gold Fields' operations are to some degree at risk of instability and overtopping during extreme precipitation events. While this is a risk affecting all of Gold Fields' operations the severity and likelihood of the events	Unknown	Unlikely	High	Other: best practice management, monitoring and external audit of tailing storage facilities	The most recent group-wide tailing storage facility (TSF) audit was conducted during 2014 and cost US$100000. Capital expenditure at Cerro Corona increased from US$51 million in 2014 to US$65 million in 2015. This was mainly owed to the	Life-of-Mine tailings management plans for closure and post closure are in place at all of Gold Fields' operations. ISO 14001 certifications, external tailings audits and regular inspections are carried out for all TSFs and their associated infrastructure. TSFs are also subject to Group-wide

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				depends on climate projections and geophysical nature of the region of operations. The topography of Cerro Corona puts it at particular risk.					ongoing construction of the TSF and a new camp as the existing camp will be flooded as the tailings storage facility expands. Managing this risk increased capital expenditure by 10%. The cost estimate was derived from actual costs incurred in FY2015	inspection by independent experts at least once every three years. Gold Fields' most recent Group-wide TSF audit was conducted in 2014. The independent, expert consultancy found that all facilities were well managed and were either already aligned with global good practice, or have plans in place for alignment. The audit found that the Gold Fields TSFs were within the top quartile of industry leading practice in

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										terms of design, operation, and management. Recent high profile TSF failures at Mount Polley (4 August 2014) and Samarco (5 November 2015) have resulted in increased scrutiny of the industry's tailings management practices. The ICMM initiated a global review of TSF standards and critical control processes across its member companies. Gold Fields CEO Nick Holland is acting as the CEO sponsor

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										for the review and Gold Fields also chairs the member company working-group. Gold Fields is committed to implementing any additional measures to improve TSF management that may emanate from the review and to date Gold Fields has applied the following measures at its operations: • Pollution containment facilities; • Recycling systems; • Monitoring of groundwater; and • Planting of vegetation. The cost estimate was

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										derived from actual costs incurred in FY2015.
Peru	Other: Tingo	Reputational-Community opposition	Closure of operations	Cerro Corona's high altitude location presents significant long term risks for water security. Increased water scarcity within a landscape of poorly developed water infrastructure and large water abstractions by mining operations is likely to encourage water activism. Water related	Unknown	Unlikely	High	Other: Comply with local legal requirements or company own internal standards, whichever is more stringent.	In FY2015 Gold Fields began a US$4.5 million project to upgrade water pipeline systems as part of its support of the Hualgayoc region in Peru. Managing this risk resulted in increased capital expenditure for Gold Fields by 0.71%. The cost estimate was derived from actual	In 2015 work began on upgrading water pipelines in the Hualgayoc region of Peru at a cost of US$4.5 million. This project aims to remediate legacy mining activities (not associated with Gold Fields) that are contaminating a local stream. Close to 90% of households in Hualgayoc now have access to sufficient clean running water. Those families whose homes

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				activism and resistance from local communities could compromise Gold Field's social licence to operate and disrupt operations. Operations in the Cajamarca region have experience serious impacts of water activism; however Cerro Corona has yet to be materially affected.					costs incurred in FY2015.	are situated at an altitude too high to be connected to the water pipeline previously received water tanks from Gold Fields, and will now receive water supply from a well located at Cerro Corona. Apart from strengthening relationships between Gold Fields, the regulator and our host communities, the remediation of legacy mining sites near Cerro Corona will significantly improve the quality of the water in the El Tingo River,

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										on which communities depend for various uses. The project helps to strengthen Gold Fields's social licence to operate.
Australia	Other: Western Plateau	Other: Security of water supply	Other: temporary production disruptions	Generally the shortage of water in the Western Australia region is driven by quality as much of the water is hypersaline and therefore not suitable for use and expensive to treat.	1-3 years	Unlikely	Medium	Other: updating water management strategy	The costs associated with the water management strategy are managed in house.	During 2015, Gold Fields Australia proactively ensured that existing water supply agreements have been extended to all its operations. This work will continue into 2016. St Ives has also entered into secondary water supply agreements with other parties (including the Western

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
										Australian Water Corporation) to meet its ongoing requirements.
Australia	Other: Western Plateau	Physical-Flooding	Other: reduced production	Extreme rainfall events (often associated with cyclones) can pose a risk to Gold Fields' Australian operations. Periods of high rainfall can result in the flooding of mine pits. No flooding events were experienced in FY2015 however St Ives' Neptune Pit experience flooding in FY2014. This event did not	Current-up to 1 year	Probable	Low	Other: increased focus on water management and weather monitoring	The cost of water management and weather monitoring is carried in-house by Gold Fields Australia.	Weather data is monitored by Gold Fields Australian operations to track any expected extreme rainfall events or cyclones. The information from the Australian Government Bureau of Meteorology typically allows operations a few days warning prior to experiencing any extreme rainfall. This allows the operations

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				cause any operational delays or infrastructural damages.						sufficient time to plan for the events. Each operation has a flood management plan in place. This is particularly necessary for St Ives which is partly a surface mine. It also has flood bunds installed on new pits. Furthermore, St Ives maintains spare mill capacity, which allows it to catch up after any delayed production due to flooding.
Ghana	Other: Ankobra	Physical-Flooding	Other: increased operational costs	Gold Fields' Ghanaian operations – and Tarkwa in particular –	Current-up to 1 year	Probable	Medium	Infrastructure investment	Water treatment costs are roughly US$ 2 million per	Ghanaian operations manage flooding by storing

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				face some challenges on water management, including intense periods of precipitation, particularly during southern Ghana's two rainy seasons (March to July and September to November), and the significant footprint of the Tarkwa mine, meaning that there is a large watershed to manage. High precipitation levels produce large volumes of					year.	rainwater and separating clean and dirty water (run-off). Rainwater is stored at Damang in the Lima pit before passing it through the RO plant prior to discharging. Water treatment costs are roughly US$ 2 million per year.

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				water on site which the mine is required to discharge responsibly.						
South Africa	Orange (WMA)	Regulatory-Increased difficulty in obtaining withdrawals/operations permit	Higher operating costs	More stringent requirements are being applied to the process of obtaining and renewing water use licences in particular operation jurisdictions.	>6 years	Probable	High	Engagement with public policy makers	Gold Fields manages the costs associated with policy engagement for each operation in house.	This risk is managed by Gold Fields through compliance with existing water regulations and community development projects.
Ghana	Other: Ankobra	Regulatory-Increased difficulty in obtaining withdrawals/operations permit	Higher operating costs	More stringent requirements are being applied to the process of obtaining and renewing water use licences in particular operation jurisdictions.	>6 years	Probable	High	Engagement with public policy makers	Gold Fields manages the costs associated with policy engagement for each operation in house.	This risk is managed by Gold Fields through compliance with existing water regulations and community development projects.
Australi	Other:	Regulatory-Increased	Higher	More	>6 years	Probable	High	Engagement	Gold Fields	This risk is

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
a	Western Plateau	difficulty in obtaining withdrawals/operations permit	operating costs	stringent requirements are being applied to the process of obtaining and renewing water use licences in particular operation jurisdictions.				with public policy makers	manages the costs associated with policy engagement for each operation in house.	managed by Gold Fields through compliance with existing water regulations and community development projects.
Peru	Other: Tingo	Regulatory-Increased difficulty in obtaining withdrawals/operations permit	Higher operating costs	More stringent requirements are being applied to the process of obtaining and renewing water use licences in particular operation jurisdictions.	>6 years	Probable	High	Engagement with public policy makers	Gold Fields manages the costs associated with policy engagement for each operation in house.	This risk is managed by Gold Fields through compliance with existing water regulations and community development projects.

W3.2d

Please list the inherent water risks that could generate a substantive change in your business operations, revenue or expenditure, the potential impact to your supply chain and the strategies to mitigate them

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
South Africa	Orange	Physical-Increased water stress	Higher operating costs	A number of the products required by Gold Fields' operations are highly water intensive to produce. Examples of such products include: diesel, cyanide and electricity. Gold Fields' South Deep mine in South Africa is in a particularly water stressed region. Electricity production in South Africa is water intensive and consumes 1.38m3 of water per MWh of electricity produced. Increased water stress may limit the production of water intensive products which could in turn disrupt Gold Field's operations.	1-3 years	Probable	Low-medium	Other: reduced reliance on water intensive products	Supplier engagement and diversification is managed in house.	In order to manage this risk, Gold Fields South Deep has issued an initial expression of interest for a 40MW photovoltaic on-site solar electricity generation plant.

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				Alternative suppliers may need to be found at an increased cost to operations.						
Ghana	Other: Volta	Physical-Increased water scarcity Physical-Increased water stress	Higher operating costs	Seasonal variation in rainfall poses a risk to the electricity supply of Gold Fields' Ghanaian operations. Tarkwa and Damang continue to source their power from the Volta River Authority (VRA) and the Electricity Company of Ghana (ECG). Hydro-power schemes contribute some 47% of Ghana's power, but with dam levels still dropping rapidly, security of electricity supply remains under threat. Daily load-shedding, of	Current-up to 1 year	Probable	Medium-high	Increased capital expenditure Supplier diversification	The capital cost of the two Genser-owned gas turbine power plants is estimated at US$82 million.	To address the current load shedding requirements, Tarkwa and Damang initiated a number of actions during 2015 as part of their five-year energy security plan. This included, making more extensive use of diesel generators at Damang, amid relatively lower diesel prices, and reaching a power management agreement with the Power Ministry for our Ghanaian mines. An important mitigating strategy is a 20 year PPA with independent US-based power producer, Genser

Country	River basin	Risk driver	Potential impact	Description of impact	Timeframe	Likelihood	Magnitude of potential financial impact	Response strategy	Costs of response strategy	Details of strategy and costs
				between 25% – 30% of the mines' electricity consumption, was introduced during FY2014 and persisted throughout FY2015.						Energy. Implementation of this plan commenced in 2015 and permits have been received from the Environmental Protection Agency (EPA) for the construction of two Genser-owned gas turbine power plants near the mines. By January 2018, Genser should be in a position to provide 100% of the power supply needs at Tarkwa and Damang.

W3.2e

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your direct operations that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain

W3.2f

Please choose the option that best explains why you do not consider your organization to be exposed to water risks in your supply chain that could generate a substantive change in your business, operations, revenue or expenditure

Primary reason	Please explain

W3.2g

Please choose the option that best explains why you do not know if your organization is exposed to water risks that could generate a substantive change in your business operations, revenue or expenditure and discuss any future plans you have to assess this

Primary reason	Future plans

Further Information

Page: W4. Water Opportunities

W4.1

Does water present strategic, operational or market opportunities that substantively benefit/have the potential to benefit your organization?

Yes

W4.1a

Please describe the opportunities water presents to your organization and your strategies to realize them

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
Company-wide	Improved community relations	Cerro Corona often experiences water activism due to increased water scarcity and poor water infrastructure. These negative water related aspects allow Gold Fields the opportunity to improve water infrastructure and provision. Gold Fields' has implemented a number of shared value water projects in Cerro Corona: • Joint water monitoring with the host community, to provide assurance around the mine's water impacts; • Construction of the Coymolache drinking water system to provide water connections to 35 families; • Rehabilitation of the main infrastructure that provides potable water to Hualgayoc City; • Completion of the first phase of Cuadrature drinking water system benefiting 85 families; • Replacement of 18 km of local water pipeline systems, including enhancement of water collection points, costing an estimated US$ 4.5 million. The strategy to realise this opportunity sits within Gold Fields' shared value initiatives. Gold Fields' shared value approach is based on four key pillars: 1. Strategic interventions to proactively address socio economic challenges; 2. Integration to proactively address socio economic challenges; 3. Participation in collaborative action with other stakeholders; 4. Transparency regarding Gold Fields' economic contributions. This opportunity has the potential to prevent community activism at Gold Fields' Cerro Corona operation. Community activism has the potential to disrupt operations and can have a negative financial impact on the company.	Current-up to 1 year	Not applicable.
Company-wide	Other: Reduced mine closure liability due to good water management practices	Good water management practices are expected to reduce mine closure liability, which is viewed as an opportunity for Gold Fields. Gold Fields' remains committed to responsible water stewardship and management. The Corporate Water Management Guideline was developed to assist Gold Fields' operations in leaving an enduring positive legacy. The Corporate Water Management Guideline is based on good practice, such as the United Nations Global Compact and the International Council on Mining and Metals Principles. All the operations are required to develop a water strategy and water management plan in accordance with this guideline. In addition Gold Fields plans to further enhance its integrated approach to mine closure management with a focus on post-closure water management. South Deep has developed a post closure water management plan (Phase	>6 years	Not applicable

Country or region	Opportunity	Strategy to realize opportunity	Estimated timeframe	Please explain
		1) taking into consideration the surrounding mines, whose underground water may enter South Deep's underground workings after they have closed. Cerro Corona plans to develop a more detailed post closure water management plan during 2016. In terms of the financial implications, this opportunity has the potential to reduce mine closure costs for Gold Fields.		
Company-wide	Cost savings	Reduced water use leads to reduced operational costs. Cost savings were evident at South Deep's reverse osmosis plants, which treat process water and reduce municipal intake. The plants cut water purchase costs by an estimated US$9000–12000/month. Unfortunately these plants were shut down in October 2015 due to the drought. The strategy to realise cost savings begins with the highest level of strategic guidance, the Corporate Water Management Guideline, which is translated into mine specific plans and strategies. Water reuse, recycling and conservation projects are part of the strategy to reduce water consumption and save costs. Projects include: • Use of in-pit tailings storage at the Tarkwa mine instead of building new above-ground tailings storage facilities. In-pit tailings storage has a higher potential for recycling and reuse of water than conventional facilities as there is less evaporation and the tailings density is greater. The capital costs are likely to be less for both construction and associated community relocation costs • Replacement of the 2 low-volume underdrainage capture ponds with pumping wells at Cerro Corona, which are more efficient at capturing potential seepage from the TSF • Upgrading of all operational water balances to ensure they have dynamic and predictive capabilities by the end of 2016 In terms of the financial implications, this opportunity has the potential to reduce expenditure on municipal water.	Current-up to 1 year	Not applicable.

W4.1b

Please choose the option that best explains why water does not present your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain

W4.1c

Please choose the option that best explains why you do not know if water presents your organization with any opportunities that have the potential to provide substantive benefit

Primary reason	Please explain

Further Information

Module: Accounting

Page: W5. Facility Level Water Accounting (I)

W5.1

Water withdrawals: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
Facility 1	South Africa	Orange	South Deep	2687.64	Higher	Water withdrawals at the South Deep operation increased by 21% in the current reporting period. The increase could be attributed to increased renewable groundwater withdrawals (largely due to water intensive re-mining) and increased fresh

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
						surface water withdrawals (0ML in the previous reporting period to 30.88ML in the current reporting period). The increased withdrawals were attributed to less water being recycled through the Reverse Osmosis plant as a result of a drought in South Africa.
Facility 2	Ghana	Other: Ankobra	Damang	1458.2	About the same	The Damang operation withdraws water from two sources: Fresh surface water and renewable groundwater. In the current reporting period, the fresh surface water withdrawal increased by 16% (due to increased tonnes of material milled) while the renewable groundwater withdrawal decreased by 51%. This resulted in a net increase of 5% when compared to the previous reporting year. Which resulted in the total withdrawal being about the same as the previous reporting period.
Facility 3	Ghana	Other: Ankobra	Tarkwa	4216.63	Higher	Tarkwa uses 3 withdrawal sources: Fresh surface, renewable ground and municipal water. In the current period, renewable groundwater and municipal water withdrawals decreased. However a 32% increase in fresh surface water withdrawal resulted in a net increase of 20% compared to the previous period. This occurred at the South and North Heap Leach facilities, largely due to greater production output, increased clean water top-ups to maintain quality standards and increased heap leach activity.
Facility 4	Australia	Other: Western Plateau	St Ives	10584.43	Higher	Renewable groundwater withdrawal at St Ives increased by 22% in the current reporting year. It is important to note that the renewable groundwater is brackish water. Although fresh surface water and municipal water withdrawals decreased by 66% and 28% respectively, it still resulted in a net increase of 11%. The increase could be attributed to the commissioning of the Invincible, Neptune and A5 ore bodies.
Facility 5	Australia	Other: Western	Agnew	2348.63	Much higher	During the current reporting period, the withdrawal increased by 49%. The increase resulted from higher levels of dewatering

Facility reference number	Country	River basin	Facility name	Total water withdrawals (megaliters/year) at this facility	How does the total water withdrawals at this facility compare to the last reporting year?	Please explain
		Plateau				from the Waroonga pit as mining at the operation is progressing deeper and into new areas. A dry and hot summer also attributed to increased water abstraction due to higher evaporation rates from the processing circuit. To increase water security, Agnew withdrew renewable groundwater from a neighbouring mine (approximately 25% of increased withdrawals).
Facility 6	Peru	Other: Tingo	Cerro Corona	4677.4	Higher	Water withdrawal at the Cerro Corona operation increased by 31% when compared to the figure of the previous reporting period. Floods during the first quarter of the current reporting period resulted in higher quantities of water entering mining pits. This water had to be abstracted to ensure safe conditions for miners. The increased pit dewatering resulted in a net increase in withdrawals.
Facility 7	Australia	Other: Western Plateau	Darlot	504.26	Lower	Water withdrawals at Darlot decreased by 7% in the current reporting period as a result of reduced production output. The production output was lower than that of the previous reporting period as a result of mining scattered remnant areas over a large area while still developing the infrastructure to mine the high grade ores situated at Lords South Lower virgin ore body.
Facility 8	Australia	Other: Western Plateau	Granny Smith	8769.92	Higher	Granny Smith's total water abstraction increased by 12% when compared to the previous reporting period. The increase was attributed to increased renewable groundwater abstraction (14% increase) as both the brackish surface water and municipal water withdrawals decreased. The increased renewable groundwater abstraction in the current reporting period resulted from withdrawals made by an external company and increased production output at the operation.

Further Information

Page: W5. Facility Level Water Accounting (II)

W5.1a

Water withdrawals: for the reporting year, please provide withdrawal data, in megaliters per year, for the water sources used for all facilities reported in W5.1

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
Facility 1	30.88	0	0	1032.73	0	0	1624.04	0	Increased water withdrawals resulted from a drought in South Africa in the third fourth quarter of the reporting period. Evaporative rates in Tailings Storage Facility and Return Water Dams increased which resulted in higher water withdrawal requirements. Water intensive re-mining processes also contributed to the need for increased water volumes.
Facility 2	1344.55	0	0	113.65	0	0	0	0	Fresh surface water withdrawal at Damang increased by 16% as a result of increased water requirements during processing.

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
									Water withdrawal increased due to larger volumes of ore milled. Increased volumes of ore milled increased due to lower ore grades. Renewable groundwater withdrawals decreased by 51% in the current reporting year due to less pit dewatering being required.
Facility 3	3529.32	0	0	672.52	0	0	14.79	0	Heap leach mining at both the South and North sites at Tarkwa resulted in a 32% increase in fresh surface water withdrawals. The net increase was however reduced to 20% when compared to the previous reporting period as renewable groundwater and municipal water withdrawal figures decreased by 15% and 36% respectively. The decreased withdrawal from renewable groundwater and municipal sources were due to illegal

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
									community water connections being removed and downsizing of mining accommodation.
Facility 4	286.41	0	0	9584.46	0	0	443.56	0	Fresh surface water and municipal water withdrawals reduced by 66% and 28% respectively in the current year. The reduction from these two sources resulted from reduced production output at St Ives, reduced rainfall in the first 3 quarters of the year and reduced water supply from the municipality. The 22% increase in renewable groundwater withdrawal was attributed to the commissioning of the Invincible, Neptune and A5 ore bodies as water had to be withdrawn to gain access to the ore bodies.
Facility 5	0	0	0	2348.63	0	0	0	0	Renewable groundwater withdrawals increased by 49% in the current

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
									reporting period. The increase resulted from higher levels of dewatering from the Waroonga pit as mining at the operation is progressing deeper and into new areas. A dry and hot summer also attributed to increased water abstraction due to higher evaporation rates from the processing circuit. To minimise risk from a potential drought, withdrawals were made from a neighbouring mine to enhance water supply security.
Facility 6	3166.28	0	0	1511.12	0	0	0	0	Increased withdrawals from both fresh surface water sources and renewable groundwater in the current reporting period resulted from a flood in the first quarter of the current reporting period. The fresh surface water withdrawals increased by 38% while

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
									renewable groundwater withdrawals increased by 19%. Excess water in mining pits and tailings facility had to be withdrawn to maintain safe operating conditions.
Facility 7	0	0	0	504.26	0	0	0	0	Renewable groundwater withdrawals at Darlot reduced by 7% as a result of decreased production output at the facility.
Facility 8	0	924.94	0	7844.49	0	0	0.49	0	Brackish surface water and municipal water withdrawals in the current reporting period reduced by 1% and 70% respectively. The reduction resulted from greater quantities of renewable groundwater being utilised in the facility. The 14% increase in renewable groundwater was mainly attributed to increased production output and water abstraction done by a third party company at

Facility reference number	Fresh surface water	Brackish surface water/seawater	Rainwater	Groundwater (renewable)	Groundwater (non-renewable)	Produced/process water	Municipal water	Wastewater from another organization	Comment
									the Granny Smith facility.

W5.2

Water discharge: for the reporting year, please complete the table below with water accounting data for all facilities included in your answer to W3.2a

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 1	495.05	Much higher	South Deep's discharge increased by 114% in the current reporting year from 231.51 ML in the previous reporting period to 495.05 ML in the current reporting period. The only water that South Deep discharges is from its sewage treatment works in line with the water license. Therefore this discharge increased due to an increase in the amount of sewage treated.
Facility 2	5487.92	Much higher	Large amounts of precipitation at Damang in the current reporting period during June, July and August resulted in increased water entering the mining pits. This water could not be stored in on-site infrastructure and subsequently had to be discharged to a fresh surface water source. Additionally, water from the dormant Rex pit at the operation was treated via a series of ponds and trenches for pH adjustment before being discharged into an ambient water body.
Facility 3	2428.44	Much lower	Fresh surface water discharge at Tarkwa reduced by 31% in the current reporting period when compared to the previous reporting period. The decrease was attributed to the closure of the South Heap Leach Reverse Osmosis plant. The water that would have been treated and discharged from this facility was recycled back into the operation's water cycle and the remainder used as process top up water.

Facility reference number	Total water discharged (megaliters/year) at this facility	How does the total water discharged at this facility compare to the last reporting year?	Please explain
Facility 4	0	About the same	St Ives is a closed water system and therefore no water is discharged (Small quantities of water is discharged into Lake Lefroy, via seepage dams. However Lake Lefroy falls within the operation's boundaries).
Facility 5	0	About the same	Agnew is a closed water system and therefore no water is discharged from the operation.
Facility 6	2632.41	Much higher	The discharged volume at the Cerro Corona operation increased from 1824.99 ML in the previous reporting period to 2632.41 ML in the current reporting period (44% increase). Heavy rainfall and a flood in Peru during the first quarter of the reporting period resulted in increased water seepage into the mine. To maintain safe operating conditions the additional water had to be discharged to a fresh surface water source.
Facility 7	0	About the same	The Darlot operation makes use of a closed loop water system. This results in no water being willfully discharged from the facility.
Facility 8	7477.7	Higher	Granny Smith's discharge increased from 5955.08 ML in the previous reporting period to 7447.7 ML in the current reporting period (25% increase). The higher discharge was attributed to expansion of the mine during the current reporting year. As the operation moved deeper into the ground, more water had to be discharged from the pit to enable safe mining conditions.

W5.2a

Water discharge: for the reporting year, please provide water discharge data, in megaliters per year, by destination for all facilities reported in W5.2

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
Facility 1	495.05	0	0	0	0	The South Deep operation discharges treated sewage water to a

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
						fresh surface water source. Prior to discharge, the water is treated at the operation to ensure the quality complies with environmental and water use regulations.
Facility 2	5487.92	0	0	0	0	The on-site storage capacity for water in the rain season was exceeded which resulted in water being discharged from the facility. Additionally, water from the dormant Rex pit at the operation was treated via a series of ponds and trenches for pH adjustment before being discharged into an ambient water body. The excess water with approved discharge quality was subsequently discharged to the fresh surface water sources: Adjaye dam and Kwabenaho River.
Facility 3	2428.44	0	0	0	0	Tarkwa's discharge reduced by 31% compared to the previous reporting period. Excess water in the mining pit is discharged to 2 fresh surface water destinations (North Suman and South Awunaben rivers). The decrease was due to the closure of the South Heap Leach Reverse Osmosis plant. Water that would have been treated and discharged from this facility was recycled back into the operation's water cycle and the remainder used as process top up water.
Facility 4	0	0	0	0	0	St Ives operation has a closed water circuit, therefore no water is discharged from the mine.
Facility 5	0	0	0	0	0	Agnew operates with a closed water circuit which results in zero water discharge at their operation.
Facility 6	2632.41	0	0	0	0	Cerro Corona discharges water to three fresh surface water sources: The Tingo river, the Mesa de Plata Creek and Hualgayoc river. Discharge of treated water from the tailings storage facility is sent to the Tingo river while discharge of the treated run-off from the sediment pond and the Arpon domestic water treatment plant are sent to the Mesa de Plata Creek. Discharge of the sedimentation system of the Cuadratura Quarry is sent to the Hualgayoc river.
Facility 7	0	0	0	0	0	Darlot operates with a closed water circuit which results in zero water discharge from the operation.
Facility 8	7447.7	0	0	0	0	The Granny Smith operation has three discharge points: western discharge to Lake Carey, Southern discharge to Lake Carey and

Facility reference number	Fresh surface water	Municipal/industrial wastewater treatment plant	Seawater	Groundwater	Wastewater for another organization	Comment
						discharge to the abandoned decommissioned Goanna pit. Lake Carey is a naturally saline water body.

W5.3

Water consumption: for the reporting year, please provide water consumption data for all facilities reported in W3.2a

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
Facility 1	2015	Higher	Water consumption at the South Deep operation increased by 10% in the current reporting period when compared to that of the previous period. The consumption increased from 1994.01 ML to 2192.59 ML. The increased water consumption was attributed to increased tonnes of ore being milled in the current reporting period when compared to that of the previous reporting period.
Facility 2	0	Much lower	In the current reporting period, Damang discharged more water than what was withdrawn. The total withdrawal at Damang amounted to 1458.2 ML while the discharge amounted to 5847.92 ML. The negative consumption indicates that Damang discharged more water than what they consumed in the current reporting year. Additionally, water from the dormant Rex pit at the operation was treated via a series of ponds and trenches for pH adjustment before being discharged into an ambient water body.
Facility 3	1788.19	Much lower	Water consumption at Tarkwa increased significantly when compared to the previous year due to the decommissioning of the reverse osmosis plant. This resulted in less water being recycled and re-used. Excess water was used on the existing heap leach pads. The increase in tonnes of ore processed resulted in the increase in withdrawal (due to milling & elution requirements). The increased withdrawal combined with the decreased discharge resulted in a greater consumption value.
Facility 4	10584.43	Higher	Water consumption at the St Ives operation increased by 11% in the current reporting period. The increased consumption could be attributed to the commissioning of the Invincible, Neptune and A5 ore

Facility reference number	Consumption (megaliters/year)	How does this compare to the last reporting year?	Please explain
			bodies. Increased quantities of water were consumed to enable processing of these ore bodies.
Facility 5	2348.63	Much higher	Agnew's water consumption increased by 49% in the current reporting period. The increase resulted from mining deeper and into new areas at the operation. Dry and hot conditions in the area resulted in higher evaporation rates at the Tailing Storage Facility and Return Water Dams which also lead to increased consumption figures.
Facility 6	2044.99	Higher	The water consumption at the Cerro Corona operation increased as a result of increased fresh surface water withdrawals in addition to increased renewable groundwater withdrawals. A flood in the first quarter of the current reporting period resulted in increased water ingress into the mining pits that had to be withdrawn and discharged to maintain safe operating conditions. The increased pit withdrawal and subsequent discharge resulted in higher consumption figures.
Facility 7	504.26	Lower	The water consumption at the Darlot facility decreased due to lower volumes of water withdrawn in the current reporting year. Less water was required as production at the Darlot operation was lower than in the previous reporting period.
Facility 8	1322.22	Lower	Water consumption at the Granny Smith operation reduced by 30% in the current reporting period. The main reason for reduced water consumption was a decrease in production output during the current reporting period.

W5.4

For all facilities reported in W3.2a what proportion of their water accounting data has been externally verified?

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- total volumes	76-100	The standard used: ISAE 3000 The methodology: KPMG's internal Sustainability Assurance Methodology The scope of methodology: KPMG assesses the risk environment of the process being reviewed as well as the controls in place. Based on these the procedures are determined.

Water aspect	% verification	What standard and methodology was used?
Water withdrawals- volume by sources	Not verified	Water withdrawals by source is not a commonly requested indicator, apart from in the WDP. As this is not a common externally verified parameter, Gold Fields does not make use of an external verification body to verify their water withdrawals by source. Gold Fields has identified that the most material water parameters to their key stakeholders is total water withdrawal and water intensity per ounce of gold produced.
Water discharges- total volumes	Not verified	Five of the eight Gold Fields' operations discharge water. The St Ives, Agnew and Darlot operations are closed circuit systems; while the South Deep, Damang, Tarkwa, Cerro Corona and Granny Smith operations do discharge water. This parameter is not externally verified as in the cases where discharges occur, they are monitored in accordance with Gold Fields licencing conditions agreed with the local environmental and water bodies (quality and volume).
Water discharges- volume by destination	Not verified	This parameter is not externally verified as in the cases where discharges occur, they are monitored in accordance with Gold Fields licencing conditions agreed with the local environmental and water bodies (quality and volume). Each discharge destination is monitored and measured by Gold Fields to ensure compliance with regulation throughout their operations.
Water discharges- volume by treatment method	Not verified	Volume by treatment method is not externally verified as in the cases where discharges occur at an operation, they are monitored in accordance with Gold Fields licencing conditions (quality and volume). All water that is discharged by Gold Fields operations complies with the quality criteria set out in their water use licenses.
Water discharge quality data- quality by standard effluent parameters	Not verified	Environmental incidents (level 3 and above) are assured by KPMG (in accordance with the ISAE 3000 Standard). Any significant exceedance of water quality discharge requirements would be recorded as an environmental incident. A description of all level 3 and above environmental incidents, including the mitigation measures to address the incident are recorded in Gold Fields Integrated Annual Report.
Water consumption- total volume	Not verified	Water withdrawal (which is assured by KPMG) includes water consumption volumes at each of the Gold Fields operations.

Further Information

Module: Response

Page: W6. Governance and Strategy

W6.1

Who has the highest level of direct responsibility for water within your organization and how frequently are they briefed?

Highest level of direct responsibility for water issues	Frequency of briefings on water issues	Comment
Board of individuals/Sub-set of the Board or other committee appointed by the Board	Scheduled-quarterly	The highest level of direct responsibility for water within Gold Fields sits with the Safety, Health and Sustainable Development Committee (SHSD Committee). The SHSD committee is appointed by Gold Fields' Board of Directors and reports climate change findings and recommendations to the board for consideration. This committee is a standing committee established by the Board with delegated authority from the Board. It is the responsibility of this committee, to assist the Board in its oversight of Gold Fields' environmental, health and safety programmes, as well as its socio-economic performance. The environmental programmes include water stewardship. More specifically in South Africa the directors of a company may be held directly and legally responsible for water related impacts. Therefore Gold Field's CEO and Directors hold the highest level of direct responsibility for water within the company.

W6.2

Is water management integrated into your business strategy?

Yes

W6.2a

Please choose the option(s) below that best explain how water has positively influenced your business strategy

Influence of water on business strategy	Please explain
Other: Drive costs down	Gold Fields' operations regularly monitor and report on their water use and quality of discharged water as part of the Corporate Water Management Guideline requirements. Continuous improvements in water efficiency help to meet formalised company requirements for water use reductions and this in turn reduces the costs of purchased water. The reverse osmosis (RO) plants which were installed at Gold Fields' South Deep operation reduced the mine's water purchase costs by an estimated US$9000–12000/month per month when they were in operation. Unfortunately the plants are currently not operating due to water shortages.
Other: Increased shared value	Shared value is created by companies when they are able to address business needs and social needs simultaneously. Gold Fields' business strategy actively pursues the creation of shared value in its operations. Water is a valuable resource in many of the areas in which Gold Fields operates and as such it has become a focus area for shared value creation. Gold Fields engages with multiple stakeholders on issues such as water security. This process supports Gold Fields social license to operate and reduces the risk of disruptions initiated by local communities. An example of the initiatives undertaken by Gold Fields includes the work that began in 2015 on upgrading water pipelines to support water supply in the Hualgayoc region of Peru at a cost of US$4.5 million.

W6.2b

Please choose the option(s) below that best explains how water has negatively influenced your business strategy

Influence of water on business strategy	Please explain
Increased capital expenditure	Gold Fields Ghanaian operations are at risk of extreme precipitation events and surface water flows need to be managed. This is particularly relevant for the tailing storage facilities (TSF) at the Cerro Corona operations. Capital expenditure at Cerro Corona increased from US$51 million in 2014 to US$65 million in 2015. This was mainly owed to the ongoing construction of the TSF.

W6.2c

Please choose the option that best explains why your organization does not integrate water management into its business strategy and discuss any future plans to do so

Primary reason	Please explain

W6.3

Does your organization have a water policy that sets out clear goals and guidelines for action?

Yes

W6.3a

Please select the content that best describes your water policy (tick all that apply)

Content	Please explain why this content is included
Company-wide Performance standards for supplier, procurement and contracting best practice Incorporated within group environmental, sustainabiilty or EHS policy Acknowledges the human right to water, sanitation and hygiene	Gold Fields' company-wide water policy is integrated into its 'Environmental and Sustainable Development Policy'. The Environmental and Sustainable Development Policy is supported by and implemented through a Group Water Management Guideline. The policy considers environmental stewardship as per ISO 14001, which includes water. It commits Gold Fields to responsible water stewardship. Furthermore, water and human rights are entrenched through the 10 Principles of Gold Fields' Sustainable Development Framework. The framework is implemented through the integration of the sustainable development requirements into the performance management system of the organisation.

W6.4

How does your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) during the most recent reporting year compare to the previous reporting year?

Water CAPEX (+/- % change)	Water OPEX (+/- % change)	Motivation for these changes
0	0	Water CAPEX and OPEX figures are difficult to extract because they are integrated into Gold Fields' mine capital operating expenses and are not separately recorded. For this reason we have reported 0% change in the adjacent columns.

Further Information

Page: W7. Compliance

W7.1

Was your organization subject to any penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations in the reporting year?

No

W7.1a

Please describe the penalties, fines and/or enforcement orders for breaches of abstraction licenses, discharge consents or other water and wastewater related regulations and your plans for resolving them

Facility name	Incident	Incident description	Frequency of occurrence in reporting year	Financial impact	Currency	Incident resolution

W7.1b

What proportion of your total facilities/operations are associated with the incidents listed in W7.1a

W7.1c

Please indicate the total financial impacts of all incidents reported in W7.1a as a proportion of total operating expenditure (OPEX) for the reporting year. Please also provide a comparison of this proportion compared to the previous reporting year

Impact as % of OPEX	Comparison to last year

Further Information

Page: W8. Targets and Initiatives

W8.1

Do you have any company wide targets (quantitative) or goals (qualitative) related to water?

Yes, targets and goals

W8.1a

Please complete the following table with information on company wide quantitative targets (ongoing or reached completion during the reporting period) and an indication of progress made

Category of target	Motivation	Description of target	Quantitative unit of measurement	Base-line year	Target year	Proportion of target achieved, % value
Other: Development of Water Management Action Plans	Water stewardship	All operations were required to develop updated Water Management Action Plans in line with the Group Water Management Guideline by the end of 2015. During 2015, all of the operations undertook a self-assessment gap analysis to produce Water Management Action Plans. The proportion of the target achieved is 100%, as all operations took part in the self-assessment gap analysis.	Other: 100% of operations are required to develop Water Management Action Plans.	2013	2015	100%

W8.1b

Please describe any company wide qualitative goals (ongoing or reached completion during the reporting period) and your progress in achieving these

Goal	Motivation	Description of goal	Progress
Other: Reduction in water related level 3	Risk mitigation	A Level 3 incident results in limited non-conformance or non-compliance that results in an ongoing but	During 2015 Gold Fields experienced five level 3 environmental incidents. Although this is an increase

Goal	Motivation	Description of goal	Progress
environmental incidents		limited environmental impact. Gold Fields' goal is to reduce the number of water related level 3 environmental incidents from 2014 (base year) to 2015 (target year). The goal will be successful if the number of water related environmental incidents in 2015 is lower than 2014. Gold Fields' adopted this goal because water management is a critical long-term issue for the mining industry. Water is often a vector for the spread of pollution which makes it a critical compliance issue as well as being a risk to the environment and human health, if not responsibly managed.	from 2014, the number of water related environmental incidents decreased. In 2015 only 1 environmental incident out of the 5, was related to water, whereas in 2014 3 out of the 4 environmental incidents were related to water. Gold Fields has therefore made significant progress towards their goal of reducing water related level 3 environmental incidents.
Other: Strive for zero harm	Other: Maintain compliance licence to operate and social licence to operate	Gold Fields' adopted its Water Management Guideline at the end of 2013. The guidelines ensure that all operations have the appropriate designs and safeguard mechanisms in place to prevent contaminated water impacting the environment. Gold Fields therefore has the goal to strive for zero harm through sound water management practices. The timescale for this goal will continue for the life of mine for each operation. Gold Fields adopted this goal because operating a mine that does not strive for zero harm, would most likely result in the loss of the mining license. The goal will be successful if Gold Fields receives no environmental fines during the reporting period.	Gold Fields has reverse osmosis plants installed at three of their operations, namely: Tarkwa, Damang and South Deep. The reverse osmosis plants treat process water to a potable standard which is then either re-used within the operation or discharged. No significant environmental fines were received during 2015. Gold Fields' Cerro Corona mine works closely with community elected representatives to monitor water quality and quantity at the Las Tomas spring and authorised discharge points around the operation. Gold Fields has therefore made significant progress towards meeting their goal of striving for zero harm.
Other: Build strong relationships of trust and enhance social license to operate	Other: Maintain social licence to operate	Gold Fields' Water Management Guideline aims at creating shared value and leaving an enduring positive legacy. To reach this goal, Gold Fields evaluates opportunities for the development and implementation of water related shared value projects. Water has been identified as one of the most important issues for communities located near mining operations. It is for this reason that Gold Fields evaluates opportunities to supply clean water to host communities where possible. The timescale for this goal will continue for the life of mine for each operation. Gold Fields adopted this goal because community relationships	Gold Fields' has implemented a number of shared value water projects in Cerro Corona: • Joint water monitoring with the host community, to provide assurance around the mine's water impacts; • Construction of the Coymolache drinking water system to provide water connections to 35 families; • Rehabilitation of the main infrastructure that provides potable water to Hualgayoc City; • Completion of the first phase of Cuadrature drinking water system benefiting 85 families; • Replacement of 18 km of local water pipeline systems, including enhancement of water collection points, costing an estimated US$ 4.5

Goal	Motivation	Description of goal	Progress
		are vital for maintaining a mine's social license to operate. Gold Fields' Cerro Corona mine is located in a region that is known for serious water related activism at both a local and regional level. Although Cerro Corona has not yet been materially affected by such activism, this has had a serious impact on other operators in the region.	million. Gold Fields has therefore made significant progress towards meeting their goal of building strong relationships.
Other: Engagement with peers and policy makers to advance sustainable water policies and management practices	Other: Adoption of sector good practice in relation to water management	Gold Fields recognises that water is a 'shared resource' and should be responsibly stewarded. To affectively achieve this Gold Fields aims to engage with peers and policy makers to advance sustainable water policies and management practices. Gold Fields engages through the ICMM Water Working Group. The timescale for this goal will continue for as long as Gold Fields is in business. Gold Fields measures success of this goal through the integration of ICMM Water Working Group findings into company policy so that it aligns with global best practice on water management.	Gold Fields engagement with public policy makers is an ongoing process which is supported by the Water Management Guideline. Gold Fields is also a member of the Water Working Group under the ICMM. The ICMM is currently developing a Position Statement on Water. Through the above mentioned engagement, Gold Fields has made significant progress towards meeting the goal.

W8.1c

Please explain why you do not have any water-related targets or goals and discuss any plans to develop these in the future

Further Information

Module: Linkages/Tradeoff

Page: W9. Managing trade-offs between water and other environmental issues

W9.1

Has your organization identified any linkages or trade-offs between water and other environmental issues in its value chain?

Yes

W9.1a

Please describe the linkages or trade-offs and the related management policy or action

Environmental issues	Linkage or trade-off	Policy or action
1. South Africa is currently in a drought cycle that is one of the worst in 40 years, which could continue for between 3-5 years. As a result South Deep's RO plants are unable to operate. 2. South Deep has indirect electricity emissions of 489 099 tCO2e. South Deep is still in development and has yet to set emission reduction targets. As production ramps up it is likely that emissions will increase by a compound annual growth rate of 4% from 2013 - 2016.	Trade-off	The treatment of process water at Gold Fields' South Deep mine is essential to reducing the mine's demand for purchased water from the Rand Water supply. Gold Fields installed three reverse osmosis (RO) plants at its South Deep mine to purify process water. The plants treated 2-4Ml of water a day which saved water purchase costs by an estimated US$9000–12000/month. However, drought conditions reduced the volumes of available process water and forced the RO plants to be shut down during October 2015. While the shutdown of the RO plants increased Gold Fields' demand for purchased water and put more pressure on a scarce resource the shutdown also reduced Gold Fields energy demands as the treatment facilities are very energy intensive. Running the RO plants presents a trade-off between water efficiency and energy efficiency. This presents an environmental trade-off between managing water demand and managing carbon emissions as grid electricity is generated at the cost of high levels of carbon emissions. South Deep is currently engaging neighboring mines to secure more process water to reactivate the RO plants and reduce intake from the regional water utility. As part of a broader energy strategy Gold Fields' aims to manage this trade-off by setting emissions reduction targets and

Environmental issues	Linkage or trade-off	Policy or action
		investigating options for incorporating renewable energy into the mines energy mix. By reducing the emissions associated with electricity the environmental trade-off will effectively be reduced.

Further Information

Module: Sign Off

Page: Sign Off

W10.1

Please provide the following information for the person that has signed off (approved) your CDP water response

Name	Job title	Corresponding job category
Nick Holland	Chief Executive Officer (CEO)	Chief Executive Officer (CEO)

W10.2

Please select if your organization would like CDP to transfer your publicly disclosed response strategy from questions W1.4a, W3.2c and W3.2d to the CEO Water Mandate Water Action Hub.

No

Further Information

CDP 2016 Water 2016 Information Request