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Disclosure and reporting against the sustainable development goals: Connecting new stakeholders to sustainability data

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Abstract

This case study focuses on the disclosures of thirty seven companies and a unique research approach to making their corporate sustainability performance more open, comparable and engaging. A group of 40 students at the University of Wollongong worked in a structured way to aggregate comparable data on corporate sustainability on a selection of metrics related to the SDGs. This report offers an in depth look at one example of the kind of projects that WikiRate and the Principles for Responsible Management Education (PRME) have been running since 2016, involving more than 2,000 students. For this case study, WikiRate staff reviewed and verified the data collected by the student group on a sub-set of 22 of the Metrics they had been researching. This data covered the 37 companies' public disclosures across two years of reporting. This report aims to give insight into the needs of researchers and other disregarded corporate sustainability data stakeholders, and to provide recommendations for ways in which reporting can be transformed to improve accessibility and engagement. In addition, the newly opened data sets provide the basis for analysis and interpretation of corporate disclosures against the Sustainable Development Goals, and a glimpse into the current landscape of open ESG information.

Disciplines

Business

DISCLOSURE AND REPORTING AGAINST THE SUSTAINABLE DEVELOPMENT GOALS

Connecting New Stakeholders to Sustainability Data

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Executive Summary

Overview

This case study focuses on the disclosures of thirty seven companies and a unique research approach to making their corporate sustainability performance more open, comparable and engaging. A group of 40 students at the University of Wollongong worked in a structured way to aggregate comparable data on corporate sustainability on a selection of metrics related to the SDGs. This report offers an in depth look at one example of the kind of projects that WikiRate and the Principles for Responsible Management Education (PRME) have been running since 2016, involving more than 2,000 students.

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This report aims to give insight into the needs of researchers and other disregarded corporate sustainability data stakeholders, and to provide recommendations for ways in which reporting can be transformed to improve accessibility and engagement. In addition, the newly opened data sets provide the basis for analysis and interpretation of corporate disclosures against the Sustainable Development Goals, and a glimpse into the current landscape of open ESG information.

Key Findings & Recommendations

From this study we have identified key findings and recommendations for improving the utility of sustainability reporting.

I. Reporting practices create barriers to accessing accurate information

Making a comparison between the performance of companies requires access to comparable data. Where data is reported in independent pdf documents, it must first be extracted to some standard format. WikiRate has built an interface for manually extracting and recording data in this way, but the process is time-consuming and error-prone.

This barrier to accessing analyzable data creates an environment where only those who can afford to pay for access to pre-prepared data-sets or analysis are in a position to participate in broader dialogue about corporate sustainability and make more informed decisions.

Recommendation: Publish ESG information in an easy to interpret and access format, for improved data accessibility and accuracy. In addition to publishing data within PDF sustainability reports, companies could reduce the barriers to accessing clean data by providing the more quantitative data in supplementary machine-readable formats like csv or json. A small number of leading companies are already taking good steps with the publication of supplementary spreadsheets and data tables.

II. Scope covered by data is not well reported and causes confusion

It is often difficult to establish which aspects of a company's operations are covered by the numbers presented in reports. Where the scope of data reported differs between companies this

makes the data unsuitable for comparison. Where the scope for data is not clearly reported and communicated to users of the data this leads to bad comparisons being made.

Where the scope is well defined, it often varies between different indicators within the same report (e.g. energy use that only covers head office and retail outlets in one jurisdiction vs global employee stats). This kind of variation can be difficult for researchers to follow, and it is also difficult to incorporate in the representation of collected data.

Recommendation: Companies should consider separate reports or tables for data covering different scopes of operations, while including totals for direct operations. A section which clearly defines the scopes being used, and then applies these labels throughout the report, would likely also be helpful. There are a few examples of reports that communicate the scope of data well and provide detailed breakdowns.

III. Importance of externally derived benchmarks for industry level materiality and comparison

While we recognize that companies are themselves an important judge of what is material to their business, there are significant advantages to external prescriptions about what companies should report on and how. Particularly in the framework of the SDGs, a useful analysis would be able to consider both company materiality and externally derived benchmarks for industry-level materiality.

Much of the insight that can be generated from contemporary sustainability reports is based on whether or not the company disclosed the answers to questions. When answers have not been disclosed, and the omission is not explained, this leads companies, for which the question is not material, to being grouped with those who decided to omit the answer for other reasons.

Recommendation: Companies should provide clear indications and explanations of their materiality decisions within the context of the SDGs and reporting standards used. Where reporting standards are adopted, a table should be provided which describes, for each indicator, where the information can be found or why it has been omitted. This is now quite common among the more comprehensive sustainability reports.

IV. Improving metric methodologies

An ESG data analyst needs to seek and find data that can be compared and analyzed across companies.

WikiRate's metrics framework opens up the role of defining relevant questions and collecting answers to a broader array of stakeholders - but gathering reliable data depends on defining strong methodologies that guide researchers to the answers consistently.

The process of finding and cleaning the data requires a very different methodology than that produced for companies to estimate and measure sustainability impacts. Designing metric methodologies and mapping standard indicators for researchers thus requires testing and iteration to improve the collection and analysis of sustainability data.

Recommendation: Two types of methodologies need to be considered by companies and standards providers among others – the reporting methodology and the researcher/analyst methodology. Metric methodologies on WikiRate can be refined to suit researchers. Companies should consult with experts on open data and ESG analysis to present their data in a way which is easily accessible and portable.

Researching Company Sustainability Disclosure

Clear data on corporate sustainability performance can be powerful as a basis for research and information that can inform companies, governments, investors, civil society and regular citizens. With better flows of information between companies and their stakeholders, risk identification and long term value creation will be improved, alongside companies' social and environmental impact.

As it stands, current approaches to reporting are costly and tend to obscure information, making direct comparison of equivalent data between companies difficult.. Few actors aside from policy makers and investors can afford access to data that has been extracted from reports and prepared for analysis. Reliance on proprietary data also places restrictions on re-use of the data, restricting the ways in which it can be used to generate shareable insights and innovations.

The WikiRate platform was developed in order to create access for all to corporate sustainability impact information and improve flows of information between companies and stakeholders. This case study assesses an approach which engages future business leaders in researching and analyzing corporate sustainability reporting.

Initial data collection was conducted by students at the University of Wollongong in Australia and used the open WikiRate platform to coordinate the collection and checking of data from public company reports. Students used their data to make analyses and comparisons of company disclosure and performance against the Sustainable Development Goals.

The data reviewed for this report was then checked by WikiRate staff.

This report considers:

1) Company sustainability reporting from the perspective of the researcher and data 'user'; and

2) Corporate disclosures within the framework of the SDGs.

To address the first, we looked at the data quality. Error rates for metrics can show where researchers encountered difficulty interpreting metrics or reports.

On WikiRate, many metric questions have been derived from Global Reporting Initiative (GRI) indicators, which a large number of companies use to determine which environmental, social and governance data to measure and disclose. A GRI indicator often contains more than one question,

so in order to make the information comparable for research and analysis, these *indicators* need to be translated into *metrics* on WikiRate[1].

From a research perspective, metrics create a standardized format for each metric answer. For example, a company may report "Total energy consumption" in gigajoules or terajoules. If the metric in this case requires gigajoules on WikiRate, the researcher will need to do a conversion first if the data is reported in terajoules.

Interpretation of terminology is also a necessary part of the research. The standardized metric question may use terminology that is different than that used by a company. Again using "Total energy consumption" as the example, companies often report this information under "Total fuel consumption". Without specific expertise in this area, it can be difficult to determine whether the company's "Total fuel consumption" is equal to its "Total energy consumption."

These seemingly simple challenges are assessed with an eye towards how reporting and standardization can be improved in order to increase data accuracy.

The second piece is addressed through analysis of the aggregated data, primarily looking at the disclosure rates of companies to metrics aligned with the framework of the SDGs. The analysis only scratches the surface of what kinds of studies are possible with more open access to ESG data.

Project Background

In the context of the Sustainable Development Goals (SDGs) launched in 2015, corporate responsibility initiatives, governments, companies, NGOs and others are seeking new ways to understand and measure company impacts, in similar ways that national statistics offices measure impacts at local and country levels.

The WikiRate database and open platform provides a solution to the problem of differentiated, difficult to access and difficult to compare company sustainability information. In collaboration with the Principles for Responsible Management Education (PRME), a pilot project was developed in 2016, to engage students in creating and using open data, while working with real-world sustainability information on companies to understand issues of reporting, measuring, disclosure and analysis.

This initiative creates greater access to public company data while providing an educational tool for university students. It also seeks to serve the needs of organizations working to support corporate sustainability improvement. The UN Global Compact and their company participants, among others, are interested in tracking and measuring the impact of corporate action in

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[1] A metric is one question that can be asked of many companies.

achieving the Sustainable Development Goals, but often lack the tools to do so in a systematic way.[2] This ongoing data collection effort increases the ability of these institutions to do that.

Corporate Action Group

Business representatives of the UN Global Compact and Global Reporting Initiative's (GRI) *Corporate Action Group platform*, form the companies under analysis in this case study.

There are two groups under the *Corporate Action Group platform*: the Corporate Action Group (comprised of business representatives) and the broader Multi-stakeholder Advisory Committee. The Corporate Action Group (CAG) serves as a business engagement and peer learning forum, where members can show leadership in their SDG reporting practices by helping define and promote their business contributions to the SDGs. The Multi-stakeholder Advisory Committee (MAC) comprises the CAG companies, plus representatives from governments, international and civil society organizations, investors, trade unions, data users, statistical offices and academics, and will feed into the research done by the UN Global Compact and GRI. The MAC will act as a forward-looking international leadership group that guides companies to embrace the SDGs and demonstrate their contribution through reporting.

More details on why this group was chosen can be found in the methodology section below.

Methodology

Research Approach

A subset of 42 student researchers in the "Integrative Research Capstone" (COMM333) course at the University of Wollongong were selected to focus on researching company disclosures across participants of the Corporate Action Group (CAG) of the Action Platform Reporting on the SDGs. The company group was selected for the case study research given their self-selected interest in understanding and contributing to corporate SDG reporting. Additionally, given that the group meets regularly as part of a multi-stakeholder initiative, recommendations and insights from this research could be delivered directly to the companies themselves.

As a starting point for the research, each student was assigned one of the CAG companies to research and another company to verify the data researched. Students worked in small groups of three to four, and were provided time during tutorials to collaboratively research and discuss and develop their findings. The group work would develop into reports addressing the questions around how their 3-4 companies contribute to achieving the SDGs, how companies in this sector could contribute, how they disclosed in comparison to other companies, how well the metrics examined, thus the corporate reporting, contribute to the broad aims of the 2030 Agenda for Sustainable Development, and where improvements are required.

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[2] "UN Global Compact Commits to Tracking and Measuring Business Impact on SDGs". https://www.unglobalcompact.org/news/3631-07-19-2016

Based on the data extracted from the corporate reports and populated on the WikiRate platform, students were asked to consider a number of specific questions per metric answered:

- For each metric, how is the data point reported?

- For each metric, is there any reporting on the topic outside of the data disclosure?

- How are the SDGs covered in the report and according to each indicator?

Metric Selection

Representatives from the UN Global Compact, the Global Reporting Initiative (GRI), WikiRate and the Principles for Responsible Management Education (PRME), worked together to determine the scope of the research, given varying constraints and project aims. The desire was to select a set of metrics aligned to each (or most) of the SDGs, identify qualitative questions that told us something about how companies report the data, and ensure that the scope aligned with the learning objectives and curriculum of the course.

The report *Business Reporting on the SDGs: An Analysis of Goals and Targets* maps business-relevant indicators from a range of standards providers and other guidance for reporting to SDGs.[3] This mapping was used as a guidance for identifying metrics relevant to companies across the seventeen Global Goals.

Criteria for metric selection included:

- Attempt to identify at least one metric per SDG

- Metrics that are realistic to collect in 2018 based on data companies already report

- Metrics that are relevant for all or most sectors

- Metrics that allow for comparison between sectors, to at least some degree

Final metrics selected and the SDGs they relate to are listed in Table 14 in the Annex. Four SDGs were not included given the criteria listed above: SDG2, SDG10, SDG11 and SDG17.

Data Quality Checking

Before utilizing the student-researched data for the aggregate analysis presented here, WikiRate personnel checked and verified the data. The process of checking and verifying data is similar to the research process which students experience and gain insight from. Implications and insights based on this research and verification are presented below.

Research & Data Analysis

This report focuses on 37 companies (see Table 13 in Annex for full list) who are part of the UN Global Compact Corporate Action Group (CAG). These companies are part of a slightly larger set

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[3] Business Reporting on the SDGs: An Analysis of Goals and Targets
https://www.unglobalcompact.org/docs/publications/GRI_UNGC_SDG_Reporting_An_Analysis_of_Goals_and_Targets_2017.pdf

of CAG companies that were studied by a group of students at the University of Wollongong. The data considered here has been peer reviewed by students and then checked by the WikiRate team. Six companies were omitted for reasons such as their sustainability report being written in a language not spoken by the researchers or WikiRate team, or a report with sustainability data was not found.

Each student researched one company on 31 metrics across two reporting years, the metrics included in quality checking by WikiRate were reduced to 22 to keep the workload manageable.

A total of 1,755 answers were included in the following analyses, as they had an accuracy rate of 75%, i.e. one in four answers were corrected by the WikiRate checkers. This figure was derived from the history of answer edits, a method that will tend to over-state the error rate. Most errors were related to unit conversions.

Data overview

Included here are the disclosure analyses across metrics and companies, and the data quality assessment per metric. Data quality is considered alongside company disclosure rates and performance, as a way to understand company sustainability reporting from the perspective of data users (investors, policy makers, consumers, and so on).

Disclosure rates for metrics

The table below considers the disclosure rate for each of the metrics being considered. This is calculated by comparing the number of metric answers which are "unknown" (which can be interpreted as "not found in corporate disclosures") to the total number. There is considerable variation in the disclosure rates for these metrics. Information like number of employees and revenue is almost always available, whereas for metrics about water recycling and pay rates for female workers, less than half the companies considered were disclosing this information.

It should be noted that availability of data is one of the criteria which were used to select metrics for inclusion in this study, and so metrics which are rarely reported have been systematically excluded from the present analysis.

The total number of answers found varies per metric due to some answers not being researched. The broad disclosure rate column presents the same information as the CAG disclosure rate, but for all of the companies and data on WikiRate. CAG companies have slightly higher disclosure rates on most of the metrics considered, 10-20% higher in some cases.

Table 1 Disclosure rate by metric – CAG companies vs. all companies researched on WikiRate

Designer	Metric	Answers found	Answers not found	CAG disclosure rate	Broad disclosure rate
Global Reporting Initiative	Employees (G4-10-a)	85	0	100.00%	95.10%
Core	Revenue	81	2	97.60%	89.90%
Global Reporting Initiative	Female employees (G4-10-a)	74	6	92.50%	83.50%
Global Reporting Initiative	Total water withdrawals (G4-EN8-a)	74	8	90.20%	75.40%
Global Reporting Initiative	Total energy consumption within the organization (G4-EN3-e)	69	9	88.50%	78.60%
Global Reporting Initiative	Direct greenhouse gas (GHG) emissions (Scope 1) (G4-EN15-a)	69	13	84.10%	82.20%
Global Reporting Initiative	Water discharge impact (GRI Standard 306-5)	63	12	84.00%	80.20%
Global Reporting Initiative	Indirect greenhouse gas (GHG) emissions (Scope 2) (G4-EN16-a)	67	13	83.80%	77.70%
Global Reporting Initiative	Worker fatalities (G4-LA6-a)	67	17	79.80%	59.90%
Poverty Footprint	Women in Management Positions	67	17	79.80%	74.30%
Global Reporting Initiative	Fuel consumption from non-renewable sources (G4-EN3-a)	54	24	69.20%	48.90%
Global Reporting Initiative	Collective bargaining (G4-11)	52	31	62.70%	60.00%
Global Reporting Initiative	NOx emissions (G4-EN21-a)	49	33	59.80%	50.20%

Designer	Metric	Answers found	Answers not found	CAG disclosure rate	Broad disclosure rate
Global Reporting Initiative	Fuel consumption from renewable sources (G4-EN3-b)	46	33	58.20%	37.20%
Global Reporting Initiative	Sulfur Oxide (SOx) emissions (G4-EN21-a)	45	34	57.00%	45.80%
Global Reporting Initiative	Incidents of Corruption (GRI Standard 205-3-a)	42	34	55.30%	49.50%
Global Reporting Initiative	Environmental Protection Expenditures (G4-EN31-a)	39	38	50.60%	42.10%
Global Reporting Initiative	Water Volume Recycled (G4-EN10-a)	34	45	43.00%	37.60%
Global Reporting Initiative	Water Recycled (%) (G4-EN10-b)	33	45	42.30%	39.70%
Core	Female workers' pay (as a percentage of male workers' pay)	25	52	32.50%	36.30%
Core	Living Wage Policy (direct employees)	62	15	13.5%	27.1%
Core	Living Wage Policy (supply chain)	61	16	8%	8%

Error rates for metrics

In this context, errors have been defined as metric answers which were updated by the WikiRate team during quality checking.

The majority of errors related to unit conversions. These are difficult in relation to monetary values because the WikiRate platform cannot yet automatically convert answers in a variety of currencies, and so answers must first be manually converted to $USD.

Additionally, a metric like revenue may be reported in millions or hundreds of millions, necessitating a further transformation to an absolute figure. Energy consumption is also quite tricky in this way, as it may be reported in units like petajoules or terajoules.

Functionality which allows researchers to add answers in the denominations in which they are reported, then converts these to a common unit on the back-end, is being developed. This should significantly improve the accuracy rates for metric research on WikiRate.

Table 2 Error rate by metrics researched

Designer	Metric	Error rate
Global Reporting Initiative	Employees (G4-10-a)	15.30%
Core	Revenue	34.90%
Global Reporting Initiative	Female employees (G4-10-a)	23.80%
Global Reporting Initiative	Total water withdrawals (G4-EN8-a)	22.00%
Global Reporting Initiative	Total energy consumption within the organization (G4-EN3-e)	35.90%
Global Reporting Initiative	Direct greenhouse gas (GHG) emissions (Scope 1) (G4-EN15-a)	37.80%
Global Reporting Initiative	Water discharge impact (GRI Standard 306-5)	22.70%
Global Reporting Initiative	Indirect greenhouse gas (GHG) emissions (Scope 2) (G4-EN16-a)	28.80%
Core	Living Wage Policy (direct employees)	35.10%
Global Reporting Initiative	Worker fatalities (G4-LA6-a)	14.30%
Poverty Footprint	Women in Management Positions	26.20%
Core	Living Wage Policy (supply chain)	22.10%
Global Reporting Initiative	Fuel consumption from non-renewable sources (G4-EN3-a)	28.20%
Global Reporting Initiative	Collective bargaining (G4-11)	10.80%
Global Reporting Initiative	NOx emissions (G4-EN21-a)	19.50%
Global Reporting Initiative	Fuel consumption from renewable sources (G4-EN3-b)	24.10%
Global Reporting Initiative	Sulfur Oxide (SOx) emissions (G4-EN21-a)	16.50%

Designer	Metric	Error rate
Global Reporting Initiative	Incidents of Corruption (GRI Standard 205-3-a)	23.70%
Global Reporting Initiative	Environmental Protection Expenditures (G4-EN31-a)	23.40%
Global Reporting Initiative	Water Volume Recycled (G4-EN10-a)	22.80%
Global Reporting Initiative	Water Recycled (%) (G4-EN10-b)	24.40%
Core	Female workers' pay (as a percentage of male workers' pay)	22.10%

Disclosure rates for companies

A calculated metric has been created on WikiRate which considers the set of 22 metrics included in this analysis, and counts the number of answers disclosed per company.
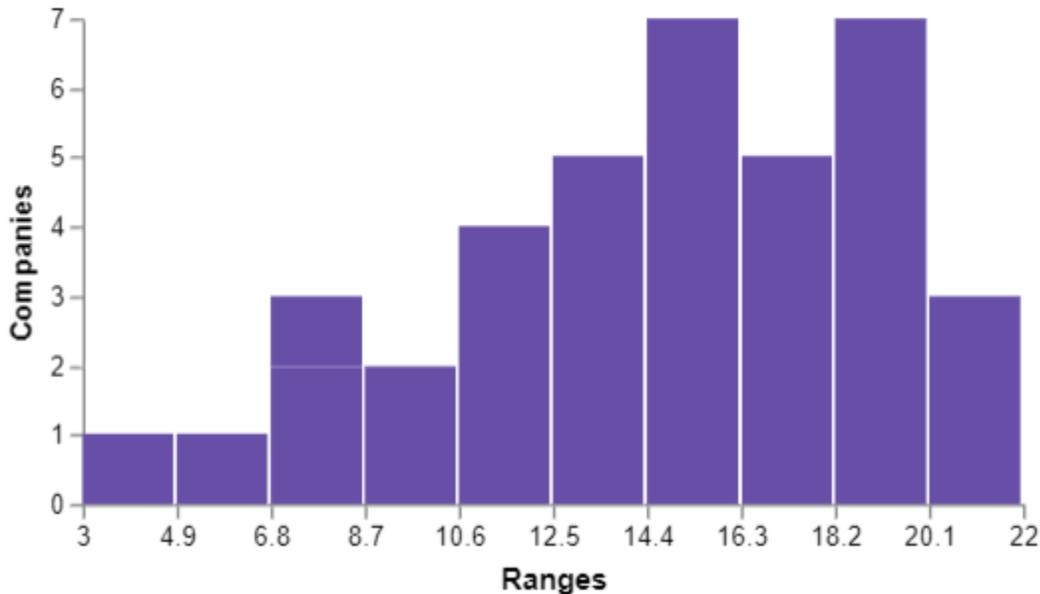
Figure 1: number of disclosures of CAG companies for 22 metrics

The mean number of disclosures was 15.6, with just two companies out of the 37 disclosing answers to all of the 22 metric questions asked.

The number of answers disclosed tended to be quite similar for a company across the two years which were researched. 16 companies reported on the same number of these metrics in each year, 7 reported on one fewer metric in the latest year, whereas 6 reported one additional metric.

SDG breakdown

SDG1: No Poverty

Table 3 Disclosure rates – Metrics mapped to SDG 1

Designer	Metric	CAG disclosures	All Disclosures
Core	Living Wage Policy (direct employees)	13.5%	27.1%
Core	Living Wage Policy (supply chain)	8%	8%

Two new metrics about living wages were researched as part of this exercise, asking whether the company had a living wage policy for 1) their own employees and 2) workers in their supply chain. The majority of CAG companies, 32, made no mention of the living wage concept in their reporting. There were five companies that mentioned the concept of a living wage in relation to their direct workers: Ferrero International, Inditex and Nestle all reported that they had achieved a living wage for their workers. The situation was similar for the living wage in the supply chain metric, although no companies claimed to have achieved this, the same three companies noted above reported progress or guidelines.

These metrics are quite difficult to research because there is no standard way of reporting on the subject of Living Wages. Research involved searching the company's reports to see if the concept is mentioned, then classifying the company's position based on how it is described. It is possible that companies with progressive pay policies that meet the living wage standard may not be recognized as such on this metric if they do not use specific terms like "Living Wage" in their reports.

The lack of a commonly agreed standard definition for what it means to pay workers a living wage means that even those companies who report achieving it, cannot be assumed to have achieved the same thing. This makes comparison on the basis of this metric quite difficult.

SDG3: Good Health and Wellbeing

Table 4 Disclosure rates – Metrics mapped to SDG 3

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Worker fatalities (G4-LA6-a)	79.80%	59.90%

On the subject of workplace safety, the number of fatalities is an interesting metric. On the one hand, it is a good metric because it is clearly defined, but on the other hand it only measures an extreme event (people dying), which may occur in larger numbers due to specific incidents. A workplace that had zero fatalities in a year cannot automatically be considered safe. Measures such as lost-time injury rate are conceptually a better measure of workplace safety, but due to differences in how they are calculated between companies they become much more difficult to use as the basis for comparison.

31 companies reported on the number of worker fatalities, in total they reported 176 worker fatalities across the two years considered. There were five companies that reported zero fatalities in both researched years.

One obvious problem here is that the number of fatalities does not control for differences in the size of the workforce. This has been addressed with a calculated metric that divides number of fatalities by number of employees to produce a "death rate" measure.

SDG5: Gender Equality

Table 5 Disclosure rates – Metrics mapped to SDG 5

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Female employees (G4-10-a)	92.50%	83.50%
Poverty Footprint	Women in Management Positions	79.80%	74.30%
Core	Female workers' pay (as a percentage of male workers' pay)	32.50%	36.30%

Good comparable data on the subject of gender equality is hard to come by. One of the more useful metrics on this subject in the present analysis is the percentage of management positions filled by women. 30 of the companies disclosed the percentage of management positions filled by women, and among these the mean rate was 25%.

One way to add context to this figure is to compare it to the percentage of the company's workforce that are women. This puts the figure in context by showing whether women are over or under-represented in management positions as compared to non-management positions.

This calculated metric on WikiRate compares the percentage women in management figure to the female employees figure. The median for CAG companies is -2.5, i.e. the percentage of management roles filled by women is 2.5% lower than the percentage of female employees. However, the range for this figure is quite large, from -26.5% (meaning more female employees than managers) to +21.3% (meaning more female managers than female employees). This method of adding context is not without its problems, in particular it is quite skewed for companies whose lower-level employees perform work that has a strong gender bias.

Looking at how the female managers/workers differential changed from the previous year to the current year, it has gone up for 15 companies and down for 15 companies, usually by small amounts. Based on this data, there is no reason to believe that the representation of women in management is increasing in the set of CAG companies, although ideally this would be considered on a longer timeline.

One of the difficulties in using this metric for comparisons between companies is the way in which "management positions" are defined, which is not consistent between companies.

Another relevant metric for gender equality considers the pay rates of men and women. This was reported by 16 CAG companies, but there are problems with the data. The main problem with this data is that some companies have only reported this information in the context of the UK's Gender Pay Gap legislation - i.e. for their UK-based operations only. The UK's gender pay gap legislation is quite good, in that it precisely defines a wide array of measures which, taken together, give quite a nuanced view on gender pay disparities.

The data collected for the metric on WikiRate is however a mix of data compiled according to this method (for UK employees only) and data compiled with a variety of other methods covering a variety of jurisdictions.

It is encouraging that this kind of information is being more widely reported, but the lack of a common standard for calculating the measure makes it difficult to use the data properly.

SDG6: Clean Water and Sanitation

Table 6 Disclosure rates – Metrics mapped to SDG 6

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Total water withdrawals (G4-EN8-a)	90.20%	75.40%
Global Reporting Initiative	Water discharge impact (GRI Standard 306-5)	84.00%	80.20%
Global Reporting Initiative	Water Volume Recycled (G4-EN10-a)	43.00%	37.60%
Global Reporting Initiative	Water Recycled (%) (G4-EN10-b)	42.30%	39.70%

The total amount of water withdrawn was reported by 90% of CAG companies, higher than the general rate of 75% on WikiRate. To make use of these figures for comparison they must be standardized between companies in some way.

We have created metrics which present water use on the basis of revenue and profits. This is a crude method but it does at least present water use figures in the context of the size of the company - with revenue being taken as a proxy for the scale of operations and a reflection of production levels.

The volume and percentage of water recycled are difficult metrics to interpret because the same water can be re-used multiple times - a company can re-use more water than it withdraws in total, making percentages greater than 100% possible. The result is that any company that has a production process which re-uses a significant volume of water multiple times will tend to report a high percentage of water recycled. This can be true even if the company is very wasteful with water in other aspects of its operations. For example, suppose a company has some operation that recycles the same water for use in 10 cycles, and 5% of its total water withdrawals feed into that process. That company would have a water recycling rate of 50%, even if 95% of the water it withdraws is never recycled.

One way to make this metric more comparable would be to only count a single re-use of water withdrawn, so in the example about it would only count for 5%. To really make effective water recycling or usage comparisons though, the specific uses of that water would have to be reported and a comparison made on that basis - ideally standardized by the quantity of goods produced.

The Water Discharge Impact metric asks the question "Did the company report water bodies or related habitats significantly affected by water discharges and/or runoff?". For 76% of CAG

companies the answer was No, but it is important to point out that this does not mean they reported that there were no significant incidents. A No answer to this question would cover companies that did not report anything about water discharges affecting water bodies, as well as companies which explicitly state that no such impacts occurred. With this kind of metric, a Yes answer can actually indicate a company that produces better reporting and may be more sustainable - being able to identity such incidents and willing to report them are positive signs.

To make a metric like this useful for comparison, reporting would have to be conducted on the basis that every company explicitly addresses the subject and states that Yes water bodies were affected, or No water bodies were not affected.

SDG7: Affordable and Clean Energy

Table 7 Disclosure rates – Metrics mapped to SDG 7

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Total energy consumption within the organization (G4-EN3-e)	88.50%	78.60%
Global Reporting Initiative	Fuel consumption from non-renewable sources (G4-EN3-a)	69.20%	48.90%
Global Reporting Initiative	Fuel consumption from renewable sources (G4-EN3-b)	58.20%	37.20%

The broad and general nature of the total energy consumption metric is both its strength and weakness. This is a strength because there is little room for variation in how the metric is interpreted - it should cover all of the organization's energy use. The metric's broadness is a weakness in that the impacts or harms associated with energy use are strongly related to its source, which is not captured at all by this metric.

Calculated metrics have been created which standardize energy use by expressing it in terms of revenue and number of employees. These yield some interesting comparisons, for example one company uses 0.015 GJ per $ revenue whereas another uses energy at less than half this rate, 0.006 GJ/$. Data captured for multiple years can yield assessments over time for a given company, where year by year progress is measured.

Metrics about fuel consumption from renewable and non-renewable sources suffer from a number of problems, chiefly related to scope. For some companies these figures only reflect fuel used for transport, whereas for others the figure includes fuels that are integral to production.

SDG8: Decent work and economic growth

Table 8 Disclosure rates – Metrics mapped to SDG 8

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Collective bargaining (G4-11)	62.70%	60.00%

Figures reported by the CAG companies for this metric cover a broad range, from 0% of employees covered by collective bargaining to 100%, with the median being 69%. The figure reported is often a function of jurisdiction, with companies based in the USA typically reporting low percentages (or not reporting at all) and companies in Europe typically reporting high percentages.

There were 21 companies that reported this in both years researched, and where it was reported in consecutive years, the figure increased by a mean of 2%.

SDG9: Industry, Innovation and Infrastructure

Table 9 Disclosure rates – Metrics mapped to SDG 9

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Environmental Protection Expenditures (G4-EN31-a)	50.60%	42.10%

The figures reported for this metric range from tens of millions to over one billion, and when expressed as a percentage of revenue from 0.001% to 8%. Much of this variation is related to how loosely "environmental protection expenditures" have been defined. Companies which stretch this definition to include things like standard waste processing distort the picture to the disadvantage of companies which have been more reasonable in how they define "environmental protection expenditures".

Another significant issue with reporting on this metric is that some companies report almost no details about what their environmental protection expenditure has actually funded. This practice of not reporting what the expenditures covered is more common among companies that reported the largest figures.

SDG 13: Climate Action

Table 10 Disclosure rates – Metrics mapped to SDG 13

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Direct greenhouse gas (GHG) emissions (Scope 1) (G4-EN15-a)	84.10%	82.20%
Global Reporting Initiative	Indirect greenhouse gas (GHG) emissions (Scope 2) (G4-EN16-a)	83.80%	77.70%

Greenhouse Gas emissions are well reported, and the way in which companies report emissions is quite well standardized. Nevertheless, there remain challenges around contextualizing this data. The tons of carbon or carbon-equivalent emitted in a year holds little meaning for most readers.

WikiRate has previously worked with the Center for Sustainable Organizations to implement a live version of their context-based carbon metric. Unfortunately this version of the metric was incompatible with how GHG emissions and gross profits are routinely reported.

GHG emissions need contextualization, ideally through reference to ecological limits like the amount of carbon-equivalent GHG which can be emitted globally under the climate change scenarios in the Paris Agreement. From these scenarios, one can extrapolate a fair share of global carbon emissions for a company based on the company's scale and nature of operations.

Context-based metrics allow the data to be presented in terms of whether a particular company is doing its fair share to avoid catastrophic warming scenarios.

SDG15: Life on land

Table 11 Disclosure rates – Metrics mapped to SDG 15

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	NOx emissions (G4-EN21-a)	59.80%	50.20%
Global Reporting Initiative	Sulfur Oxide (SOx) emissions (G4-EN21-a)	57.00%	45.80%

The key to understanding disclosure rates for these metrics is understanding materiality and how that is communicated. It is rare for companies to report zero NOx or SOx emissions. For many companies that do not report these emissions, it may be because they are not material and the emissions are effectively zero. However, without strong norms around reporting on indicators like this one cannot assume that "not reported" is the same as "no emissions".

SDG16: Peace, justice and strong institutions

Table 12 Disclosure rates – Metrics mapped to SDG 16

Designer	Metric	CAG disclosures	All Disclosures
Global Reporting Initiative	Incidents of Corruption (GRI Standard 205-3-a)	55.30%	49.50%

Metrics that count the number of incidents of corruption, discrimination or grievances have two problems: 1) the severity of incidents is lost in the numerical answer, and this is arguably more than or at least as important as their frequency; 2) the numbers are largely a product of the method of detection and classification. A company that reports a large number of incidents of corruption which are all relatively minor could well be doing much better in this regard than a company that reports zero incidents or a small number of incidents which are all quite severe.

Often the first step towards addressing this kind of problem is detecting it well and being open about the scale of the problem. A larger number of incidents reported could be a market a company that is on the right track.

Key Findings

Current company practices of publishing all sustainability-related data for a year in a printed or pdf format causes several problems:

- Extracting data from these reports is labor-intensive and error-prone,

- Errors that occur during the extraction process are undesirable for all stakeholders: analysts don't want to use bad data in their analysis and companies don't want to be analyzed on the basis of bad data, and

- The annual cycle of data gathering and report production within the company takes time, and ensures a lag between reported and current performance.

The bespoke nature of performance tracking and reporting introduces a requirement to extract data into a common standard before any comparisons can be made. This introduces data collection errors. Inconsistency in how performance is measured and reporting is conducted between companies limits the utility of the data even when it has been accurately transcribed.

Reporting on the same subject using different units of measurement introduces confusion. Even minor variations like reporting in Petajoules or Gigajoules necessitate conversions or unit handling logic on the researcher's end. Variations on lost-time injury rates and total recordable incident rates can be hard to follow and can make figures incomparable.

Concepts like staff levels (e.g. managerial) and training are loosely defined and therefore probably not going to generate data that is useful for cross-company comparisons.

The scope of a company's operations which the presented data covers has often not been well described - although this seems to be improving. Even where the scope is well defined it often varies between different indicators within the same report (e.g. energy use that only covers head office and retail outlets in one jurisdiction vs global employee stats). This kind of variation can be difficult for researchers to follow, and it is also difficult to incorporate in the representation of collected data. Where the scope covered by an indicator is different between companies in a significant way, this makes the data almost worthless for comparison.

Facilitating the collection and analysis of accurate data
The key consideration here is the format in which data is published. The provision of machine-readable tables of any sort makes data collection much easier. Any degree of standardization of how to do this between companies would further boost the productivity and accuracy of researchers. In an ideal world, volunteer researchers on WikiRate would spend most of their time considering and analyzing the data. This is possible only if the data is published according to some standard which allows it to be easily scraped or downloaded, and combined with other data. Although access to machine-readable data is available in a number of scenarios – such as through government databases, original research by NGOs and benchmarks, and in some cases easily scrapable from websites, the majority of sustainability reporting remains in reports where it is difficult to access.

The collection of accurate data is significantly more time consuming than necessary and hinders stakeholders learning about and supporting improvements to corporate environmental and social impact.

Enabling useful comparisons between companies
Data-points for the same metric should share the same meaning wherever possible. This relates to the definition of what is being measured, the specific methods used to make any estimates, and the scope of operations being covered. Any significant differences here decrease the data's value by limiting comparability.

Scope of reporting is as important as materiality, while getting significantly less attention. Companies are reporting data covering varied scopes within the same sustainability report, making it very difficult to use the information appropriately in analysis.

Agreeing on strong standards for sustainability reporting is an ongoing process and the choice of such standards will be to the advantage of some companies at the cost of others. We see strong potential in tightly defined standards that focus on consistency and comparability of reporting. The UK's Gender Pay Gap legislation and service offer a clear illustration that tightly defined metrics are possible and that a range of such metrics allows one to make detailed comparisons between companies and track the evolution of the phenomenon within companies.

Reporting according to one standard does not preclude reporting according to other standards on the same or different subjects, although it is important to make clear which standards and indicators a particular figure or statement relates to.

Companies, for their part, could report according to more than one standard, for subjects where this does not present too onerous a burden. This would afford stakeholders greater possibilities for comparing the standards. Competition between standards could spur innovation in that area of the space.

From a perspective of understanding company impacts, it is important to include a broad diversity of stakeholders in the process of selecting metric questions and deciding how they should be answered.

Materiality is a crucial consideration for sustainability reporting. Presently this is not handled very well in reporting, it is not always possible to discern whether the lack of an answer to some questions represents:

A. The company's decision that the question is not material to their business

or

B. The company's decision that the question is not one they should answer because it would put them at a competitive disadvantage

To take an example, on WikiRate this metric about Sulphur Oxide (SOx) Emissions can only have numerical answers or be marked as Unknown. For 63% of companies the answer is recorded as Unknown, but there are likely some companies within this set that did not report on that indicator simply because it is not relevant. "Unknown" answers cover companies that had zero emissions and companies that chose not to report these emissions.

Clearer reporting that responds to every one of a set of metrics, or where lack of response is read as refusal to disclose the information, would offer a much better perspective on the materiality decisions being made, and where transparency is lacking.

While we recognize that companies are themselves the best judge of what is material to their business, there are significant advantages to external prescriptions about what companies should report on and how.

Our view is that many materiality decisions are better made at an industry level, and that there are further advantages to standards defined at this level of specificity. The Corporate Human

Rights Benchmark puts this kind of thinking into practice, with versions of the indicators tailored to Agriculture, Apparel and Extractives sectors.

The need to contextualize raw figures to understand them could be addressed with strong norms about how to present rates for an industry.

In the analyses we have conducted we have tended to use broadly available metrics as basic denominators (revenue, number of employees), and while these are better than nothing for enabling comparisons, they are still quite blunt instruments.

Intensity metrics (like Energy Intensity, here), which present material consumption or emissions as a rate per unit or weight of product, are a promising solution. However, without common standards within a sector for how those rates should be presented they are counter-productive (i.e. rates expressed per litre or gallon or cubic metre of product require transformation before being used to make comparisons).

There is also a question about the level of granularity with which rates like these should be reported, whether product lines are different enough to each other to warrant specific rates and how to aggregate these.

Saving time and money

Arguably, corporate sustainability reporting is about accountability to all corporate stakeholders. When done well, transparency allows a range of individuals and organizations to engage with the information published and make decisions based on this.

Through this research, we found that the median disclosure for thirty seven companies across 22 metrics over two years was 15.6, or 70.9% disclosed. Estimating 10 hours of data research per student (42), 10 hours per individual verifying data (4) and 10 hours for data aggregation and analysis, it took 470 hours of work to determine this disclosure rate. This is more than eleven and a half weeks of a full-time forty-hour work week, or about $30,000 at a day rate of $500 /day. The disclosure rate is interesting, and a starting point for further research – but likely not worth $30,000 to most.

Companies can also be better served by the broader ESG data ecosystem. Companies receive and respond to a number of requests for detailed information about their operations and impacts – these responses take company representatives' time to produce. In some cases the responses themselves become, after a little internal processing, private property of the organization which solicited them. Other stakeholders may then have to pay to access this data. This is in our view sub-optimal, and it would be preferable that company time and money spent on sustainability reporting would be available to all of that company's stakeholders.

Improvements in ESG data reporting and transparency norms can help governments, companies and their stakeholders save significant time and money as they work to understand impacts.

Conclusions

There is a clear need to include new perspectives to improve the way that companies communicate sustainability and ESG impact to their stakeholders. Through structured research using public company reports, we find that current norms in corporate reporting do not reach standards of open, transparent data. To better understand company impacts, and to serve the needs of governments, investors and communities in helping companies reach the global Sustainable Development Goals, openness and transparency standards in company reporting must improve.

The perspective of the researcher is of particular import as it provides key insights into how companies and those working with companies can provide clear, comparable, usable sustainability data.

Partners

WikiRate e.V.: WikiRate is a non-profit with the mission to drive ethical decisions by advancing the research and use of trusted, open measures of corporate performance. Through its major programs WikiRate helps its community generate useful and usable knowledge around corporate sustainability bringing context, comparability and accessibility to diverse data sets, allowing people to discover how companies disclose, perform and react to social and environmental issues. WikiRate's programs and overall information aggregation has helped to gather over 250,000 measures of corporate sustainability disclosure and performance, across 15,000 companies across various important social and environmental themes.

Principles for Responsible Management Education (PRME): The Principles for Responsible Management Education (PRME) is a United Nations Global Compact supported initiative founded in 2007 as a platform to raise the profile of sustainability in schools around the world, and to equip today's business students with the understanding and ability to deliver change tomorrow. As a voluntary initiative with over 700 signatories worldwide, PRME has become the largest organized relationship between the United Nations and management-related higher education institutions.

PRME engages business and management schools to ensure they provide future leaders with the skills needed to balance economic and sustainability goals, while drawing attention to the Sustainable Development Goals (SDGs) and aligning academic institutions with the work of the UN Global Compact.

University of Wollongong: The University of Wollongong (UOW), Australia, is focused on 'excellence with impact'. It values purposeful research and academics and graduates who are globally networked, and committed to advancing social, environmental and economic development. As a PRME signatory, the UOW Faculty of Business aims to deliver inspiring teaching and industry collaboration to promote responsible leadership and sustainable business practices, and contribute to a strong economy and more just society. The SDGs are embedded into all Business degrees.

Annex

Table 13 Corporate Action Group (CAG) Companies researched

ID	Company	ID	Company
1	AP Moller – Maersk	20	Michelin Group
2	BASF SE	21	Nestle
3	Cemex	22	Netafim
4	China Development Bank	23	Novo Nordisk
5	Coca-Cola Hellenic Bottling Company	24	Novozymes
6	Covestro	25	Pernod Ricard
7	Daimler	26	Pirelli & C. SpA
8	Deutsche Telekom	27	PTT Global Chemical
9	Edelman	28	Sakhalin Energy
10	Enel	29	Siemens Gamesa Renewable Energy, S.A.
11	Eni	30	Solvay
12	Ferrero International	31	Swire Pacific
13	Fuji Xerox Co., Ltd.	32	Telecom Italia
14	Grupo Bimbo	33	Total S.A.
15	Grupo Nutresa	34	Triodos Bank International
16	Groupe Danone	35	UPM-Kymmene
17	Iberdrola	36	Vale SA
18	Inditex	37	Visa
19	Itaipu Binacional		

Table 14 Metric questions researched and corresponding Sustainable Development Goal

ID	Designer	Metric name	SDG
1	Core	Living Wage Policy (direct employees)	1
2	Core	Living Wage Policy (supply chain)	1
3	Global Reporting Initiative	Worker fatalities (G4-LA6-a)	3
4	Global Reporting Initiative	Male worker fatalities (G4-LA6-a)	3
5	Global Reporting Initiative	Female worker fatalities (G4-LA6-a)	3
6	Global Reporting Initiative	Injury rates (G4-LA6-a)	3
7	Global Reporting Initiative	Average hours of training (G4-LA9-a)	4
8	Core	Female workers' pay (as a percentage of male workers' pay)	5
9	Poverty Footprint	Women in Management Positions	5
10	Global Reporting Initiative	Female employees (G4-10-a)	5
11	Global Reporting Initiative	Total Waste Generated (G4-EN23-a)	6
12	Global Reporting Initiative	Water Recycled (%) (G4-EN10-b)	6
13	Global Reporting Initiative	Water Volume Recycled (G4-EN10-a)	6
14	Global Reporting Initiative	Total water withdrawals (G4-EN8-a)	6
15	Global Reporting Initiative	Total energy consumption within the organization (G4-EN3-e)	7
16	Global Reporting Initiative	Fuel consumption from renewable sources (G4-EN3-b)	7
17	Global Reporting Initiative	Fuel consumption from non-renewable sources (G4-EN3-a)	7
18	Global Reporting Initiative	Collective bargaining (G4-11)	8
19	Global Reporting Initiative	Environmental Protection Expenditures (G4-EN31-a)	9
20	Global Reporting Initiative	Total Waste Recycled (G4-EN23-a)	12

ID	Designer	Metric name	SDG
21	Global Reporting Initiative	Direct greenhouse gas (GHG) emissions (Scope 1) (G4-EN15-a)	13
22	Global Reporting Initiative	Indirect greenhouse gas (GHG) emissions (Scope 2) (G4-EN16-a)	13
23	Global Reporting Initiative	NOx emissions (G4-EN21-a)	14
24	Global Reporting Initiative	SOx emissions (G4-EN21-a)	14
25	Global Reporting Initiative	Water discharge impact (GRI Standard 306-5)	15
26	Global Reporting Initiative	Incidents of Corruption (GRI Standard 205-3-a)	16
27	Global Reporting Initiative	Environmental fines (G4-EN29-a)	16
28	Core	Revenue*	
29	Core	Gross Profit*	
30	Global Reporting Initiative	Employees (G4-10-a)*	

* Metrics included in order to facilitate analysis and comparison – denominator metrics, e.g. GHG emissions per employee or per dollar profit.