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Evaluating the Adequacy of Water-Related Reporting and Disclosure by High-Impact users in South Africa

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South Africa is facing a water crisis in terms of the scarcity and the quality of its water. Considering this water-constrained future, it is evident that companies in South Africa should pay attention to the pristine management and reporting of this scarce resource. The purpose of this paper is to evaluate the reporting and disclosure requirements of water of Socially Responsible Investment-indexed (SRI-indexed) JSE-listed companies. The disclosure requirements of integrated reporting, King III, the Global Reporting Initiative (GRI) and the Association of Chartered Certified Accountants (ACCA) provided the theoretical background. Content analysis was used as the research method to analyse the integrated reports of high-impact users. The findings of the study include that most of the companies illustrate commitment towards water stewardship by reporting on water-related aspects. A more comprehensive standardised set of guidelines to report on water per sector could add value to the reporting practices of companies.

Keywords: Water; integrated reporting; sustainability reporting; sustainability disclosure; SRI index; South Africa.

Introduction

Sustainability disclosure has become a necessary tool for an investor since it directly drives a company's value creation process. It also provides a stakeholder with a more comprehensive picture of a company's performance (IRCSA, 2011).

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Sustainability reporting, or triple bottom line (TBL) reporting, refers to a tripartite reporting framework that highlights the economic, environmental and social performance of a company (Choudhuri and Chakraborty, 2009). Since the year 2000, there has been various initiatives to move away from stand-alone financial and sustainability reports towards a more integrated approach. This was as a result of the King Report on Corporate Governance for South Africa: 2002 (King II) and other initiatives such as the South African Stock Exchange, the Johannesburg Stock Exchange Limited (JSE), JSE's Socially Responsible Investment (SRI) index. In 2002, King II has already started to move away from only reporting to shareholders, and embraced the TBL approach (IoDSA, 2002). The first attempt in South Africa to enforce integrated reporting across all listed companies was introduced in 2010 by the South African Stock Exchange (JSE), which mandated integrated reporting (IRCSA, 2011). The current listing requirements of the JSE compel compliance via the King III Report (also known as the King Report on Governance for South Africa, 2009) and, as such, companies have to produce an integrated report (IRCSA, 2011).

A company's integrated report is in essence a compilation of the conventional annual financial statements and the so-called sustainability report. The aim thereof is providing stakeholders of the company with a complete overview of the company's historical operations and future prospects. It also integrates and links information around strategy, risks and opportunities and relates these to the social, environmental, economic and financial issues (IIRC, 2011). The approach of focussing on the TBL, has also been identified by (Kidd and Fischer, 2007) as part of the growing international support for an integrated appraisal approach.

In the 1990s, certain companies began to publish sustainability reports and as this was a voluntary action, these reports lacked reporting standards. The lack of standards led to the foundation of the Global Reporting Initiative (GRI) in 1997, a non-profit organisation (Musikanski, 2012). The objective of the GRI was to provide guidelines aimed at sustainability reports through a multi-stakeholder approach (Eccles and Krzus, 2010). Since 2002, sustainability reporting has globally become a widely accepted practice, with South Africa being regarded as an emerging market leader in this field (IoDSA, 2009). As mentioned earlier, this accolade is partially due to King II and other initiatives such as the JSE's SRI index. The SRI index is a JSE index that measures companies' policies, performance and reporting in relation to the three pillars of the TBL (environmental, economic and social sustainability), as well as corporate governance practices (JSE, 2013).

The Integrated Reporting Committee of South Africa (IRCSA) (IRCSA, 2011) suggests eight elements to be part of the *integrated report*. One of these eight

elements is 'organisational overview, business model and governance structure'. Under this element, the International Integrated Reporting Committee (IIRC) identifies six capitals that are, in essence, the financial and non-financial resources that companies should report on. These six types of capital are (i) financial, (ii) manufactured, (iii) human, (iv) intellectual, (v) natural and (vi) social.

One of the six capitals mentioned above refers to the resource of natural capital and includes water, land, minerals and forests as well as information regarding biodiversity and ecosystem health. To date, however, progress in moving beyond conceptual thinking towards the practical implementation of natural capital valuation has been slow. Natural capital is a critical asset, especially for developing countries such as South Africa, where it makes up a significant share (36%) of total wealth (World Bank, 2012).

There have been several attempts to improve both global and South African sustainability reporting guidelines, such as those initiated by the Carbon Disclosure Project (CDP), GRI, King III, as well as guidelines developed by the Association of Chartered Certified Accountants (ACCA). The CDP is an independent non-profit company holding the largest database of primary corporate climate change information in the world. In 2013, the GRI and CDP signed an agreement with the aim of aligning the areas of their reporting frameworks (GRI, 2014). According to Simpson, the Chief Executive Officer of the CDP, there is a need for meaningful and systematic reporting on water globally (CDP, 2012). Fisher (2007) concurs by highlighting that there is a lack of uniform language, structure and procedures when companies are managing and reporting on water. Bell and Quiggan (2008) support Simpson (CDP, 2012) and Fisher's (2007) arguments by stating that water-data is inconsistent. Chalmers *et al.* (2012) also recognises the importance of high-quality water-related information to support decision-making and stated that it is of critical importance when addressing water management.

Based on the above discussion, it can be gathered that the effective reporting of water is crucial. Furthermore, the publishing of integrated reports is a JSE listing requirement. The following questions can therefore be raised: Are high-impact SRI-indexed JSE-listed companies adequately reporting on water-related issues? To what extent are companies reporting on water in the narrative segment of their integrated reports? The purpose of this paper is therefore to evaluate the adequacy of water reporting of high-impact users and to compare the results between the different JSE sectors to establish whether there are inconsistencies in reporting.

As previous research on the topic of water-related reporting and disclosure in South Africa is still in its infancy, these questions are designed to address this knowledge gap and provide the motivation for research conducted in this paper.

The rest of the paper is structured as follows: Firstly, the research objective is stated, followed by the theoretical framework in which the concepts of sustainability and the importance of water reporting are highlighted. In the next section, there is a discussion about the research method and this is followed by the empirical results. The paper concludes with recommendations, limitations and areas for further research.

Research Objective

In order to address the research questions posed above, the main research objective of this paper is to evaluate the narrative segment of water-related reporting and disclosure of SRI-indexed JSE-listed companies. The focus will be on SRI-indexed companies as these companies are perceived to be committed to sustainable development. As the reporting and disclosure of water-related aspects as part of the integrated report are relatively new, the research will be conducted on these perceived market leaders in terms of disclosure. In order to achieve the research objective, the theoretical framework on which the paper is based is discussed next.

Theoretical Framework

The need for reporting

A company is accountable to its internal and external stakeholders, and in this sense sustainability accounting and reporting enable the company to provide evidence of its accountability (Lodhia and Hess, 2014). There are various theories that support the concept of accountability, such as the legitimacy theory and the stakeholder theory. The legitimacy theory affirms companies' need for survival and as such they are required to legitimise their existence to society. Sustainability accounting and reporting enable such legitimacy (Deegan, 2002; Lodhia and Hess, 2014). On the other hand, the stakeholder theory emphasises that companies should manage various stakeholders in order to sustain its existence. According to Tilt (2007), each stakeholder is concerned with specific environmental issues pertaining to its own situation. To promote research around the accountability of a company and the need for reporting, the statement that accounting is a human right could be added. According to a study performed by Hazelton (2013), access to corporate water-related disclosures may indeed constitute a human right. The findings of Hazelton's (2013) study include that political participation is a

founding human right. As water is a critical subject of political debate, water-related information is required for political participation.

Sustainability and sustainability disclosure

Sustainability can be defined as development that meets present needs without compromising the ability of future generations to meet their own needs (United Nations, 1987). Within this context, sustainability regarding our environment and natural resources becomes more important to companies and should be integrated into day-to-day management activities. Sustainability practices such as corporate sustainable indices are emerging to measure sustainability performance, for example the SRI index on the JSE. These indices urge companies to provide vital and timely information to both customers and shareholders about the environmental health and sustainability of their company. The growing need for information on corporate sustainability practice has led to improved disclosure requirements and an increase in sustainability reporting. According to Boiral (2013), sustainability reporting has become an increasingly common practice in companies' attempts to respond to (i) expectations; and (ii) pressures and criticisms from stakeholders who want to be better informed about the social and environmental impacts of business activities. Dong *et al.* (2014) concur, while adding that deteriorating environmental conditions have heightened the expectations of stakeholders around corporate social responsibility (CSR) practice, particularly for the mining and minerals sector.

The growing demand for sustainability reporting has also raised the question around the usefulness and transparency of such reports. The transparency of the sustainability reports could be related to the credibility, completeness and reliability of the disclosed information (Roberts, 2009). This implies that both positive and negative issues should be disclosed; information should be clear, well communicated, in balance, comparable and reliable. Van der Ploeg and Vanclay (2013) developed a 10-question sustainability reporting assessment checklist that can be applied as an effective tool to help stakeholders determine whether sustainability reports can be considered reliable and transparent. Furthermore, a study conducted by Jiricka *et al.* (2016) emphasises the importance of reliable data. The study found that the main barriers identified by environmental impact assessment experts include a lack of data as well as general uncertainty as to how far climate change assessments should be considered without reliable data. Verification and assurance by independent assurance providers will also enhance the credibility of sustainability reports (Gilbert and Rasche, 2007).

The importance of water reporting globally and in South Africa

Water crises have been identified by the World Economic Forum's (WEF) Global Risks Report 2015 as the biggest economic and societal global risk for the next decade in terms of potential impact (WEF, 2015). As industrialisation and urbanisation increases, it is projected that South Africa could deplete its water resources by 2025 (Tewari, 2009; BDLive, 2013). After Australia, Africa is the second-most arid continent, and water scarcity has become a critical issue as populations grow and climate change continues to affect rainfall patterns (Besada and Werner, 2014). South Africa receives half the average global annual rainfall and 98% of its water systems are in crisis mode (WWF, 2013). This is proven through the estimation that South Africa will have a 17% gap between water supply and water demand by 2030, equating to 2.7 billion m^3 of water (Deloitte, 2012).

As mentioned before, the WEF ranked water crises as the top global risk in terms of impact (WEF, 2015). Another example of a country, other than South Africa, struggling with drought conditions and acute water scarcity is Australia. As a result, experts from Australia operating in the accounting and the water industry have also become concerned about the reporting and measurement of water. This led to the establishment of the Water Accounting Standards Board (WASB). The WASB is the national water accounting standard setter in Australia and has the responsibility of overseeing and coordinating water standard developments (Hu *et al.*, 2013). The concern is not only on account of the scarcity of water, but also the quality thereof. Considering a water-constrained future, the impact of water shortages has a significant effect on any company's strategic plan and is therefore a material aspect that should be reported on. The way in which companies manage and report on their available natural capital, in this case water, has an effect on the long-term viability of a company (Deloitte, 2012).

Initiatives to improve water reporting

The need for water accounting was highlighted in a study conducted by Chalmers *et al.* (2012). The study emphasises that levels and variability of water quality are issues of major concern in many countries (Chalmers *et al.*, 2012). Australia recognised that water reporting and management requires good and credible information. The government earmarked 450 million Australian dollars to an investment programme in order to provide quality and comparable water information (Chalmers *et al.*, 2012). Chalmers *et al.* (2012) refer to the development of a general-purpose water accounting (GPWA) system to report on items such as

water rights, water policies, pricing and other water information that could affect users' understanding of water risks faced by an entity.

The King III Report indicates the importance of sustainability disclosure and emphasises the fact that it should be part of integrated reporting; however, no specific water disclosure requirements are recommended. As stated by Rea (2012), King III prefers companies to use the GRI guidelines to assist them in order to improve their reporting. Companies using the latest GRI guidelines, also referred to as the G4-guidelines, are required to perform a stakeholder-inclusive materiality assessment and report to this effect.

A study performed by ACCA found that reporting on natural capital can be split into two main categories (ACCA, 2013): (i) narrative reporting on strategy and management; and (ii) performance reporting. The fact that water is classified as part of natural capital and that ACCA differentiates between narrative and performance reporting, provides the motivation for selecting their classification. Narrative reporting provides stakeholders with a qualitative understanding of a company's relationship with natural capital and the processes used to manage the various risks and opportunities associated with such company activities. On the other hand, performance reporting provides stakeholders with quantitative information, in the form of key performance indicators, which can be used to track performance over time (ACCA, 2013).

Previous studies (see Clatworthy and Jones, 2003; Beattie *et al.*, 2004) have already confirmed that narrative reporting is viewed globally as the key to achieve the desired step-change in the quality of corporate reporting. It is stated that the business reporting model needs to expand to serve the changing information needs of the market and provide the information required for enhanced corporate transparency and accountability (Beattie *et al.*, 2004). The importance of narrative reporting is also evident in the research by Clatworthy and Jones (2003) that suggests that narratives are widely used and considered important in the investment decisions of private and institutional investors. They added that narrative disclosures play a crucial role in corporate reporting.

ACCA (2013) further states that natural capital resources, in which water is a part of, could be addressed under various sections in the integrated report through narrative disclosure, namely (i) materiality assessment, (ii) governance, (iii) corporate policies and standards, (iv) environmental management systems (EMSs) and (v) risk assessment. The researcher does not ignore the equal value of the quantitative segment of water reporting; however, the focus of this paper is on the qualitative (narrative) segment of disclosure. The various requirements under each section are discussed below.

Materiality assessment

Materiality, according to IoDSA (2002), is a measure or threshold against which information can be evaluated. An item is material if it is of such importance and has an impact that could substantially influence the assessments and decisions of the company or its stakeholders. Within the context of sustainability, materiality is a more difficult measure to define and crisp judgement is therefore required. The materiality assessment ensures that company reports are not cluttered by excessive information, but instead focus on the topics that matter the most. Performing the assessment and disclosing it to the stakeholders demonstrate that only important items are included in the reports. As companies are faced with a wide range of sustainability reportable issues, it is crucial to ensure that the real materiality issues regarding natural capital, specifically water issues, are reported on.

Governance

When analysing the integrated reports, indications of having a Director or senior staff member responsible for the company's sustainability programme demonstrate commitment and accountability (ACCA, 2013). Governance reporting should provide insight into which body in the company has ultimate oversight over water management and the mechanisms it uses to drive water-related accountability (CDP, 2012).

Corporate policies and standards

Disclosing sustainability policies is an effective method for companies to communicate their position on the subject, and policies that are agreed upon at board level serve as a way of focussing and aligning sustainability initiatives (ACCA, 2013).

Compliance with water-related regulations as well as with voluntary standards or industry benchmarks may be used as a proxy to understand a company's approach to managing water resources. Additionally, internally developed standards can pertain to a variety of water management topics, such as water use efficiency, quality parameters, level of water treatment and operational management protocols. Reporting on these topics describes the nature of these standards that entities within the business are encouraged and/or expected to meet (CDP, 2012).

Environmental management systems

Implementing an EMS helps companies to reduce their environmental impacts, comply with applicable laws and regulations and continually improve their

environmental performance. By operating under internationally recognised standards, such as ISO 14001, and communicating this to stakeholders, companies are able to demonstrate their commitment to improving their environmental performance (ACCA, 2013).

A corporate water management system could include the following information: (i) to identify how to improve operational water performance, (ii) to understand how the company interacts with its surrounding basins and (iii) whether the company has a water strategy.

Within the context of this study, focus will be placed on the disclosure guidelines as presented in the GRI guidelines, CDP water disclosure requirements, ISO 14001 and the Water Act, 1998 (Act 36).

Risk assessment

Companies that are clear about the key risks facing their operations and the plans that they have in place to mitigate those risks can demonstrate their level of preparation for uncertainty to stakeholders. This is of particular importance to investors who will be able to assess how well a company is managed by reviewing the comprehensiveness of its risk assessments (ACCA, 2013). Many companies are exposed to water-related risks that can negatively affect business viability over the short- or long-term. Water risks can be grouped into three general categories, namely physical risks, regulatory risks and reputational risks (CDP, 2012):

- Physical risks occur when there is water stress (too little water), flooding (too much water) or pollution (lower water quality).
- Regulatory risks involve issues such as water permits and allocation, rates controlling withdrawal and discharge quantities and restrictions on pollutant types and levels.
- Reputational risks manifest when water availability and quantity give rise to tension between businesses and local communities.

When analysing the integrated reports, the focus will be on the narrative segment of reporting as discussed above.

Methodology

A post-positivist approach was followed in the design of this paper. The research method utilised was content analysis. This method was chosen because it is widely used in accounting research to reveal useful insights into accounting practices (Steenkamp and Northcott, 2007). As described by Beattie *et al.* (2004), content

analysis involves classifying text units into categories or themes. In this paper, the theoretical background as discussed was utilised to develop a checklist (disclosure index). Five categories were identified, namely materiality, governance, corporate policies and standards, environmental management systems and risk assessment. Within each category, items were identified that underlie/describe or provide additional information towards that specific category or theme. For example, under the heading of risk assessment, the items concerning physical risk, regulatory risk and reputational risk were added. A total of 15 items were included in the disclosure index.

The data was collected by downloading the integrated reports published by the companies listed on the JSE's SRI index for the 2013 financial year. The developed water disclosure index was utilised as the measuring instrument. The 'search' and 'advanced search' functions in Microsoft Word were applied to scan the entire downloaded document for text (all the narrative information) that contains the word 'water' as well as all the above-mentioned categories and items. These reports were then compared to the water disclosure index to evaluate the reporting and disclosure of each company. For each item, a score of 0 (no disclosure) or a score of 1 (some disclosure) was awarded. These scores were aggregated to form an overall disclosure score. As mentioned by Marston and Shrives (1991) and cited by Beattie *et al.* (2004), the index score can provide a measure of the extent of disclosure but not necessarily the quality of the disclosure; however, it is still a valuable research tool. They also added that disclosure index studies are often used to analyse inter-company, inter-industry/sector (as in this study) or inter-country differences.

The population in this study comprises all the companies listed on the JSE's SRI index. The SRI index requires three broad reporting categories, namely environment, society and governance, and related sustainability concerns. In the environmental category, the SRI index classifies companies as a high-, medium- or low-impact company (JSE, 2014). By means of quota sampling, this paper selected companies under the high-impact category. The sampled companies and the sector they represent are presented in the next section.

Results

The sample group of companies' reports that were analysed comprised 37 companies. These companies have been classified into four groups, referred to as sectors listed on the JSE, namely (i) basic materials, (ii) mining, (iii) industrials and (iv) consumer goods. Figure 1 presents the number of companies analysed per sector.

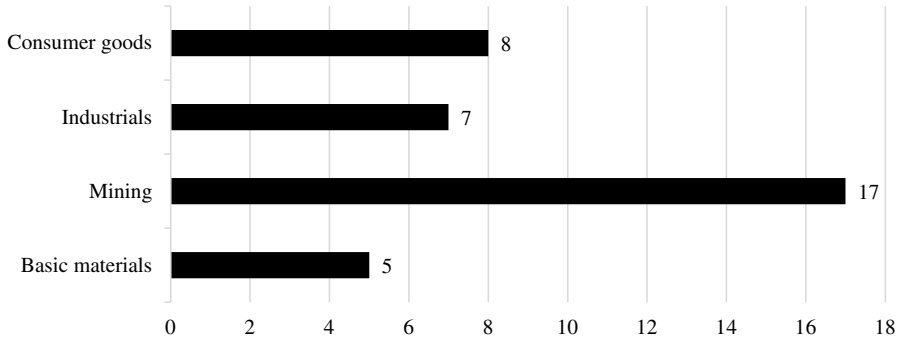

Fig. 1. The number of companies analysed per sector.

The results are presented based on the companies' disclosure and reporting under the various sections of the integrated report, namely (i) materiality, (ii) governance, (iii) corporate policies and standards of reporting, (iv) EMSs and (v) risk assessment.

The integrated reports of the companies were analysed to identify whether water was highlighted as a material aspect in the respective companies. Figure 2 presents the results per sector. In the mining sector, 76% of companies identified water as a material aspect, followed by the basic materials sector with 60%. Taking cognisance of the scarcity of water in South Africa, it is crucial for all companies to acknowledge water as a potential material aspect. For example, one of the South African mining companies namely Harmony Gold Limited (Harmony Gold Limited, 2013), mentioned in their integrated report as an indication of the materiality aspect that their operations use a significant amount of water, and that the growth of their assets depends on access to this resource.

When considering *governance* as a narrative section in the integrated report, two items were posed and evaluated. The results are presented in Table 1.

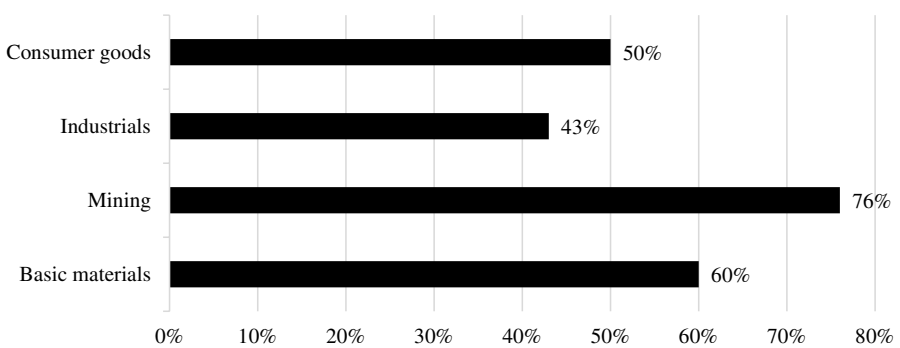

Fig. 2. Materiality graph.

Table 1. Governance.

Sector	Basic materials (%)	Mining (%)	Industrials (%)	Consumer goods (%)	Average (%)
Does the company have a Director or senior staff member responsible for water disclosure programme?	80	94	57	88	84
Does the company have (a) water-related policy/policies?	80	88	43	75	76

The mining sector indicated the highest commitment towards appointing a dedicated person responsible for water governance and this sector also indicated that water-related policies are in place. On average, most of the sectors disclose information on governance, indicating that water stewardship and accountability towards its stakeholders are important issues in South Africa. The next section of the integrated reports that were evaluated was the disclosure and reporting of standards or benchmarks utilised. Table 2 presents the results on the use of internal and external standards.

With the exception of companies in the industrial sector, all companies indicated in their integrated reports that they have internal water-related standards. This finding emphasises that most of the companies illustrate commitment towards an internal standard to guide their reporting about water.

The next item evaluated whether the companies comply with the key external standards applicable to water. These external standards were identified as the GRI,

Table 2. Standards and benchmarks.

Sector	Basic materials (%)	Mining (%)	Industrials (%)	Consumer goods (%)	Average (%)
Standards					
Does the company have internally developed standards on water-related issues?	100	100	57	100	92
Does the company comply with external standards on water such as:					
GRI	80	100	100	75	92
CDP water programme	80	71	29	63	62
King III	100	100	100	100	100
ISO 14001	80	82	100	63	81
The Water Act, 1998 (Act 36)	20	41	0	0	22

CDP Water programme, King III, ISO 14001 and the Water Act. The results indicated that most of the companies adhere to the disclosure requirements of the GRI. Although the basic materials (80%) and mining (71%) sectors also acknowledge the requirements as stipulated by the CDP Water programme, an average of 62% of the companies take the requirements of the CDP Water programme into consideration. One of the sampled companies AECI, an explosives and specialty chemicals group, specified in their integrated report that they participated in the CDP Water programme to stress their focus on sustainability (AECI, 2013). It is furthermore evident that the industrial sector conforms 100% to ISO 14001 requirements, while the Water Act is not well acknowledged by any of the sampled companies.

The next section presents the results of whether the companies have EMSs in place. Three items were identified as part of the water disclosure index and were analysed. The results are presented in Table 3.

It is evident that all the sectors, except the industrial sector, perform above average on all three items. In the analysis of the various integrated reports, it was clear that the mining sector fully understands and communicates the context within which they operate. Anglo American Plc (2013) indicated that water is fundamental to their business, particularly because more than 70% of their mines are in water-stressed areas. Most of the mining companies differentiate between operational areas and refer to different sites and areas of operation. The mining sector is the only sector with a 100% score in all three areas of reporting.

The last section of the disclosure index requirement is risk assessment. It is important that companies must identify water-related risks that could possibly

Table 3. The EMSs.

Sector	Basic materials (%)	Mining (%)	Industrials (%)	Consumer goods (%)	Average (%)
Establish whether the company has *EMSs* for water-related issues by identifying the following:					
Does the company have indications of improving operational water systems by applying internal measures?	100	100	86	100	97
Does the company indicate that it understands the context within which it operates in terms of water stress, flooding, water quality and regulatory uncertainty?	100	100	57	88	89
Has the company developed its own water strategy?	80	100	57	100	89

Table 4. Risk assessment.

Sector	Basic materials (%)	Mining (%)	Industrials (%)	Consumer goods (%)	Average (%)
Establish whether the company has *risk assessment* actions for water-related issues by identifying the following:					
Has the company identified physical risks such as flooding, water stress and pollution?	60	100	71	100	89
Has the company identified regulatory risks such as water permits, rates controlling water withdrawal, discharge quantities and other restrictions?	100	94	29	75	78
Has the company identified reputational risks such as tension between businesses and local communities or businesses and other supply chain members?	60	94	14	63	68

affect their business. In Table 4, the risk assessments of the companies are analysed in three categories.

Overall the mining sector performed the best by identifying physical risks (100%), regulatory risks (94%) and reputational risks (94%). Only 60% of the basic materials sector identified physical risks, while the industrial sector was the worst performer in identifying and reporting regulatory (29%) and reputational risks (14%).

Physical risks are disclosed most frequently by all companies. Under this heading, water scarcity was identified as the key risk, which includes aspects such as the potential loss in quality of water and the resulting higher cost of water.

Under regulatory risks, many companies identified that they have water use licences in place, but add that the renewal and application for licenses pose a potential risk.

Comprehensive disclosure about reputational risks was evident in the mining sector, with most of the companies identifying the influence of their operations on the community in terms of water quality and availability. For example, Gold Fields Limited Gold Fields Limited (2013) has programmes in place to improve supplies of potable water to their host communities. This finding corresponds with the findings as discussed in Table 3 as the mining industry reports information about the context of their operations and the associated risks.

Finally, the companies' overall disclosure concerning materiality, governance, corporate policies and standards, EMSs and risk assessment was analysed. The

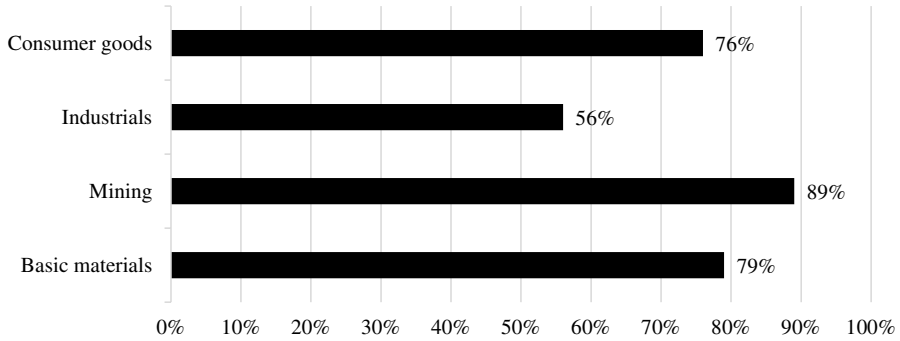

Fig. 3. Overall disclosure percentage per sector.

overall percentage achieved by each sector is illustrated in Fig. 3. As indicated in Fig. 3, the mining sector achieved the highest overall average of 89%, while the industrial sector had the lowest score of 56% overall.

In conclusion, the reporting of materiality of water was of greatest importance to the mining sector. Furthermore, with the exception of the industrial sector, it is evident that most of the companies are serious, transparent and responsible towards the reporting on governance of water. Many companies in the mining sector indicated that they have corporate policies and standards including water management programmes and projects in place, to manage the quality of water. As indicated in a study performed by Leong *et al.* (2014), the mining industry often has an enormous impact on the environment with the effects of water pollution, acid mining water and the depletion of water reserves still being felt years after. It is therefore crucial for the mining industry to disclose and communicate with all its stakeholders. The study also highlighted that most mines require water that could be otherwise available for consumption by local townships, irrigation or other important uses. These reasons highlight the strong interest that the local and broader communities have in the allocation and use of mining water.

The analysis in Table 3 corresponds with the findings in Fig. 2 that the mining sector has EMSs in place for water-related issues. While reviewing the reports, clear descriptions of the context within which these mining companies operate were reported on. The mining companies also identified the water-stressed areas of their operations.

Conclusions and Recommendations

The main research objective of the paper was to evaluate the water-related reporting and disclosure practices of the sampled group of companies. It was

evident from the study that not all the sectors disclose the required information in the same detail and depth. The results indicated that the mining sector outperforms the other sectors by disclosing and reporting the most details on water-related aspects. The industrial sector, on the other hand, performed the worst.

As water has been highlighted by the WEF as the top global risk and is perhaps the most important natural resource for human survival, more pressure should be placed on companies to disclose information about water-related issues. Investors and stakeholders are seeking detailed information on how companies address and manage water-related issues. Companies deciding to enhance water-related reporting and disclosure could benefit from an increase in the perceived legitimacy of their company. In reviewing the integrated reports of the sampled companies, it is evident that in the narrative disclosure sections of the reports, companies do provide the *basic* disclosure items. The reporting on governance, corporate policies, EMS and risk assessments should be evident in the reporting company before the company can report on quantifiable data. It was not the objective of the paper to value the quality of the items that were disclosed, but whether the company pays attention to the reporting requirements or not. Although it could be recommended that companies could improve the relevance, depth and clarity of their disclosure on water, more detail could be provided on how companies are addressing the water risks they are facing within the context of the materiality aspect.

It is furthermore recommended that an improved water disclosure index or more standardised guidelines should be developed and utilised by companies to evaluate whether they are complying with the disclosure and reporting requirements of external standards such as the GRI, CDP Water programme, King III, ISO 14001 and the Water Act. A more comprehensive standardised set of guidelines to report on water per sector could add value to the reporting practices of companies.

Limitations and Areas for Further Research

The results of this study are limited by the fact that the focus was on the SRI-indexed companies that were classified as companies that have a high impact on the environment. These companies are already expected to provide more detail in their reporting practices. This limitation is also an area identified for further research. The research study can therefore be expanded to include more companies. Companies that are not listed on the SRI, but on the JSE, could be included. Further research could be performed by comparing companies listed and not listed on the SRI index. Different sectors or industries could also be investigated and compared. Research on other important natural capital resources such as air and land could also be considered.

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