

**THE GLOBAL REPORTING INITIATIVE:
AN ANALYSIS OF STRATEGIC IMPLEMENTATION AND
ENVIRONMENTAL PERFORMANCE INDICATORS**

by

Man Y. Lee

Date: _____

Approved:

Dr. Deborah Gallagher, Advisor

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ABSTRACT

The Global Reporting Initiative (GRI) arose in response to the idea that to attain sustainable development, a globally recognized indicator framework that describes organizations' impact upon the triple bottom line was needed. GRI's mission is to elevate sustainability reporting to equivalency with financial reporting by creating a commonly agreed framework. However, unlike financial reporting, which is targeted primarily at one key stakeholder, the shareholder, sustainability reporting has a large and diverse audience and issues range from as straightforward as number of vacation leave days per employee to as complex as quantifying indirect greenhouse gas emissions. Therefore, to address the need for guidance in creating a GRI based sustainability report, this paper is focused on creating a roadmap to reporting performance indicators by qualitatively analyzing the environmental dimension of GRI G3-based sustainability reports. The objective is to identify the indicators most commonly used and to identify a trend in indicators selection across all reports. The goal is to provide assistance and guidance to make the environmental sustainability aspect of the reporting process less daunting. This project recommends a framework that could serve to promote the improvement in quality of GRI based sustainability reporting.

CONTENTS	Page
1. INTRODUCTION	1
2. BACKGROUND	2
2.1 G3 Sustainability Reporting Guidelines	4
3. METHOD OF INVESTIGATION	6
3.1 Report Selection	9
3.2 Environmental Performance Indicators Analysis	11
3.3 Report Attributes	12
3.4 Summary of Methods	14
4. ANALYSIS	14
4.1 Performance Indicators and Depth of Coverage	15
4.2 Environmental Aspects and Depth of Coverage	16
4.3 Sustainability Reports and Depth of Coverage	18
4.4 Attributes of Sustainability Reports and Depth of Coverage (Regression Analysis)	20
4.4.1 Model 1	21
4.4.2 Model 2	22
5. RECOMMENDATIONS	23
6. CONCLUSION	28
ACKNOWLEDGEMENTS	31
REFERENCES	32
APPENDIX	36

1. INTRODUCTION

With environmental and social issues becoming increasingly important in the public opinion, there is no doubting the significance of sustainability reporting¹. The need for sustainability reporting was well recognized when the Boston-based non-profit Coalition for Environmentally Responsible Economics (CERES) first introduced the “Global Reporting Initiative (GRI)” project in 1997. The project arose in response to the idea that to attain sustainable development, a globally recognized indicator framework that describes organizations’ impact upon the triple bottom line was needed. The triple bottom line takes into account environmental and social performance in addition to financial performance in measuring organizational success. GRI’s mission is “to elevate sustainability reporting to equivalency with financial reporting by creating a commonly agreed framework”².

However, despite the growing enthusiasm in sustainability reporting, small and first-time reporters are overwhelmed with the entire set of protocols. Unlike financial reporting, which is targeted primarily at one key stakeholder, the shareholder, sustainability reporting has a large and diverse audience and issues range from as straightforward as number of vacation leave days per employee to as complex as quantifying indirect greenhouse gas emissions³. Julie Gorte, a member of the GRI Stakeholder Council and vice president and chief social investment strategist of Calvert states, "Having just done a sustainability report last year, I can say from firsthand

¹ “GRI Conference”

² “The Global Reporting Initiative”

³ “Sustainability Reporting” 16

experience that it is quite an undertaking for a small company--even for Calvert, which understands the GRI probably better than most companies"⁴.

Therefore, to address the need for guidance in creating a GRI based sustainability report, this paper is focused on creating a roadmap to reporting environmental performance indicators by qualitatively analyzing the environmental dimension of G3-based sustainability reports. The objective is to identify the indicators most commonly used and to identify a trend in indicators selection across all reports. The goal is to provide assistance and guidance to make the environmental sustainability aspect of the reporting process less daunting.

2. BACKGROUND

From the beginning, the founders did not create GRI as a sustainability advocacy group. Rather, GRI was conceived as a framework that focuses on the challenge of data integration, organization, and disclosure of information in order to make sustainable accounting a reality. Furthermore, the GRI distinguishes itself from other reporting standards by focusing only on the framework which assists organizations to achieve transparency and accountability. The commonly agreed framework is globally recognized and enthusiastically welcomed by the public because the GRI framework is not a performance standard against a preconceived level of what constitutes 'acceptable' versus 'unacceptable' performance. GRI seeks to make sustainability reporting as routine and credible as financial reporting in terms of comparability, rigor, and verifiability, without determining/judging the organization's performance. GRI's vision is, "To support global progress towards sustainable development, the GRI Sustainability

⁴ "SRI"

Reporting Guidelines will become the generally accepted, broadly adopted worldwide framework for preparing, communicating and requesting information about corporate performance”⁵.

In 2000, under the care of CERES, GRI released the first Sustainability Reporting Guidelines. However, GRI would not remain with CERES where it was established as a project. The decision was made from the very beginning, rather than develop an initiative that CERES would administer and own, the GRI would be spun off into an independent institution⁶. Robert Massie, one of fourteen GRI Board of Directors, states, “We see ourselves as stewards of a process... people are always somewhat suspicious of bold new projects in which one party seems to gain a temporary financial or other advantage... by promising to give GRI away, we proved that the GRI was not a secret plot by CERES to take over the world”⁷. In 2001, as recommended by the GRI Steering Committee, CERES Board spun off GRI as an independent institution⁸. A year later, the second version of the Sustainability Reporting Guidelines was released at the World Summit for Sustainable Development in 2002. The second version of the Guidelines, known as G2, was acclaimed a significant technical improvement from the first version⁹. The G2 guidelines were used by over 1900 companies, including Cisco, General Electric, Ford, and Microsoft. Finally, on October, 2006, nearly four years after the release of G2, the third generation of Guidelines (“G3”) was released.

⁵ Wendell 1

⁶ Wendell 5

⁷ Wendell 5

⁸ Wendell 14

⁹ “Everything”

2.1 G3 Sustainability Reporting Guidelines

The new G3 Guidelines build upon the tried and proven 2002 Guidelines. To improve on the 2002 version, G3's content is reorganized, prioritized differently, and streamlined to bring about improved communications with stakeholders¹⁰. The G3 guidelines are harmonized with the UN Global Compact, are more useful for investors and analysts, and bring corporate governance into sharp focus¹¹. The major change in the G3 Guidelines is that it will no longer be enough just to state company policy, businesses will now have to present the figures behind their policies. Sandrijn Weites, the senior vice president of ABN Amro bank's sustainability reporting states, "Before you could just state your company policy, now you actually have to report for instance how many disabled people work for you. There is much more reporting on what you are actually doing... this year it will be more of a challenge to meet the GRI guidelines"¹².

Nevertheless, despite the potential challenges in data collection, the G3 Guidelines presents a logical flow for sustainability reporting. The G3 Guidelines recommends a reporting structure that moves from high level strategic issues, to management approach, and closes with performance results. High Level Strategic issues are disclosures that set the overall context for understanding organizational performance such as its strategy, profile, and governance¹³. This section is intended to produce insight about the relevance of sustainability to the organization and its strategy. Management Approach covers how an organization addresses a given set of topics in order to provide context for understanding performance in a specific area and is intended to address the

¹⁰ "Making"

¹¹ Baue, B

¹² "GRI Conference"

¹³ "G3" 19

next level of detail of the organization’s approach to managing the sustainability topics associated with risks and opportunities¹⁴. Performance Indicators are used to elicit comparable information on the economic, environmental, and social performance of the organization¹⁵.

By adopting a structure in sustainability reporting, the reporter creates the base content in a sustainability report and ensures that all context and performance information are presented in a logical manner. The reporting structure simplifies the complexity of undertaking the whole sustainability reporting by dividing the process into parts. The designed reporting structure allows the reporter to focus on each aspect of the sustainability report and define the scope on issues with the aim of improving sustainability performance. **see figure 1*

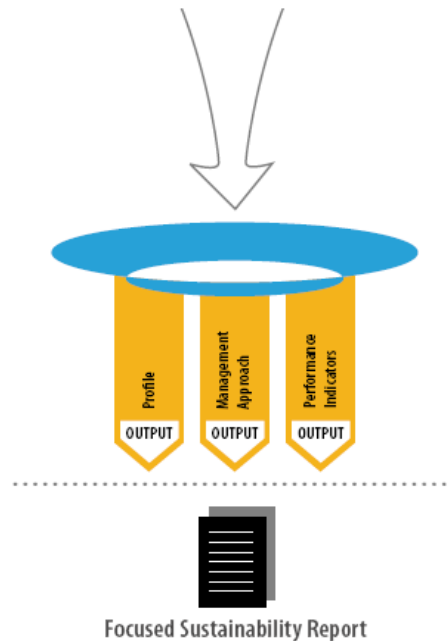


Figure 1: Reporting structure

¹⁴ “G3” 24

¹⁵ “G3” 19

Upon completion of the sustainability report, an organization must declare the level to which they have applied the GRI Reporting Guidelines. An organization self declares a reporting level based on its own assessment of its reporting content against the criteria in the GRI Application Levels. Using the “GRI Application Levels” system results in a clear communication to stakeholders about which elements of the G3 Guidelines have been applied in the sustainability report. There are six application levels: A, A+, B, B+, C, and C+. See figure 2

Report Application Level		C	C+	B	B+	A	A+
Standard Disclosures	G3 Profile Disclosures	Report on: 1.1 2.1 - 2.10 3.1 - 3.8, 3.10 - 3.12 4.1 - 4.4, 4.14 - 4.15	Report Externally Assured	Report on all criteria listed for Level C plus: 1.2 3.9, 3.13 4.5 - 4.13, 4.16 - 4.17	Report Externally Assured	Same as requirement for Level B	
	G3 Management Approach Disclosures	Not Required		Management Approach Disclosures for each Indicator Category		Management Approach disclosed for each Indicator Category	
	G3 Performance Indicators & Sector Supplement Performance Indicators	Report on a minimum of 10 Performance Indicators, including at least one from each of: social, economic, and environment.		Report on a minimum of 20 Performance Indicators, at least one from each of: economic, environment, human rights, labor, society, product responsibility.		Respond on each core G3 and Sector Supplement* indicator with due regard to the materiality Principle by either: a) reporting on the indicator or b) explaining the reason for its omission.	
							Report Externally Assured

Figure 2: GRI Application Levels

3. METHOD OF INVESTIGATION

According to CorporateRegister.com, the world’s largest online directory of corporate non-financial reports, forty-six companies worldwide claimed that they used the G3 Guidelines in preparing their sustainability report (See Appendix B). Of the forty-six published sustainability reports, twenty were randomly selected to be analyzed in this study. They were selected according to language of publication (English) followed by random sampling.

Data was collected by analyzing the environmental section of the sustainability reports and coding the reports based on the nine aspects of environment performance indicators as defined by the G3 Guidelines. The nine aspects are: 1) Materials, 2) Energy, 3) Water, 4) Biodiversity, 5) Emissions, effluents, and waste, 6) Products and services stewardship, 7) Environmental compliance, 8) Transport, and 9) Environmental expenditures.

The materials aspect focuses on the materials used and recycled. The energy aspect involves the areas of organizational energy use, which include both direct and indirect energy. The water aspect explores the impacts of water usage. The biodiversity aspect is related to the interaction between business operations and natural resources. The emissions aspect measures standard releases to the environment considered to be pollutants. The products and services aspect covers product stewardship. The compliance aspect examines the environmental laws and regulations of business operations. The transport aspect measures the impacts of transporting products and services. The environmental expenditures aspect evaluates financial data on environmental performance. In all, the nine aspects are comprised of thirty performance indicators. **see figure 3*

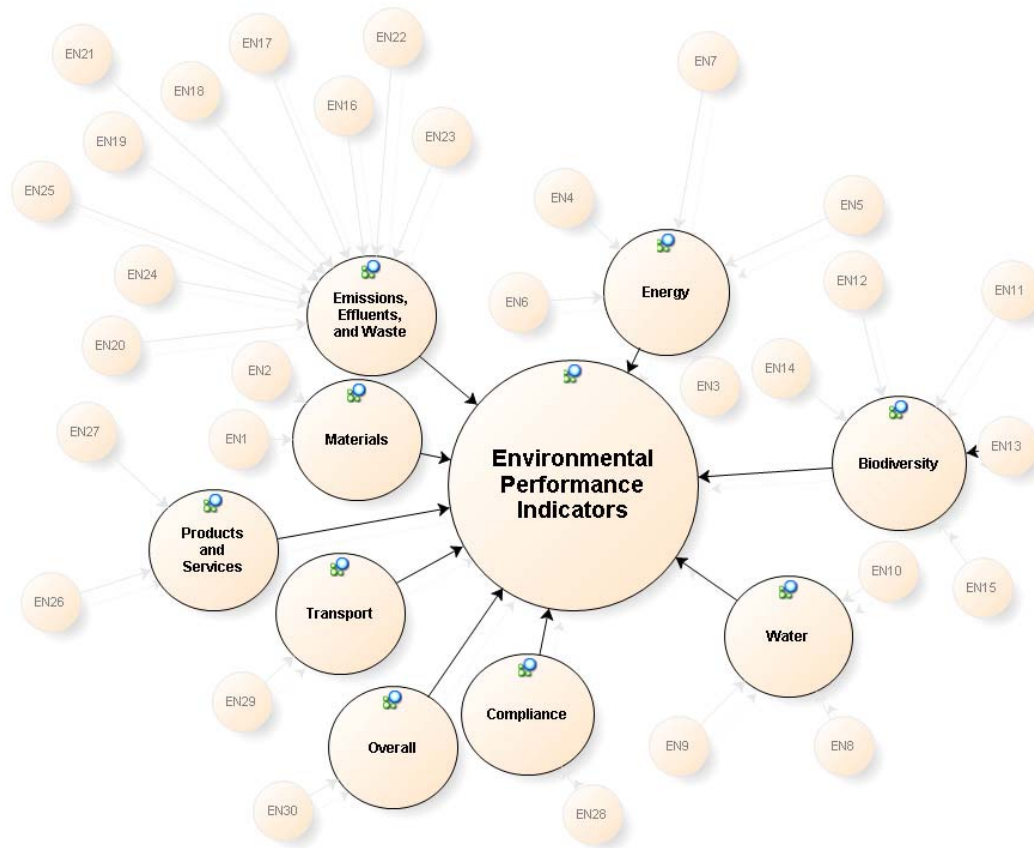


Figure 3: Environmental performance indicators are categorized by nine aspects. In all, thirty indicators are evaluated in a sustainability reporting.

Furthermore, to gain a better perspective on each report's performance indicator coverage, each indicator was categorized into four sub-indicators: Full Coverage, Partial Coverage, Not Covered, and Not Applicable.

Full Coverage means the reporting organization addressed the performance indicator fully. In other words, the reporting organization reported on all parts of the performance indicator. Partial Coverage means the reporting organization addressed the performance indicator partially. It must be noted that this study did not categorize the level of partial coverage. For instance, Partial Coverage treats 20% or 90% coverage the same. Not Covered means the reporting organization failed to address the performance

indicator. Not Applicable means the performance indicator did not apply to the reporting organization's business practice. For example, a financial institution would not have to report on EN23 (Total number and volume of significant spills). **See additional example in Appendix A*

Once the reports were coded, statistical analysis was performed on the dataset to identify the correlation between the exogenous variables (attributes of the reports) and the endogenous variables (environmental performance indicators).

3.1 Report Selection

The forty-six sustainability reports based on the G3 Guidelines were published in Dutch, English, French, German, Japanese, Korean, and Spanish. In this study, due to the absence of a translator, only reports that were published in English were considered for analysis. Of the forty-six reports, thirty-seven reports were published in English. *See Appendix C for the list of reports published in English*

In the interest of time, twenty out of the thirty-seven reports that were published in English were randomly selected for data analysis. The following procedures were implemented: **see figure 4*

1. All reports that were published in English were sorted in ascending alphabetical order by the company's name.
2. A random number generator was used to generate twenty numbers. Numbers generated were matched with report numbers.
3. Matched reports were used for analysis. Reports that did not have a match were not used for analysis.

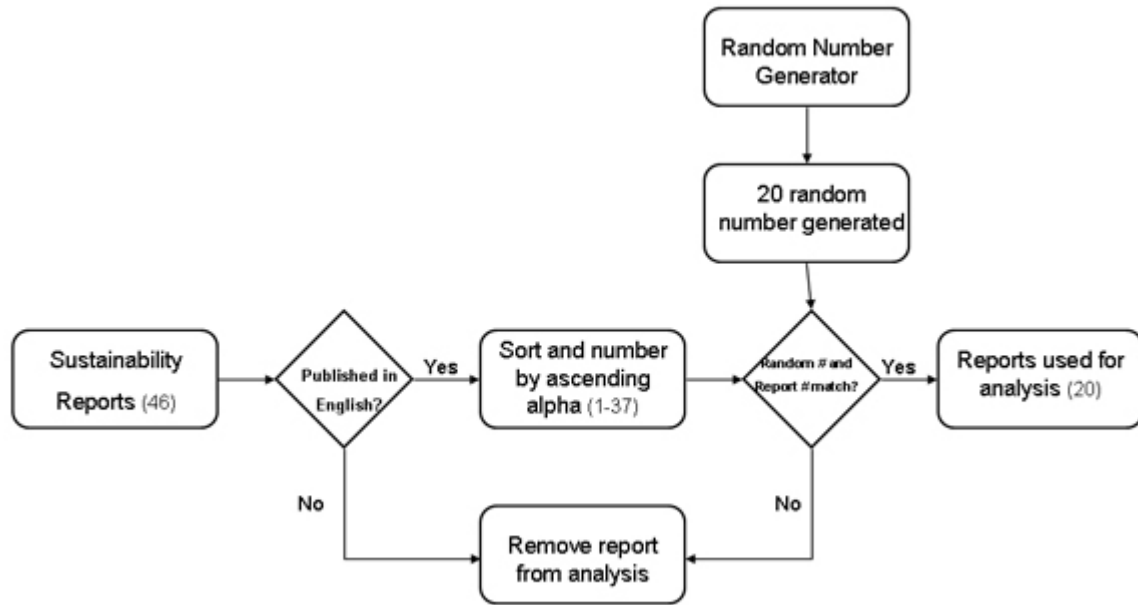


Figure 4: Sustainability report selection process

To randomly select the twenty reports, three internet pseudo-random number generators were evaluated based on entropy, generator’s ease of use, and ease of implementation. The three generators evaluated were: 1) “Research Randomizer” by Randomizer.org, 2) “True Random Number Service” by Random.org, and 3) “HotBits” by Fourmilab.

In weighting the strengths and weaknesses of each random number generation method and website, the practical choice for this project is Random.org’s atmospheric noise random number generator. Random.org’s random number generator is easy to use and the degree of entropy is sufficient for a project of this size. Although Randomizer.org’s computer algorithmic random number generator is as easy to use as Random.org, it is ruled out from selection because in comparison, it offers less entropy. Likewise, HotBits’s radioactive decay method is also ruled out because HotBits’s generator would prove too difficult to implement. HotBits’s output data are binary codes and not the actual random number. To utilize the binary code, the data must be

embedded into an existing Java or C program and would require extensive hours of programming to effectively utilize HotBits’s full potential. *See Appendix C&D for a list of the numbers generated and the matching sustainability reports*

	Entropy	Generator’s Ease of Use	Implementation	Summary
Computer Algorithm (Randomizer.org)	High	Simple	Easy	Easy to implement, but entropy is less than Radio Frequency method.
Atmospheric Noise (Random.org)	Higher	Simple	Easy	Same ease of use as Randomizer.org and creates a higher order of entropy.
Radioactive Decay (HotBits)	Highest	Complex	Difficult	Requires computer programming to utilize HotBits Generates genuine random numbers, but difficult to implement.

3.2 Environmental Performance Indicators Analysis

The selected sustainability reports were analyzed based on the nine aspects of the environmental performance indicators. The performance indicators were structured to reflect the inputs, outputs, and modes of impact an organization has on the environment and cover performances related to, land, air, water, ecosystems, biodiversity, environmental compliance, and environmental expenditure¹⁶. The thirty environmental performance indicators were:

¹⁶ “G3” 27

Materials	EN1	Materials used by weight or volume.	Emissions, Effluents, and Waste	EN16	Total direct and indirect greenhouse gas emissions by weight.	
	EN2	Percentage of materials used that are recycled input materials.		EN17	Other relevant indirect greenhouse gas emissions by weight.	
Energy	EN3	Direct energy consumption by primary energy source.		EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	
	EN4	Indirect energy consumption by primary source.		EN19	Emissions of ozone-depleting substances by weight.	
	EN5	Energy saved due to conservation and efficiency improvements.		EN20	NOx, SOx, and other significant air emissions by type and weight.	
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.		EN21	Total water discharge by quality and destination.	
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved.		EN22	Total weight of waste by type and disposal method.	
Water	EN8	Total water withdrawal by source.		EN23	Total number and volume of significant spills.	
	EN9	Water sources significantly affected by withdrawal of water.		EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	
	EN10	Percentage and total volume of water recycled and reused.		EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	
Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.		Products and Services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.			EN27	Percentage of products sold and their packaging materials that are reclaimed by category.
	EN13	Habitats protected or restored.		Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.			EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.		Overall	EN30	Total environmental protection expenditures and investments by type.

**See appendix E for description of performance indicators*

3.3 Report Attributes

In order to investigate the relationship between the reporting organization and the performance indicators reported, five attributes were collected for each reporting

organization: 1) Experience in GRI reporting, 2) The number of pages in the environmental section of the sustainability report, 3) Total number of employees, 4) Total assets, and 5) Total annual revenue when the sustainability report was published.

The primary source for attribute data was collected from the reporting organization’s sustainability report. In some cases, where the reporting organization did not include financial data in its sustainability report, data was obtained by reviewing their annual report and SEC filing.

The attributes were chosen based on five hypotheses:

	Hypothesis	Reasoning
Experience in GRI reporting	If the reporting organization had experience in GRI reporting, then the coverage of environmental performance indicators would increase.	A reporting organization's experience in GRI reporting would have a direct effect on the percentage of performance indicators reported. If a reporting organization had created a sustainability report in previous years using the 2002 Guidelines, then it is possible the experience gained would increase the percentage of performance indicator coverage for future reports.
Pages in environmental section	If the total number of pages in the environmental section of the sustainability report is high, then the reporting organization would have covered more environmental performance indicator.	To increase performance indicator coverage, the reporting organization must include more data in the sustainability report.
Number of employees	If the number of employees in the reporting organization is high, then the reporting organization would increase environmental performance indicator coverage.	Increase in number of employees translates to increase stakeholders.
Total assets	If the total assets of the reporting organization are high, then the reporting organization would increase environmental performance indicator coverage.	Organizations with high assets may increase the depth of performance coverage to build rapport with stakeholders. A comprehensive environmental sustainability report may also help the organization identify non-compliance processes which may effect total assets.
Total revenue	If the total revenue of the reporting organization is high, then the reporting organization would increase environmental performance indicator coverage.	Organizations with high revenue may increase the depth of performance coverage due to the increase in customers.

3.4 Summary of Methods

In summary, the method of investigation was designed to gain insights on the environmental aspect of sustainability reporting. The method first evaluated the sustainability reports in accordance to the thirty environmental performance indicators, and then if an indicator is present, the indicator was categorized for depth of coverage. Lastly, when all reports were coded, the data was analyzed. **see figure 5 for data structure*

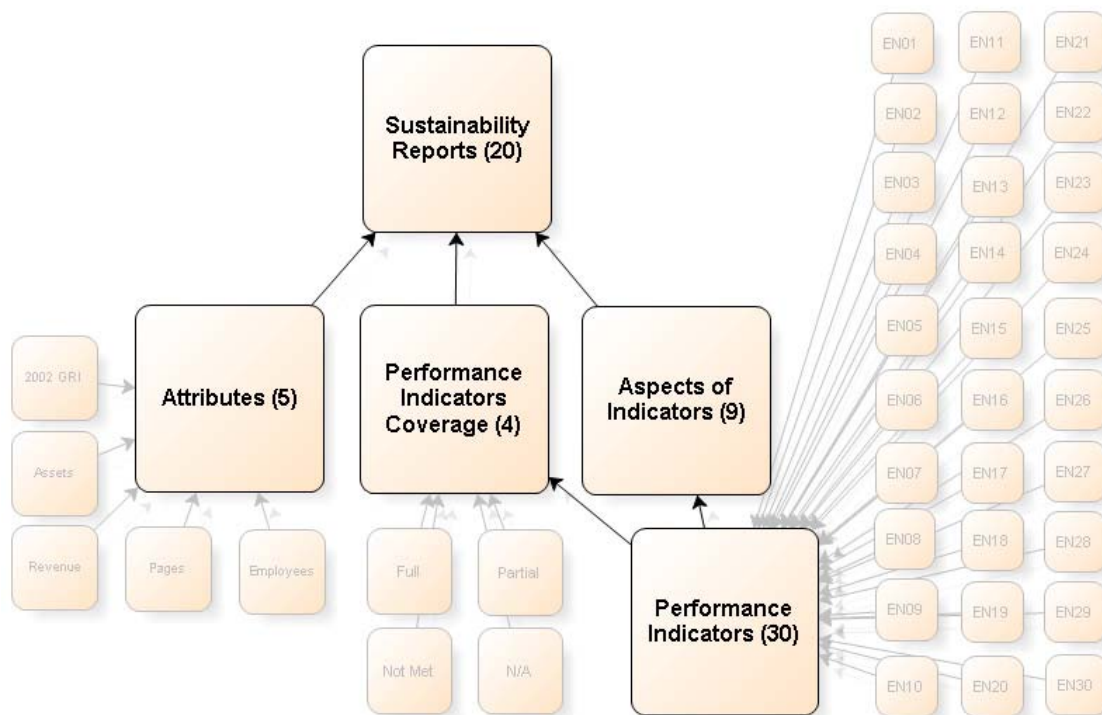


Figure 5: Overview of data structure. Attributes, presence of indicators, and depth of coverage were analyzed for each environmental section of the sustainability report.

4. ANALYSIS

Data was analyzed by studying the relationship among four variables: 1) performance indicators, 2) aspects of performance indicators, 3) depth of indicator coverage, and 4) attributes of sustainability reports.

4.1 Performance Indicators and Depth of Coverage

Analysis of the relationship between performance indicators and depth of coverage identified:

- Some performance indicators are applicable across all reporting organizations
- Some performance indicators are not applicable across all reporting organizations
- On average, 24.67% of performance indicators were not reported
- When “Not Applicable” was removed, on average, 57.08% of performance indicators were reported

		Full	Partial	Not Met	Not Applicable
Materials	EN01	6	8	6	0
	EN02	7	5	8	0
Energy	EN03	10	4	3	3
	EN04	9	6	5	0
	EN05	5	5	10	0
	EN06	2	5	13	0
	EN07	2	7	11	0
Water	EN08	4	9	7	0
	EN09	2	3	4	11
	EN10	2	1	17	0
Biodiversity	EN11	2	5	3	10
	EN12	4	2	2	12
	EN13	2	7	3	8
	EN14	1	3	4	12
	EN15	5	5	1	9
Emissions, Effluents, and Wastes	EN16	9	5	6	0
	EN17	6	3	11	0
	EN18	3	11	6	0
	EN19	4	2	5	9
	EN20	4	4	6	6
	EN21	2	2	5	11
	EN22	7	7	1	5
	EN23	4	1	5	10
	EN24	1	3	3	13
	EN25	2	3	5	10
Products & Services	EN26	5	7	8	0
	EN27	4	1	5	10
Compliance	EN28	5	3	3	9
Transport	EN29	2	7	11	0
Overall	EN30	1	2	17	0
Total Reported		122	136	194	148
% Reported (all coverage)		20.33%	22.67%	32.33%	24.67%
% Reported (exclude N/A)		26.99%	30.09%	42.92%	

*see appendix G and H for source data

Not all performance indicators were applicable to every reporting organization. Instead of counting the total number of performance indicators reported, an alternative method would be to calculate the percentage of performance indicators that were relevant to business operations. The exclusion of irrelevant performance indicators would increase the accuracy in reflecting the state and depth of environmental reporting. With this in mind, a conclusion can be drawn that, depending on the number of relevant performance indicators, some reporting organizations had more difficulties in gathering the data required for reporting.

4.2 Environmental Aspects and Depth of Coverage

Analysis of the relationship between the nine environmental aspects and depth of coverage identified:

- For indicators that was relevant to business operations, reporting organizations failed to report 57% of Water indicators, 55% of Transport and 85% of Environmental Expenditure
- A majority of performance indicators of aspect Biodiversity (51%) were not applicable to most reporting organizations
- Of biodiversity performance indicators reported, a majority of the indicators (45%) were partially reported

	Full	Partial	Not Met	Not Applicable
Materials	33%	33%	35%	0%
Energy	28%	27%	42%	3%
Water	13%	22%	47%	18%
Biodiversity	14%	22%	13%	51%
Emissions, Effluents, and Wastes	21%	21%	27%	32%
Products & Services	23%	20%	33%	25%
Compliance	25%	15%	15%	45%
Transport	10%	35%	55%	0%
Overall	5%	10%	85%	0%

	Full	Partial	Not Met
Materials	33%	33%	35%
Energy	29%	28%	43%
Water	16%	27%	57%
Biodiversity	29%	45%	27%
Emissions, Effluents, and Wastes	31%	30%	39%
Products & Services	30%	27%	43%
Compliance	45%	27%	27%
Transport	10%	35%	55%
Overall	5%	10%	85%

**see appendix I for additional data*

Data suggested reporting organizations encountered difficulties in reporting the aspects biodiversity, water, transport, and environmental expenditure. Assuming the reporting organizations full heartedly attempted to report on every performance indicators relevant to business operations within the best of their ability, then the explanation of why the aspects were under-reported can be attributed to: 1) The reporting organization did not fully understand the performance indicators, or 2) The reporting organization did not have the available data for reporting. The lack of quality in some of the sustainability reports leads me to believe that both occurrences are present. This is to say that most reporting organizations do not have the data management systems in place to collect the data and more than a handful do not understand the performance indicators they reported

on. Unquestionably, the under-reported aspects may have been caused by vagueness of response or lack of data.

4.3 Sustainability Reports and Depth of Coverage

Analysis of the relationship between sustainability reports and depth of coverage identified:

- Reporting organizations FCC Construcción and Lihir Gold Limited failed to report the majority of performance indicators relevant to business practice
- Reporting organizations De Beers and Yarra Valley Water achieved the highest percentage of indicators reported
- On average, approximately 50% of environmental performance indicators did not apply to banks

	Full	Partial	Not Met	Not Applicable
Barloworld	1	12	16	1
Bristol Myers	9	11	8	2
Camelot Group	9	3	4	14
Canadian Imperial Bank	7	3	6	14
De Beers	17	7	5	1
FCC Construcción	2	3	22	3
Lihir Gold	4	4	20	2
Musgrave	5	9	6	10
National Aust Bank	7	8	2	13
Nikko Cordial	9	1	6	14
Port of Brisbane	4	13	12	1
Sensis	3	2	11	14
SK Telecom	7	8	8	7
Stockland	2	10	9	9
Teck Cominco	10	7	13	0
Teijin Twaron	0	10	16	4
The Warehouse Group	1	5	13	11
Westpac Banking	7	4	6	13
Woolworths Holdings	0	6	9	15
Yarra Valley Water	18	10	2	0
Total Reported	122	136	194	148
% Reported (all coverage)	20.33%	22.67%	32.33%	24.67%
% Reported (exclude N/A)	26.99%	30.09%	42.92%	

**see appendix J and K for source data*

Data suggested that when a reporting organization produces only one product, the percentage of performance indicators reported relevant to business operations increase. In other words, the fewer the products offered to consumers, the more aware a reporting organization is of its products' environmental impact. Consequently, it is logical to assume that if data is available to the reporting organization, the data would be included in the sustainability report. To illustrate, take for example Yarra Valley Water and De Beers, the former provides water services and the latter mines for diamonds. Both reporting organizations have only one product line, and both have a high percentage in indicators reported.

Nevertheless, the theory of “fewer products equate to higher percentage of performance indicators reported” did not always hold true. Take for example Lihir Gold Limited. Lihir Gold Limited's principal activities are exploring for, mining and processing gold. Similar to De Beers, both reporting organizations are in the business of mining for a single type of natural resources. However, unlike De Beers, Lihir Gold Limited failed to report on 71% of performance indicators relevant to business operations. The data used for this study did not provide concrete proof to explain this phenomenon.

Following this further, an analysis was performed to investigate the validity of the theory by categorizing all sustainability reports into either “low products offered” or “high products offered.” For example, a grocery store, which offers an array of products (vegetables, meats, canned goods) to the consumer, was classified as “high products offered.” In contrast, a bank, which offers only financial services (savings account, loans, cash deposits), was classified as “low products offered.” Analysis concluded that

on average, reporting organizations with fewer products offered reported on 68.14% of environmental performance indicators relevant to business operations, versus 45.99% for organizations with high products offering. **see appendix L for source data*

4.4 Attributes of Sustainability Reports and Depth of Coverage (Regression Analysis)

Analysis of the attributes of sustainability reports and depth of coverage identified:

- The percentage of indicators reported and the number of pages in the environmental section of the sustainability reports were directly correlated
- Reporting organizations with high total assets report a higher percentage of performance indicators relevant to business operations
- Banks (Canadian Imperial Bank, National Australian Bank, and Westpac Banking) skewed the distribution of Total Assets to the left

	2002 Guidelines	Pages on Environment	Number of Employees	Total Assets (USD Million)	Total Revenue (USD Million)	Percent in Full and Partial
Barloworld	1	7	25716	4,774.2	5,744.9	44.83%
Bristol Myers	1	27	42000	28,138.0	19,207.0	71.43%
Camelot Group	1	6	905	726.7	9,695.5	75.00%
Canadian Imperial Bank	1	4	37308	258,578.0	9,639.6	62.50%
De Beers	0	22	23000	8,265.0	6,150.0	82.76%
FCC Construcccion	1	12	10217	25,148.7	12,537.5	18.52%
Lihir Gold	0	9	1100	1,319.4	230.2	28.57%
Musgrave	1	26	9172	776.5	1,345.5	70.00%
National Aust Bank	1	9	30976	381,431.8	18,906.0	88.24%
Nikko Cordial	1	5	11278	73,459.1	3,753.6	62.50%
Port of Brisbane	0	26	235	1,112.3	97.4	58.62%
Sensis	0	8	2200	68,234.0	17,013.0	31.25%
SK Telecom	0	10	4486	15,521.6	2,860.6	65.22%
Stockland	0	6	1246	7,544.1	1,341.6	57.14%
Teck Cominco	0	20	7103	7,484.1	3,753.6	56.67%
Teijin Twaron	0	5	18929	8,064.2	8,013.7	38.46%
The Warehouse Group	1	4	15000	230.9	1,301.3	31.58%
Westpac Banking	1	11	27138	235,720.5	16,180.2	64.71%
Woolworths Holdings	1	3	16337	1,179.1	2,036.5	40.00%
Yarra Valley Water	0	11	350	13,501.0	292.9	93.33%
Mean	0.55	11.55	14235	57060.5	7005.0	57.07%
Standard Deviation	0.51	8.02	13048	106369.1	6574.7	20.81%

Stepwise regression was used to build two models to explain the percentage of performance indicators reported by reporting organizations. The first model considered all twenty reports, and the second model excluded the reports with attributes three standard deviations from the mean. For the models, the predictors were the five attributes collected for each report, and the dependent variable was the percentage of performance indicators reported relevant to business operations.

4.4.1 Model 1:

The model constructed considered all five attributes and the twenty sustainability reports. A stepwise regression indicated that two predictors were statistically significant, “pages in environmental section” and “total assets”. These two predictors were entered into a least squares regression analysis and the best fit line was:

$$\text{Percentage of performance indicators reported (Full and Partial)} = .3982 + .0109 * (\text{Number of pages}) + 8.08e-7 * (\text{Total Assets in USD M})$$

Yet, despite the statistical significance of the predictors to the dependent variable, the regression was a poor fit. The equation described only 27.7% of the variance in the percentage of performance indicators reported. **see appendix M and N*

With other variables held constant, the percentage of performance indicators reported were positively related to the total number of pages in the environmental section of the sustainability report, increasing .0109 for every extra page, and positively correlated to total assets, increasing 8.08e-7 for every extra one million dollar in assets. However, by analyzing the leverage plot between total assets and number of indicators

reported, three data points were outliers - Canadian Imperial Bank, National Australian Bank, and Westpac Banking. Earlier data analysis concluded that because banks' business operations did not have a direct impact on the environment, it was easier for banks to report on all aspects of environmental performance indicators applicable to business operations. Therefore, I suspect the predictor total assets was identified as statistically significant due mainly to the effects between banking industry and percent of indicators reported. Nonetheless, it is not acceptable to disregard total assets as a predictor because the twenty randomly selected sustainability reports represented the target population. In other words, apart from random error, the data derived from the selected reports were expected to be the same had a complete census of the target population been carried out¹⁷. As a result, to test the effects of excluding all outliers from the regression, the study constructed another model and excluded the reports with attributes three standard deviations from the mean.

4.4.2 Model 2:

The model constructed considered all five attributes and seventeen sustainability reports. Three reports, Canadian Imperial Bank, National Australian Bank, and Westpac Banking, were identified as outliers. The banks were excluded from the model because their total assets were greater than the mean by three standard deviations. **see appendix O, P, Q, and R for standard deviation chart*

With the three outliers excluded from the regression, stepwise regression indicated that only one predictor was statistically significant, “pages in environmental

¹⁷ “Sampling” 24

section.” When the predictor was entered into a least squares regression analysis, the best fit line was:

$$\text{Percentage of performance indicators reported (Full and Partial)} = .4156 + .0106 * \\ (\text{Number of pages})$$

With other variables held constant, the percentage of performance indicators reported were positively related to the total number of pages in the environmental section of the sustainability report, increase .0106 for every extra page. Nevertheless, despite the statistical significance of the predictor to the dependent variable, the r-square was less than that of Model 1. The equation from Model 2 described only 18.3% of the variance in the percentage of performance indicator reported. **see appendix S and T*

By analyzing model 1 and model 2, the analysis confirmed that when banks were excluded, total assets had no effect on the regression model. Moreover, the decrease in r-square also suggested that the total number of pages in a sustainability report gave minimal, if any, explanation to the percentage of performance indicators reported. A conclusion can be drawn that the percentage of environmental performance indicators reported had minimal bearing on any of the five predictors tested. In summary, the effects of attributes on indicators reported are inconclusive.

5. RECOMMENDATIONS

From analysis, the following processes are recommended to promote the improvement in the quality of GRI based sustainability reporting (*a quality sustainability report is defined as a report with a high percentage of performance indicators reported*):

1) Seek internal stakeholders support

Internal stakeholders are the functional departments, employees, and business units¹⁸. The relationship among internal stakeholders can be conceptualized in terms of communications effectiveness and management activities to support others within the organization¹⁹. In other words, relationship quality is a condition in which members of an internal group perceive other internal stakeholders communicating effectively to help them achieve their objectives²⁰. For this reason, senior management buy-in helps internal stakeholders become aware of the vital importance of the sustainability reporting process and focuses the business units on a common goal. Management support also bridges the communication gap across functional departments and contributes to the morale of the sustainability reporting staff and to the project's ultimate success. Therefore, this creates an atmosphere for all internal stakeholders to fully support the aims and objectives of the sustainability reporting process.

2) Improve understanding of the GRI framework

Understanding must come before action. Therefore, to effectively utilize the GRI framework, the reporting organization must first understand the guidelines prior to initiating the sustainability report process. While this may sound simple, perhaps even logical, however, throughout analysis of the twenty sustainability reports, it was clearly not so. For instance, I suspect one factor that attributed to the low percentage of environmental performance indicators reported was caused by the sizeable amount of

¹⁸ Sirgy 145

¹⁹ Stanley and Wisner

²⁰ Sirgy 145

information contained in the GRI Guidelines. Excluding the methodology section of the Guidelines, the performance indicators defined in GRI covered 103 pages. If all GRI supporting documents were considered, the number of pages exceeds 300. The amount of information to be absorbed by a reporting organization is phenomenal. For this reason, to produce a quality sustainability report in accordance with the GRI Guidelines, it is of vital importance that reporting organizations dedicate the necessary resources to understand the GRI Guidelines.

3) Identify the range of performance indicators relevant to business operations

In all, there are seventy-nine performance indicators in the G3 Guidelines. If the assumption is to be made that the reporting organization has a clear understanding of the performance indicators, then the next challenge is to define the boundary conditions for reporting on economic, environmental, and social performance in relations to business operations. In other words, the reporting organization must align the GRI Guidelines with business operations and identify the performance indicators relevant to business operations.

Do not take the process lightly; it is not a simple task. The process for determining a complete scope may include, for example, the result of lifecycle analysis of products or services, and assessment of the full range of direct and indirect social or environmental impacts of the reporting organization. Such boundaries may be defined based on financial control, legal ownership, business relationships, and other considerations. However, in some cases, the most appropriate boundaries for meeting the expectations outlined by other reporting principles may extend beyond traditional

financial reporting boundaries²¹. Consequently, to accurately identify the scope of performance indicators selection, not only must the reporting organization have a clear understanding of the GRI Guidelines, it must also have an in-depth knowledge of the internal and external business processes. This is to say that in defining the scope of performance indicators selection, the reporting organization should determine if it has significant influence on its subsidiaries, associates, and joint ventures. In such a situation, the reporting organization should also consider if the entities can have a potential direct or indirect impact on the scope of performance indicators selection. Therefore, as the scope expands, the reporting organization may find it more difficult to report on all performance indicators. The analysis provided in this study supported this theory. On average, reporting organizations with fewer performance indicators relevant to business operations had a higher percentage of performance indicators reported.

4) Develop a robust data management system

Once the scope of the performance indicators selection has been identified, the next step in the process is to formulate a strategy to collect the data necessary for reporting. Data management is an essential component of the sustainability reporting process because without it, a quality sustainability report would not be possible. To promote high quality sustainability report, the data used for analysis must be reliable and effective, the system must be standardized and be able to collect and analyze the data efficiently.

Therefore, if the assumption is made that the reporting organization has a clear understanding of reporting boundary, then I suspect one reason reporting organizations

²¹ Boundary Protocol p21

failed to report on some performance indicators was that they did not have the data available for reporting. For this reason, data management is the Achilles' heel of the sustainability reporting process.

As a result, to develop a robust data management system, the reporting organization should analyze its existing data management system and determine if the structure is sufficient to support the data gathering requirements of the sustainability reporting process. Hence, the reporting organization should try to answer the question, "Based on the requirements of the performance indicators, does our organization have a data management system in place to meet our needs? If not, what needs to be improved?"

In summary, one way to conceptualize the harmonious relationship among all four processes is to imagine a peanut butter and jelly sandwich. We first have to recognize that to create the best peanut butter and jelly sandwich in the world, two slices of bread, lots of peanut butter, and lots of jelly are required. Imagine *data management* as the peanut butter, the *GRI framework* as the jelly, *internal stakeholders* and *scope of performance indicators* as the slices of bread. Only when the four processes (the ingredients) are combined, can a quality sustainability report (sandwich) be created. Therefore, without a robust data management system (peanut butter), or an understanding of the GRI framework (jelly), the quality of the sustainability report (sandwich) decreases.

Another method to conceptualize the four processes is in the form of a matrix. *see figure 6. When the four processes are integrated into the reporting organization, a quality sustainability report is created.

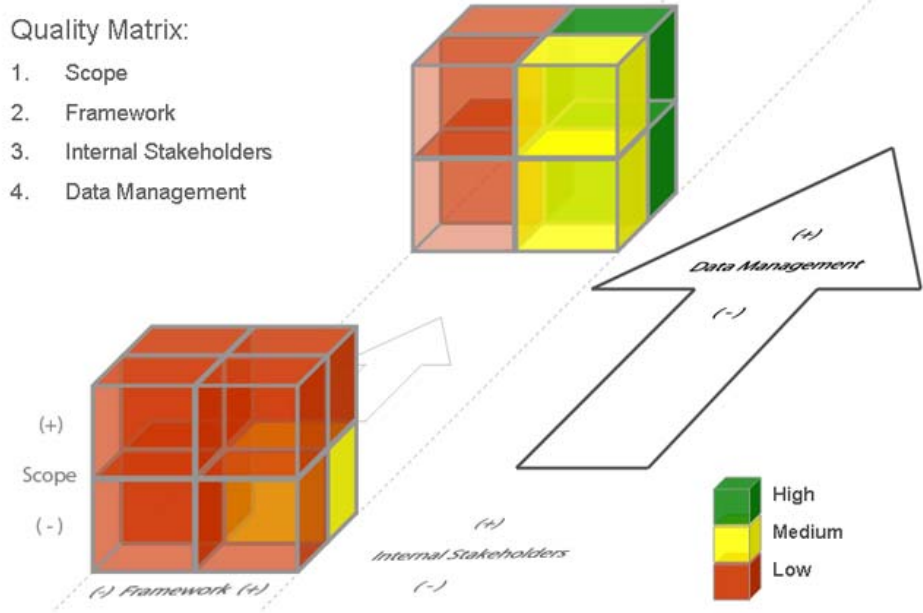


Figure 6: Framework (x), Scope (y), and Internal Stakeholders (z). The data management dependent interaction defines the quality of sustainability reports produced.

6. CONCLUSION

The GRI is not the panacea to corporate social responsibility. Although it is emerging as an important tool to communicate with stakeholders about performance and accountability beyond just the financial bottom line, the bad news is that most companies still fail to identify the risks and opportunities associated with the economic, social, and environmental impacts captured by a sustainability report^{22,23}. Therefore, despite the growing enthusiasm in corporate social responsibility, reporting organizations are not dedicating substantial resources to the triple-bottom-line agenda. It is laughable to imagine that an international organization can track global assets down to office staplers; yet, do not have the data on the total volume of water withdrawn from the water utilities.

²² Willis

²³ Baue

Case in point is Sensis, a multi billion dollar company that stated in their sustainability report, “water use in Sensis offices was not available due to differing leasing agreements and service providers”²⁴.

However, there is good news. The convergence of the financial and non-financial worlds is now under way²⁵. Some reporting organizations acknowledged that by looking at the guidelines and collecting the required data, the management achieves a useful overview of the company²⁶. Likewise, a sustainability report can also help corporations to learn about themselves and to see what has actually been done in the organization²⁷. The financial implication of sustainability reporting is evident.

In terms of the project, the analysis of the twenty GRI based sustainability report did not provide concrete evidence to suggest that there is a linkage between the five attributes tested and the percentage of performance indicators reported. However, because the conclusion was drawn from a small sample size of twenty, the result may not accurately represent the entire population of G3 based sustainability reports. In addition, of the nine environmental aspects analyzed, environmental expenditure stood out as the highest environmental performance indicator unreported. I suspect the reporting organization had difficulties producing the financial data partly because of the overwhelming challenge in aggregating environmental costs across all business units.

To sum up, due to the lack of correlation among performance indicators reported by the twenty reporting organizations, this study cannot recommend a course of action in environmental performance indicators selection during the sustainability report creation

²⁴ Sensis

²⁵ Baue

²⁶ Why participate

²⁷ Why participate

process. However, to promote the improvement in quality of GRI based sustainability report from the satellite-level, the study proposed four processes which reporting organizations should focus on: 1) Increase internal stakeholder support, 2) Improve understanding of the GRI reporting framework, 3) Define the scope of performance indicators, and 4) Create a robust data management system. It is important to recognize that only when all four processes are integrated into the reporting organization can a quality sustainability report be created.

Looking ahead, the Holy Grail for corporate social responsibility would be to find a direct link between a company's financial performance and its competence in sustainability reporting, hopefully with a link back to its governance structure²⁸. For that reason, in the 21st century, in order to continue to elevate sustainability reporting, the GRI Guidelines must complement other tools and practices used by organizations to manage their sustainability performance²⁹. In other words, the GRI must seek to balance continuous improvement with the stability of comparability³⁰. Only then can the GRI mission be achieved: "reporting on economic, environmental, and social performance by all organizations is as routine and comparable as financial reporting."

²⁸ Baue 2004

²⁹ Sustainability Reporting Guidelines.

³⁰ <http://www.globalreporting.org/InDevelopment/Guidelines>

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REFERENCES

- Barloworld Limited. 2006. <http://library.corporate-ir.net/library/69/699/69979/items/221956/BAWprelim_results_Sep_2006_SENS.pdf>
- Barloworld Limited. Annual Report 2006. Johannesburg: Barloworld Limited, 2006.
- Barloworld Limited. Fundamentals – Annual Income Statement. 2006.
<<http://ir.barloworld.com/phoenix.zhtml?c=69979&p=irol-fundIncomeA>>
- Baue, Bill. “Global Reporting Initiative G3 Sustainability Reporting Guidelines launched.” *Global Reporting Initiative* 5 Oct. 2006.
<http://www.grig3.org/media/mediarelease_G3_5oct06.htm>
- Baue, William. “Sustainability Reporting Improves, But Falls Short on Linking to Financial Performance.” *Social Funds* 5 Nov 2004.
<<http://www.socialfunds.com/news/article.cgi/article1565.html>>
- Bristol-Myers Squibb. 2006 Sustainability Website Contents. East Syracuse, 2006.
- “Boundary Protocol” Global Reporting Initiative. 2005.
<<http://www.globalreporting.org>>
- Camelot Group plc. Annual Report and Financial Statements. 2006.
<<http://www.camelotgroup.co.uk/aboutcamelot/annualreports/2006AnnualReportFinal.pdf>>
- Camelot Group plc. Camelot Corporate Responsibility Report 2006. Watford, 2006.
- Canadian Imperial Bank of Commerce. Annual Accountabilty Report 2006. Toronto, 2006.
- De Beers SA. Report to Stakeholders 2005/6. Johannesburg, 2006.

De Beers. Financial Results. 2006.

<http://www.debeersgroup.com/NR/rdonlyres/C7EC770E-6F7B-4A22-88EE-A22061F89260/2589/MR090207_DBsaResults1.pdf>

Disclosure SEC Database, February 28, 2007, BRISTOL MYERS SQUIBB CO, 345 Park Avenue, New York, , NY, 10154-0037

Disclosure SEC Database, February 28, 2007, LIHIR GOLD LTD, Level 9 500 Queen Street, Brisbane Queensland 4000 AUSTRALIA

Disclosure SEC Database, February 28, 2007, SK TELECOM CO LTD, SK Building 99 Sorin-dong Chongno-gu, Seoul 110110 SOUTH KOREA

Disclosure SEC Database, February 28, 2007, TECK COMINCO LTD, Suite 600 200 Burrard Street, Vancouver V6C3L9 CANADA, , BC,

“Everything you need to know about the DRAFT G3 Guidelines – past, present, and future” Global Reporting Initiative. 2006. <<http://www.globalreporting.org>>

FCC Construcción SA. Sustainability Report 2005/2006. Barcelona, 2006

Fomento De Construcciones Y Contratas (FCC). Financial Results. 2006.

<http://www.fcc.es/fcc/corp/informe/2006FY_FCC_Report.pdf>

“G3 Guidelines.” Global Reporting Initiative. Version 3.0. 2006.

<<http://www.globalreporting.org>>

“GRI Conference to Reshape Guidelines for Corporate Ethics Reports.” 4 Oct. 2006.

Todayonline. 25 Feb. 2007. <<http://www.todayonline.com/articles/146473.asp>>

Lihir Management Company Ltd. 2005 Sustainability Report. Brisbane, 2005.

“Making the Switch: A Brief Guide for Experienced Report Makers on Transitioning to the G3 Guidelines.” Global Reporting Initiative. 2006.

<<http://www.globalreporting.org>>

Musgrave Group. Musgrave Group Sustainability Report 2006. Cork, 2006

National Australia Bank Group. Corporate Social Responsibility Report 2006.
Melbourne, 2006.

Nikko Cordial Corporation. CSR Report 2006. Tokyo, 2006.

Port of Brisbane. Economic and financial performance. 2005.
<http://www.portbris.com.au/files/9_POBAR05_Ec%20financial%20perf.pdf>

Port of Brisbane Corporation. People and Environment Report 2005/2006. Port of
Brisbane, 2006.

QSR International. NVivo 7. Doncaster, 2006.

“Sampling.” Encyclopedia of Public Health. Ed. Lester Breslow. Thomson Gale, 2002.
eNotes.com. 2006. 17 Mar, 2007. <<http://health.enotes.com/public-health-encyclopedia/sampling>>

Stanley, L.L. and J.D. Wisner: 1998, ‘Internal Service Quality in Purchasing: An
Empirical Study,’ International Journal of Purchasing and Materials Management
34(Summer), 50-60.

Sensis Pty Ltd. Corporate Responsibility Report 2005/2006. Melbourne, 2006.

Sirgy, J.M. “Measuring corporate performance by building on the stakeholders’ model of
business ethics.” Journal of Business Ethics 35. 3(2002): 143-62.

SK Telecom Co. Ltd. 2005 Sustainability Report. Seoul, 2006.

“SRI Community Adding Its Two Cents to Comments on GRI G3 Guidelines.” 2 Mar.
2006. SocialFunds.com. 17 Mar, 2007
<<http://www.socialfunds.com/news/article.cgi?sfArticleId=1944>>

Stockland Corporation Ltd. Stockland Corporate Responsibility and Sustainability

- Report 30 June 2006. Sydney, 2006
- “Sustainability Reporting Guidelines v2 (2002 Guidelines).” Global Reporting Initiative. 2002. <<http://www.globalreporting.org>> page 16
- “Sustainability Reporting Guidelines.” Global Reporting Initiative. 2002. p12.
- Teck Cominco Limited. Sustainability Report 2005. Vancouver, 2006.
- Teijin Twaron BV. Corporate Social Responsibility Report 2005. Arnhem, 2006.
- The Global Reporting Initiative. April 2002. Mallenbaker.net. 17 Mar, 2007
<<http://www.mallenbaker.net/csr/CSRfiles/GRI.html>>
- The Warehouse Group Ltd. 2006 Society and Environment Report. Auckland, 2006.
- Wendell, S. (2003). "The Global Reporting Initiative: Building a Corporate Reporting Strategy Globally." <<http://www.gan-net.net/pdfs/gri.pdf>>
- Westpac Banking Corporation. 2006 Stakeholder Impact Report. Sydney, 2006.
- Willis, Alan. “The Role of the Global Reporting Initiative’s Sustainability Reporting Guidelines in the Social Screen of Investments.” Journal of Business Ethics 43. 3(2003): 233–37.
- Woolworths Holdings Limited. 2006 Sustainability Report. London, 2006.
- Yarra Valley Water Ltd. Sustainability and Annual Report 2005/06. Mitcham, 2006.

Appendix A:

An example of coding the performance indicator “IUCN Red List Species”:

	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk
Full Coverage	Reported all IUCN Red List species and national list species with habitats in areas affected by operations, by level of extinction risk.
Partial Coverage	Acknowledge that there are IUCN Red List species in areas affected by operations and identified the location of habitats affected by the operations of the organization. However, the reporting organization did not identify the specific species.
Not Covered	The reporting organization failed to address the performance indicator.
Not Applicable	The performance indicator is not applicable to the reporting organization. For example, one industry not required to report is the financial sector. It is unlikely the financial institutions would have operations (offices) in areas of high biodiversity.

Appendix B:

According to CorporateRegister.com, the world's largest online directory of corporate non-financial reports, forty-six companies worldwide claimed that they used the G3 Guidelines in preparing their sustainability report

1	All Nippon Airways Co Ltd	24	McDonald's Corporation
2	Asociación Española de Contabilidad y Administración de Empresas	25	Melbourne Water Corporation
3	Australia & New Zealand Banking Group Ltd	26	Musgrave Group
4	Barloworld Ltd	27	National Australia Bank Group
5	BHP Billiton Limited	28	Nikko Cordial Corporation
6	Bidvest Group Ltd	29	oekostrom AG
7	Bristol-Myers Squibb Company	30	Philips Electronics NV
8	Camelot Group plc	31	Port of Brisbane Corporation
9	Canadian Imperial Bank Of Commerce	32	PricewaterhouseCoopers BV
10	Canteiros do Porriño Reunidos SA	33	Royal Mail Group plc
11	Compagnia Trasporti Pubblici Napoli SpA	34	Sensis Pty Ltd
12	De Beers SA	35	SK Telecom Co Ltd
13	Ergon Energy Corporation Limited	36	Stockland Corporation Ltd
14	FCC Construcción SA	37	Strategic Sustainability Consulting
15	Fondaction	38	Teck Cominco Limited
16	Foster's Group Limited	39	Teijin Twaron BV
17	Gerdau AZA SA	40	The Australian Gaslight Company
18	Granitos Triturados SL	41	The Warehouse Group Ltd
19	Hydro Tasmania	42	Transurban Group
20	ITC Limited	43	VicSuper Pty Ltd
21	Javier de la Cerda & Asociados SLU	44	Westpac Banking Corporation
22	Korea Electric Power Corporation	45	Woolworths Holdings Limited
23	Lihir Management Company Ltd	46	Yarra Valley Water Ltd

Appendix C:

Companies highlighted in yellow were not considered for analysis because these reports were not published in English

1	All Nippon Airways Co Ltd
2	Asociación Española de Contabilidad y Administración de Empresas
3	Australia & New Zealand Banking Group Ltd
4	Barloworld Ltd
5	BHP Billiton Limited
6	Bidvest Group Ltd
7	Bristol-Myers Squibb Company
8	Camelot Group plc
9	Canadian Imperial Bank Of Commerce
10	Canteiros do Porriño Reunidos SA
11	Compagnia Trasporti Pubblici Napoli SpA
12	De Beers SA
13	Ergon Energy Corporation Limited
14	FCC Construcción SA
15	Fondaction
16	Foster's Group Limited
17	Gerdau AZA SA
18	Granitos Triturados SL
19	Hydro Tasmania
20	ITC Limited
21	Javier de la Cerda & Asociados SLU
22	Korea Electric Power Corporation
23	Lihir Management Company Ltd

24	McDonald's Corporation
25	Melbourne Water Corporation
26	Musgrave Group
27	National Australia Bank Group
28	Nikko Cordial Corporation
29	oekostrom AG
30	Philips Electronics NV
31	Port of Brisbane Corporation
32	PricewaterhouseCoopers BV
33	Royal Mail Group plc
34	Sensis Pty Ltd
35	SK Telecom Co Ltd
36	Stockland Corporation Ltd
37	Strategic Sustainability Consulting
38	Teck Cominco Limited
39	Teijin Twaron BV
40	The Australian Gaslight Company
41	The Warehouse Group Ltd
42	Transurban Group
43	VicSuper Pty Ltd
44	Westpac Banking Corporation
45	Woolworths Holdings Limited
46	Yarra Valley Water Ltd

Appendix D:

The twenty reports highlighted in yellow matched the numbers generated from Random.org

	Company
1	All Nippon Airways Co Ltd
2	Australia & New Zealand Banking Group Ltd
3	Barloworld Ltd
4	BHP Billiton Limited
5	Bidvest Group Ltd
6	Bristol-Myers Squibb Company
7	Camelot Group plc
8	Canadian Imperial Bank Of Commerce
9	De Beers SA
10	Ergon Energy Corporation Limited
11	FCC Construcción SA
12	Foster's Group Limited
13	Hydro Tasmania
14	ITC Limited
15	Korea Electric Power Corporation
16	Lihir Management Company Ltd
17	McDonald's Corporation
18	Melbourne Water Corporation
19	Musgrave Group

20	National Australia Bank Group
21	Nikko Cordial Corporation
22	Philips Electronics
23	Port of Brisbane Corporation
24	Royal Mail Group plc
25	Sensis Pty Ltd
26	SK Telecom Co Ltd
27	Stockland Corporation Ltd
28	Strategic Sustainability Consulting
29	Teck Cominco Limited
30	Teijin Twaron BV
31	The Australian Gaslight Company
32	The Warehouse Group Ltd
33	Transurban Group
34	VicSuper Pty Ltd
35	Westpac Banking Corporation
36	Woolworths Holdings Limited
37	Yarra Valley Water Ltd

Appendix E

Description of performance indicators and benefits associated with each indicator

Materials	EN1	Materials used by weight or volume.
		Process: Identify total materials used from all aspect of operations. This would include raw materials, process materials, and packaging materials.
		Benefits: Tracking material consumption facilitates the monitoring of material efficiency and cost of material flows.
	EN2	Percentage of materials used that are recycled input materials.
		Process: Identify total weight or volume of recycled input materials. For example, if a manufacturer uses only recycled materials, EN2 is 100%.
	Benefits: Using recycled materials helps to reduce the demand for virgin material and contribute to the conserve natural resources. Substituting recycled materials can contribute to lowering overall costs of operations.	

Energy	EN3	Direct energy consumption by primary energy source.
		Process: Identify total direct energy consumption in joules by the organization. This would include coal, crude oil, gasoline, diesel, natural gas, propane, butane, LPG, and LNG.
		Benefits: Energy consumption has a direct effect on operational costs. Replacing fossil fuel energy sources with renewable ones is essential for combating climate change and other environmental impacts. Supporting renewable energy reduces an organization's dependency on non-renewable energy sources and its exposure to potential volatility in prices and supply.
	EN4	Indirect energy consumption by primary source.
		Process: Identify total indirect energy consumption in joules by the organization. Indirect energy is defined as sources external to the reporting organization. For many organizations, the only source of indirect energy is electricity (fossil fuels, solar, wind, geothermal, etc). For other organizations, this would include steam.
	Benefits: Information on the consumption of indirect energy supports an assessment of how the organization might be affected by emerging environmental regulations.	

	EN5	Energy saved due to conservation and efficiency improvements.
		Process: Identify total energy saved by efforts to reduce energy use.
		Benefits: Improved energy efficiency can result in cost savings and lead to competitive advantages and market differentiation. Operation cost and future dependency on non-renewable energy sources are also decreased.
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.
		Process: Identify the initiatives implemented to improve energy efficiency. For example, programs set in place to monitor the use of energy.
		Benefits: When initiatives of different organizations in the same sector are compared, it can give an indication of likely trends in the market for a product. For example, if a factory manufactures a computer chip that consumes 50 watts, but all other competitors manufactures the same component but consumes only 25 watts then the former factory is at a market disadvantage.
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved.
		Process: Identify the initiatives to reduce indirect energy use. Indirect energy use occurs through purchasing materials or services such as travel, commuting, and subcontracted production.
		Benefits: Tracking and reducing indirect energy use can decrease the operating cost of an organization. The reduction in indirect energy serves as part of a comprehensive environment program.

Water	EN8	Total water withdrawal by source.
		Process: Identify the total volume of water withdrawn from any water source or through water utilities.
		Benefits: The total volume withdrawn provides an indication of the organization's relative size and importance as a user of water. An organization's water consumption can also influence relations with stakeholders.
	EN9	Water sources significantly affected by withdrawal of water.

		Process: Identify water sources significantly affected by water withdrawal by the reporting organization.
		Benefits: Water systems can affect the environment by lowering the water table, reducing volume of water available for use. Wide impacts include changes in quality of life in the area and economic consequences.
	EN10	Percentage and total volume of water recycled and reused.
		Process: Identify total volume of water that was treated prior to reuse and water that was not treated prior to reuse.
		Benefits: Water recycled can be a measure of efficiency and can demonstrate the success of the organization in reducing total water withdrawals and discharges.

Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.
		Process: Identify operational sites and future operations which are in or adjacent to protected areas and areas with high biodiversity value.
		Benefits: Identify and understand certain risks associated with biodiversity. Failure to adequately manage such impacts may result in reputational damage, delays in obtaining planning permission, and the loss of a social license to operate.
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
		Process: Identify direct and indirect impacts in or adjacent to protected areas and areas with high biodiversity value. An example of indirect impact is the supply chain.
		Benefits: By asking for structured, qualitative information, the reporting organization can improve understanding of the size, scale and nature of impacts
	EN13	Habitats protected or restored.
		Process: Identify areas in which remediation has been completed or the area is actively protected.
	Benefits: Ensuring the integrity of natural habitats can enhance the reputation of the organization, the stability of its surrounding natural environment and resources, and its acceptance by surrounding communities.	

	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.
		Process: Identify the organization's strategy for achieving its policy on biodiversity management.
		Benefits: Formulating a strategy when national regulations do not provide clear reference points can protect the reporting organization from future liabilities.
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.
		Process: Identify the location of habitats affected by the operations of the reporting organization that include species on the IUCN (International Union for Conservation of Nature and Natural Resources) Red List and national conservation lists.
		Benefits: By identifying threats to the listed species, the organization can initiate appropriate steps to avoid harm and to prevent the extinction of species.

Emissions, Effluents, and Waste		
	EN16	Total direct and indirect greenhouse gas emissions by weight.
		Process: Identify direct and indirect GHG emissions and the methodology used to calculate the amount of GHG emissions. CO2 equivalent is the measure used to compare the emissions from various GHG based on their global warming potential (GWP).
		Benefits: The combination of direct and indirect emissions provides insights into the potential cost implications of taxation or trading systems for reporting organizations.
	EN17	Other relevant indirect greenhouse gas emissions by weight.
		Process: Identify the GHG emissions resulting from indirect energy use.
		Benefits: Measuring and demonstrating efforts to reduce indirect emissions can demonstrate leadership in combating climate change and can enhance the organization's reputation
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.

	<p>Process: Identify emissions reductions from all sources owned or controlled by the reporting organization. This indicator can be combined with EN16 and EN17 to explain targets for regulations or trading systems at national and international levels.</p>
	<p>Benefits: Tracking and reducing GHG emissions can improve the overall life cycle performance of products and services, and serve as part of a comprehensive environment program.</p>
EN19	Emissions of ozone-depleting substances by weight.
	<p>Process: Identify any substance with ozone depletion potential. Emissions can be calculated by (Production + Imports - Exports of substances)</p>
	<p>Benefits: The Montreal Protocol regulates the phase-out of ozone-depleting substances internationally. Measuring ODS emissions enables an assessment of how well the reporting organization complies with current and future legislation. Reporting results on ODS can help indicate its level of technology leadership and competitive position in markets affected by the Montreal Protocol.</p>
EN20	NOx, SOx, and other significant air emissions by type and weight.
	<p>Process: Identify significant air emissions and calculate their weight.</p>
	<p>Benefits: The volume of emissions has direct cost implications for the reporting organization.</p>
EN21	Total water discharge by quality and destination.
	<p>Process: Identify water discharges by destination and how it is treated.</p>
	<p>Benefits: The amount and quality of water discharged by the reporting organization is directly linked to ecological impact and operational costs. By reducing the volume and improving the quality of discharge, the reporting organization can reduce its impact on the environment and lower its financial costs.</p>
EN22	Total weight of waste by type and disposal method.
	<p>Process: Identify the amount of waste created by hazardous and non-hazardous waste.</p>

	Benefits: From a financial perspective, the reduction of waste contributes directly to lower costs for materials, processing, and disposal.
EN23	Total number and volume of significant spills.
	Process: Identify all recorded significant spills and the volume of these spills. This includes location of spills, volume of spill, material of spill and impacts of spills.
	Benefits: Spills of hazardous materials is directly linked to the organization's compliance with regulations, its financial risk from the loss of raw materials, remediation costs, the risk of regulatory actions, as well as damage to environment and reputation.
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.
	Process: Identify hazardous wastes transported by or on behalf of the reporting organization.
	Benefits: Poor management of hazardous waste creates liabilities.
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.
	Process: Identify water bodies affected by the reporting organization's water discharges and runoff.
	Benefits: Identifying water bodies affected by discharges provides an opportunity to identify activities in regions of significant concern. Discharges and runoff can have a significant impact on the availability of water sources.

Products and Services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.
		Process: Identify environmental impacts of products and services during their use face and at the end of useful life cycle.

		Benefits: Design for environment can help identify new business opportunities, differentiate products and services, and stimulate innovation in technology. Integrating environmental considerations into products and services can also help decrease the risk of incompatibility with future environmental legislation.
	EN27	Percentage of products sold and their packaging materials that are reclaimed by category.
		Process: Identify the amount of products and their packaging materials reclaimed.
		Benefits: This measure can be a source of competitive differentiation in sectors facing formal requirements to recycle products and packaging materials.

Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.
		Process: Identify administrative or judicial sanctions for failure to comply with environmental laws and regulations. Report significant fines and non-monetary sanctions.
		Benefits: Non-compliance can lead to clean-up obligations and costly environmental liabilities. Compliance record can also affect its ability to expand operations and gain permits.

Transport	EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.
		Process: Identify energy use, emissions, effluents, waste, and noise of the modes of transportation used by the reporting organization.
		Benefits: Environmental impacts associated with logistics can represent a major part of the reporting organization's environmental foot print.

Overall	EN30	Total environmental protection expenditures and investments by type
		Process: Identify all expenditures to prevent, reduce, control, environmental impacts.

	<p>Benefits: Measuring environmental mitigation and protection expenditures allows organizations to assess the efficiency of their environmental initiatives. It also provides valuable input for internal cost-benefit analysis.</p>
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Appendix F:

Attributes of selected reporting organizations

	Attributes				
	2002 Guidelines	Pages on Environment	Number of Employees	Total Assets (USD Million)	Total Revenue (USD Million)
Barloworld	1	7	25716	\$4,774.2	\$5,744.9
Bristol Myers	1	27	42000	\$28,138.0	\$19,207.0
Camelot Group	1	6	905	\$726.7	\$9,695.5
Canadian Imperial Bank	1	4	37308	\$258,578.0	\$9,639.6
De Beers	0	22	23000	\$8,265.0	\$6,150.0
FCC Construcccion	1	12	10217	\$25,148.7	\$12,537.5
Lihir Gold	0	9	1100	\$1,319.4	\$230.2
Musgrave	1	26	9172	\$776.5	\$1,345.5
National Aust Bank	1	9	30976	\$381,431.8	\$18,906.0
Nikko Cordial	1	5	11278	\$73,459.1	\$3,753.6
Port of Brisbane	0	26	235	\$1,112.3	\$97.4
Sensis	0	8	2200	\$68,234.0	\$17,013.0
SK Telecom	0	10	4486	\$15,521.6	\$2,860.6
Stockland	0	6	1246	\$7,544.1	\$1,341.6
Teck Cominco	0	20	7103	\$7,484.1	\$3,753.6
Teijin Twaron	0	5	18929	\$8,064.2	\$8,013.7
The Warehouse Group	1	4	15000	\$230.9	\$1,301.3
Westpac Banking	1	11	27138	\$235,720.5	\$16,180.2
Woolworths Holdings	1	3	79311	\$1,179.1	\$2,036.5
Yarra Valley Water	0	11	350	\$13,501.0	\$292.9

Appendix G

Percentage of coverage categorized by performance indicators

		Full	Partial	Not Met	Not Applicable
Materials	EN01	30%	40%	30%	0%
	EN02	35%	25%	40%	0%
Energy	EN03	50%	20%	15%	15%
	EN04	45%	30%	25%	0%
	EN05	25%	25%	50%	0%
	EN06	10%	25%	65%	0%
	EN07	10%	35%	55%	0%
Water	EN08	20%	45%	35%	0%
	EN09	10%	15%	20%	55%
	EN10	10%	5%	85%	0%
Biodiversity	EN11	10%	25%	15%	50%
	EN12	20%	10%	10%	60%
	EN13	10%	35%	15%	40%
	EN14	5%	15%	20%	60%
	EN15	25%	25%	5%	45%
Emissions, Effluents, and Wastes	EN16	45%	25%	30%	0%
	EN17	30%	15%	55%	0%
	EN18	15%	55%	30%	0%
	EN19	20%	10%	25%	45%
	EN20	20%	20%	30%	30%
	EN21	10%	10%	25%	55%
	EN22	35%	35%	5%	25%
	EN23	20%	5%	25%	50%
	EN24	5%	15%	15%	65%
	EN25	10%	15%	25%	50%
Products & Services	EN26	25%	35%	40%	0%
	EN27	20%	5%	25%	50%
Compliance	EN28	25%	15%	15%	45%
Transport	EN29	10%	35%	55%	0%
Overall	EN30	5%	10%	85%	0%

Appendix H

Percentage of coverage categorized by performance indicators

		Full	Partial	Not Met
Materials	EN01	30%	40%	30%
	EN02	35%	25%	40%
Energy	EN03	59%	24%	18%
	EN04	45%	30%	25%
	EN05	25%	25%	50%
	EN06	10%	25%	65%
	EN07	10%	35%	55%
Water	EN08	20%	45%	35%
	EN09	22%	33%	44%
	EN10	10%	5%	85%
Biodiversity	EN11	20%	50%	30%
	EN12	50%	25%	25%
	EN13	17%	58%	25%
	EN14	13%	38%	50%
	EN15	45%	45%	9%
Emissions, Effluents, and Wastes	EN16	45%	25%	30%
	EN17	30%	15%	55%
	EN18	15%	55%	30%
	EN19	36%	18%	45%
	EN20	29%	29%	43%
	EN21	22%	22%	56%
	EN22	47%	47%	7%
	EN23	40%	10%	50%
	EN24	14%	43%	43%
	EN25	20%	30%	50%
Products & Services	EN26	25%	35%	40%
	EN27	40%	10%	50%
Compliance	EN28	45%	27%	27%
Transport	EN29	10%	35%	55%
Overall	EN30	5%	10%	85%

Appendix I
Percentage of coverage by aspects

	Full	Partial	Not Met	Not Applicable		Full	Partial	Not Met	Not Applicable	
Materials	EN01	6	8	6	0	EN16	9	5	6	0
	EN02	7	5	8	0	EN17	6	3	11	0
% Reported (all coverage)	13	13	14	0	EN18	3	11	6	0	
	33%	33%	35%	0%	EN19	4	2	5	9	
% Reported (exclude N/A)	33%	33%	35%		EN20	4	4	6	6	
Energy	EN03	10	4	3	3	EN21	2	2	5	11
	EN04	9	6	5	0	EN22	7	7	1	5
	EN05	5	5	10	0	EN23	4	1	5	10
	EN06	2	5	13	0	EN24	1	3	3	13
	EN07	2	7	11	0	EN25	2	3	5	10
	Total Reported	28	27	42	3	Total Reported	42	41	53	64
	% Reported (all coverage)	28%	27%	42%	3%	% Reported (all coverage)	21%	21%	27%	32%
% Reported (exclude N/A)	29%	28%	43%		% Reported (exclude N/A)	31%	30%	39%		
Water	EN08	4	9	7	0	EN26	5	7	8	0
	EN09	2	3	4	11	EN27	4	1	5	10
	EN10	2	1	17	0	Total Reported	9	8	13	10
Total Reported	8	13	28	11	% Reported (all coverage)	23%	20%	33%	25%	
% Reported (all coverage)	13%	22%	47%	18%	% Reported (exclude N/A)	30%	27%	43%		
% Reported (exclude N/A)	16%	27%	57%		Compliance EN28	5	3	3	9	
Biodiversity	EM11	2	5	3	10	Total Reported	5	3	3	9
	EM12	4	2	2	12	% Reported (all coverage)	25%	15%	15%	45%
	EM13	2	7	3	8	% Reported (exclude N/A)	45%	27%	27%	
	EM14	1	3	4	12	Transport EN29	2	7	11	0
	EM15	5	5	1	9	Total Reported	2	7	11	0
Total Reported	14	22	13	51	% Reported (all coverage)	10%	35%	55%	0%	
% Reported (all coverage)	14%	22%	13%	51%	% Reported (exclude N/A)	10%	35%	55%		
% Reported (exclude N/A)	29%	45%	27%		Overall EN30	1	2	17	0	
					Total Reported	1	2	17	0	
					% Reported (all coverage)	5%	10%	85%	0%	
					% Reported (exclude N/A)	5%	10%	85%		

Appendix J

	EN01	EN02	EN03	EN04	EN05	EN06	EN07	EN08	EN09	EN10	EN11	EN12	EN13	EN14	EN15	EN16	EN17	EN18	EN19	EN20	EN21	EN22	EN23	EN24	EN25	EN26	EN27	EN28	EN29	EN30									
SUMMARY	2	3	2	3	3	3	3	2	2	2	2	3	2	3	0	2	3	2	1	3	3	2	3	3	2	3	3	2	3	3									
Barloworld	2	2	1	1	3	3	3	2	0	3	0	1	2	2	0	1	3	1	1	2	2	2	3	2	3	2	2	1	1	3									
Bristol Myers	1	1	1	1	1	1	1	2	0	3	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	0	0	0	2	3								
Camelot Group	1	1	1	1	2	3	3	2	0	3	0	0	2	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	3							
Canadian Imperial Bank	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3						
De Beers	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3					
FCC Construcción	2	1	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
Lihir Gold	3	3	3	3	3	1	2	3	2	3	0	0	0	0	0	0	1	2	2	2	2	1	1	3	0	2	3	0	3	0	3	0	3	2	3				
Musgrave	3	3	2	1	3	2	2	2	0	3	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3			
National Aust Bank	1	2	1	1	1	2	2	2	0	3	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3		
Nikko Cordial	1	1	1	1	3	3	3	3	1	0	3	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3		
Port of Brisbane	3	3	1	2	1	2	3	2	3	3	1	2	2	2	3	2	2	2	2	3	2	3	2	1	2	3	3	0	2	3	3	3	3	3	3	3			
Sensis	1	1	0	2	3	3	3	3	0	3	0	0	0	0	0	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3		
SK Telecom	2	2	1	1	1	1	2	1	0	3	2	0	3	2	3	2	3	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	
Stockland	2	3	2	2	3	3	3	2	3	3	2	0	2	0	0	3	3	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	
Teck Cominco	2	1	1	2	3	3	3	3	3	3	2	2	1	1	1	2	3	2	1	3	3	1	2	3	3	3	1	1	1	1	1	1	1	1	1	1	3		
Teljin Twaron	3	3	3	3	3	3	2	2	2	3	0	0	2	0	0	3	3	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3		
The Warehouse Group	3	3	3	2	3	3	3	3	0	3	3	0	0	0	0	2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3		
Westpac Banking	1	1	1	1	2	3	3	3	0	3	0	0	0	0	2	0	1	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
Woolworths Holdings	3	2	0	2	2	2	3	3	0	3	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	
Yarra Valley Water	2	3	1	1	2	2	2	2	1	1	1	2	1	1	1	2	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2		

0	Not Applicable
1	Full Coverage
2	Partial Coverage
3	Not Met

Materials	
Energy	
Water	
Biodiversity	
Emissions, Effluents, and Wastes	
Products & Services	
Compliance	
Transport	
Overall	

Appendix K

	EN01	EN02	EN03	EN04	EN05	EN06	EN07	EN08	EN09	EN10	EN11	EN12	EN13	EN14	EN15	EN16	EN17	EN18	EN19	EN20	EN21	EN22	EN23	EN24	EN25	EN26	EN27	EN28	EN29	EN30									
SUMMARY	2	3	2	3	3	3	3	2	2	2	2	3	2	3	0	2	3	2	1	3	3	2	3	3	2	3	3	2	3	3									
Barloworld	2	2	1	1	3	3	3	2	0	3	0	1	2	2	0	1	3	1	1	2	2	2	3	2	3	2	2	1	1	1	1	1	1	1	1	3			
Bristol Myers	1	1	1	1	1	1	1	2	0	3	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
Camelot Group	1	1	1	1	2	3	3	2	0	3	0	0	2	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
Canadian Imperial Bank	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3		
De Beers	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3		
FCC Construcción	2	1	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Lihir Gold	3	3	3	3	3	1	2	3	2	3	0	0	0	0	0	1	2	2	2	2	2	1	1	3	0	2	3	0	3	0	3	0	3	0	3	0	3	2	
Musgrave	3	3	2	1	3	2	2	2	0	3	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
National Aust Bank	1	2	1	1	1	2	2	2	0	3	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
Nikko Cordial	1	1	1	1	3	3	3	3	1	0	3	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	
Port of Brisbane	3	3	1	2	1	2	3	2	3	3	1	2	2	2	3	2	2	2	2	3	2	3	2	1	2	3	3	0	2	3	3	3	3	3	3	3	3		
Sensis	1	1	0	2	3	3	3	3	0	3	0	0	0	0	0	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SK Telecom	2	2	1	1	1	1	2	1	0	3	2	0	3	2	0	3	2	3	3	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Stockland	2	3	2	2	3	3	3	2	3	3	2	0	2	0	0	3	3	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Teck Cominco	2	1	1	2	3	3	3	3	3	3	2	2	1	1	1	2	3	2	1	3	3	1	2	3	3	3	3	1	1	1	1	1	1	1	1	1	1	3	
Teljin Twaron	3	3	3	3	3	3	2	2	2	3	0	0	2	0	0	3	3	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	
The Warehouse Group	3	3	3	2	3	3	3	3	0	3	3	0	0	0	0	2	2	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	
Westpac Banking	1	1	1	1	2	3	3	3	0	3	0	0	0	0	2	0	1	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Woolworths Holdings	3	2	0	2	2	2	3	3	0	3	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Yarra Valley Water	2	3	1	1	2	2	2	2	1	1	1	2	1	1	1	2	1	3	2	1	1																		

Appendix L

	Products Offered (1 = High, 0 = Low)	Percent in Full and Partial	Low	High
Barloworld	1	44.83%	X	44.83%
Bristol Myers	1	71.43%	X	71.43%
Camelot Group	0	75.00%	75.00%	X
Canadian Imperial Bank	0	62.50%	62.50%	X
De Beers	0	82.76%	82.76%	X
FCC Construccion	1	18.52%	X	18.52%
Lihir Gold	0	28.57%	28.57%	X
Musgrave	1	70.00%	X	70.00%
National Aust Bank	0	88.24%	88.24%	X
Nikko Cordial	0	62.50%	62.50%	X
Port of Brisbane	0	58.62%	58.62%	X
Sensis	1	31.25%	X	31.25%
SK Telecom	0	65.22%	65.22%	X
Stockland	1	57.14%	X	57.14%
Teck Cominco	1	56.67%	X	56.67%
Teijin Twaron	1	38.46%	X	38.46%
The Warehouse Group	1	31.58%	X	31.58%
Westpac Banking	0	64.71%	64.71%	X
Woolworths Holdings	1	40.00%	X	40.00%
Yarra Valley Water	0	93.33%	93.33%	X
Total Samples	20		10	10
Average Percentage			68.14%	45.99%

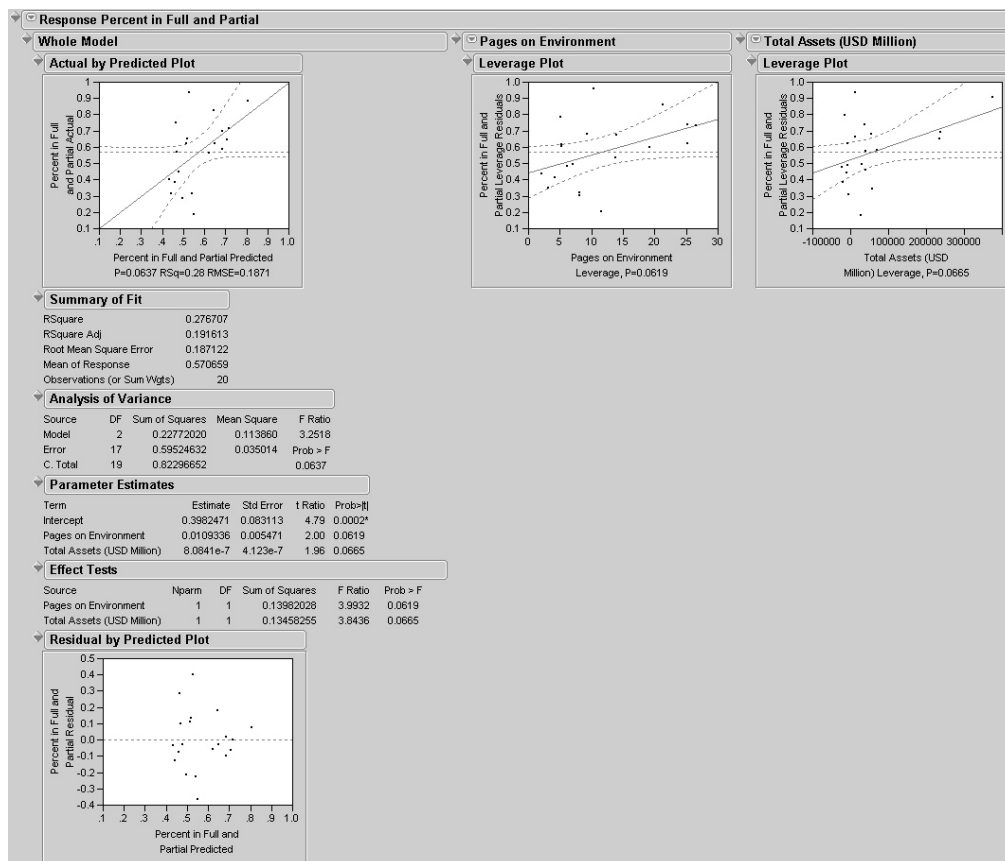
Appendix M

Stepwise regression identified “Pages on Environment” and “Total Assets” as statistically significant. The two regressors were used in a least squares regression.

	SSE	DFE	MSE	RSquare	RSquare Adj	Cp	AIC
	0.5952463	17	0.0350145	0.2767	0.1916	1.1091785	-64.2902
Lock Entered	Parameter	Estimate	nDF	SS	"F Ratio"	"Prob>F"	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Intercept	0.39824714	1	0	0.000	1.0000	
<input type="checkbox"/>	<input type="checkbox"/> 2002 Guidelines	0	1	0.005383	0.146	0.7074	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Pages on Environment	0.01093363	1	0.13982	3.993	0.0619	
<input type="checkbox"/>	<input type="checkbox"/> Number of Employees	0	1	0.00395	0.107	0.7480	
<input type="checkbox"/>	<input checked="" type="checkbox"/> Total Assets (USD Million)	8.08408e-7	1	0.134583	3.844	0.0665	
<input type="checkbox"/>	<input type="checkbox"/> Total Revenue (USD Million)	0	1	0.042306	1.224	0.2849	

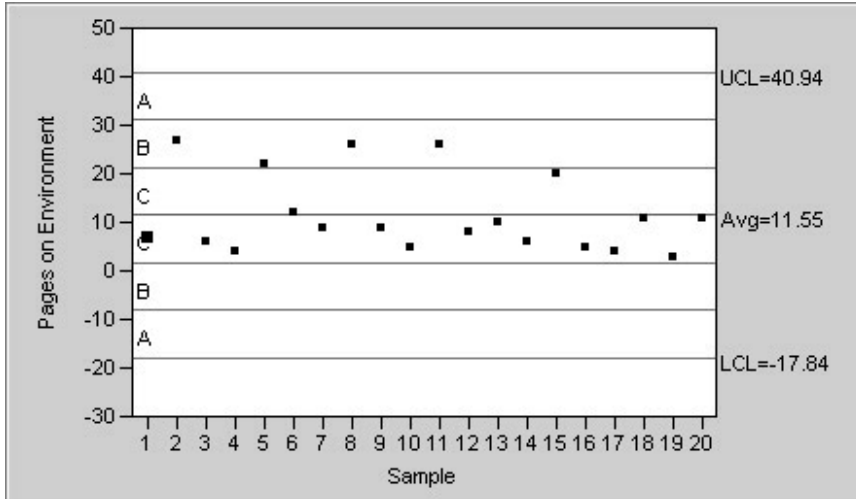
Appendix N

Results of the least squares regression. Estimation of the best fit line is: Percentage of performance indicators reported = $.3982 + .0109 * (\text{Number of pages}) + 8.08e-7 * (\text{Total Assets in USD M})$



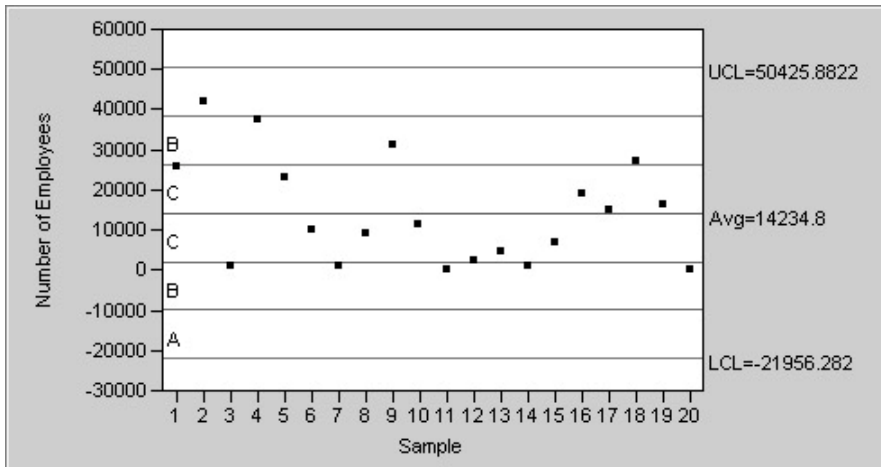
Appendix O

Pages in environmental section of sustainability report for selected reporting organization. Average number of pages is 11.55. Data did not indicate any outliers.



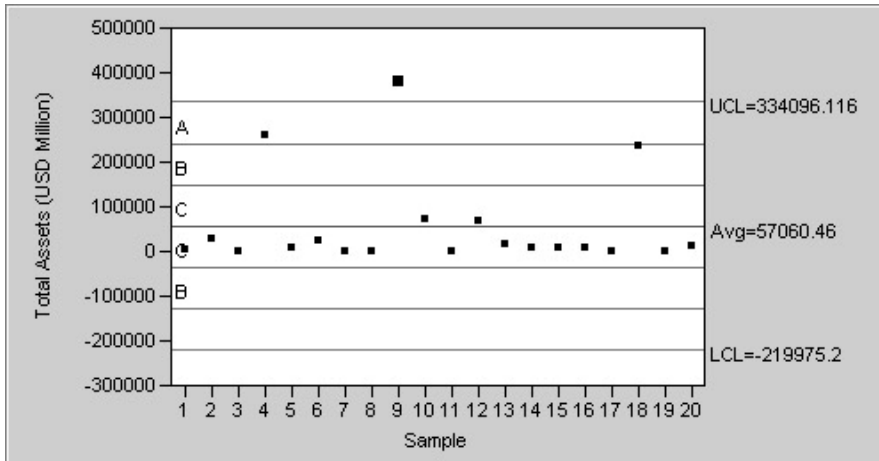
Appendix P

Number of employees in reporting organizations vs. Sample sustainability reports. Average number of employees is 14234.8. Data did not indicate any outliers.



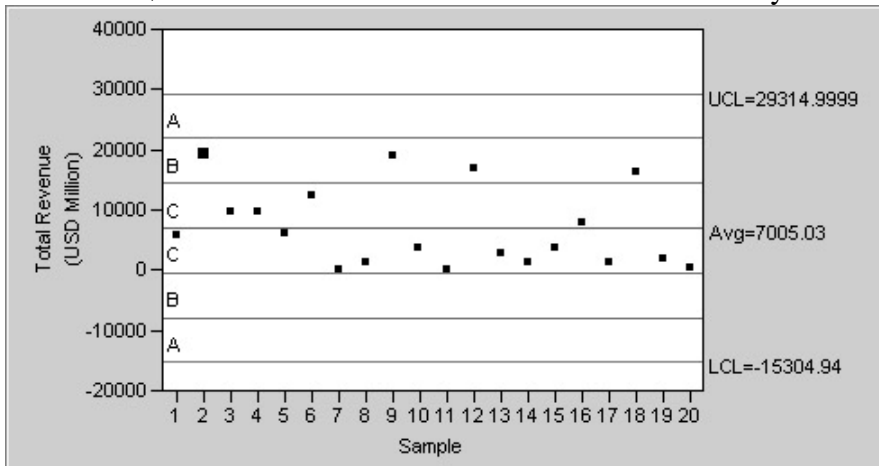
Appendix Q

Total assets in reporting organizations vs. Sample sustainability reports. Average total assets is \$57,060.46 Million USD. Sample #4 (Canadian Bank), #9 (National Australian Bank), and #18 (Westpac Banking) were outliers.



Appendix R

Total revenue in reporting organizations vs. Sample sustainability reports. Average total revenue is \$7005.03 Million USD. Data did not indicate any outliers.



Appendix S

Stepwise regression identified Pages in Environment as statistically significant. “Pages in Environment” was used as a predictor in a least squares regression model.

SSE	DFE	MSE	RSquare	RSquare Adj	Cp	AIC
0.5763881	15	0.0384259	0.1830	0.1286	-1.221055	-53.5312
Lock Entered	Parameter	Estimate	nDF	SS	"F Ratio"	"Prob>F"
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Intercept	0.41563555	1	0	0.000	1.0000
<input type="checkbox"/>	<input type="checkbox"/> 2002 Guidelines	0	1	0.004681	0.115	0.7400
<input type="checkbox"/>	<input checked="" type="checkbox"/> Pages on Environment	0.010594	1	0.12912	3.360	0.0867
<input type="checkbox"/>	<input type="checkbox"/> Number of Employees	0	1	0.003868	0.095	0.7629
<input type="checkbox"/>	<input type="checkbox"/> Total Assets (USD Million)	0	1	0.000499	0.012	0.9138
<input type="checkbox"/>	<input type="checkbox"/> Total Revenue (USD Million)	0	1	0.029014	0.742	0.4035

Appendix T

