

CORPORATE ENVIRONMENTAL PERFORMANCE
RATING METHODOLOGY

by

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To my loving parents, my wonderful husband and my darling children, Rishabh and Lasya.

You inspire me to preserve this environment we live in and hence this dissertation.

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ABSTRACT
CORPORATE ENVIRONMENTAL PERFORMANCE
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Environmental issues are becoming increasingly important to all kinds of stakeholders and companies themselves, not only for cost avoidance due to regulations, laws, cleanup costs, litigations, controversies, etc, but to improve their intrinsic ethical worth as a company for better environmental sustainability. Off late, companies are increasingly investing in environmental initiatives for cost savings and to generate profits as well. However, since no clear definition of greenness exists, companies are finding it difficult to measure environmental performance as an internal and external benchmark and hence a sound performance measurement system with formal guidelines is yet to be in place. What is measured can be managed and thus, lack of good performance measurement systems has led a need for explicit environmental performance metrics in order to provide stakeholders with more reliable, consistent, and accurate information for comparing companies and making key strategic decisions.

While environmental information is becoming available from a growing number of sources, methodological inconsistencies among measures and ratings can inhibit stakeholders' ability to interpret such data and make objective comparisons. Currently, only 2 methodologies exist for corporate environmental performance rating, both of which are generalized, incomplete

and lack clear directions for companies to improve their performance and hence improve ratings.

The purpose of this research has been to develop a new methodology to rate corporate environmental performances using performance criteria to incorporate all possible range of environmental activities of a company, allocating weights based on a sound weight justification process, assigning standard grades defined with respect to best in class and finally rating real world environmental data for 6 companies in the US retail industry. Potential practical applications of the methodology have been provided.

Sensitivity analysis has been performed to see if the weights themselves alter the outcome of grades, with different scenario analyses performed for informed decision making. This apart, environmental data from 6 retail companies in the US have been analyzed to bring out comparisons, issues and insights to help companies improve their environmental performance. Based on this real world data, final ratings have been provided and compared with Newsweek's retail green companies' results, since there is no data validation available in this area. The comparison shows marked differences between the rating schemes and CEPR methodology's results, primarily due to the narrow range of elements chosen for rating by Newsweek compared to the comprehensive criteria chosen in the CEPR methodology for balanced greening and other reasons enumerated in the paper.

The outcome ratings show that the new methodology will help companies measure, manage and improve their environmental performance better, inform the different stakeholders to see a clearer picture of how the companies perform against one another and form a basis for enhancing environmental sustainability in the truest sense.

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CHAPTER 1

INTRODUCTION

1.1 What is environmental sustainability?

Environmental sustainability is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (Our Common Future, 1987). A saying well goes: “We have not inherited this earth but are borrowing it from our future.”

1.2 Why do we need environmental sustainability?

We need environmental sustainability for the following reasons.

- a) We have a resource constrained world or our planet Earth has only a finite amount of natural resources available unless replenished responsibly.
- b) Earth’s resource usage is more than its bio capacity. The Living Planet Report 2008 tells us that we are consuming resources faster than they can be replenished. Just as reckless spending is causing recession, so reckless consumption is depleting the world’s natural capital to a point where we are endangering our future prosperity. The Living Planet Index shows that over the past 35 years alone, the Earth’s wildlife populations have declined by a third. Our global footprint now exceeds the world’s capacity to regenerate by about 30 per cent. The US has changed from an ecological creditor nation in 1961 to a debtor nation in 2006, during when its footprint is 0-50% exceeded its bio capacity.
- c) Other existing and arising environmental issues such as Global warming, climate change, unhealthy rise in air pollution, non biodegradables, water scarcity, etc.

d) In Chinese, the ideogram Opportunity is supposedly embedded in the ideogram Crisis. Similarly, this ecological crisis in fact, offers opportunities for cost savings, cost avoidance, profits, better brand reputation, doing the right thing in business apart from competitive advantage.

e) Tomorrow's business philosophy will not just be: Price, quality and availability but will include ecological intelligence and justice as well.

f) Increase in informed consumers and mounting pressures from stakeholders to do the right thing consciously.

g) Finally, to provide the needs of the present without compromising the needs of the future, supporting the basic definition of environmental sustainability.

1.3 Seven pillars of Green management

My hypothesis concludes there are at least seven pillars of green management similar to lean management and are as follows:

a) Zero emissions - This includes all activities that contribute to net zero emissions such as green power, zero emission technologies, vehicles, etc.

b) Zero toxic input, output, wastes – This includes all input, output and waste materials that are toxic or are termed as hazardous.

c) Zero output/packaging waste - This means all waste is recycled where no waste ends in landfill.

d) Zero non biodegradables input, output, waste and disposal - This means all non biodegradables are recycled as qualitative raw materials finally aiming at zero non biodegradables as input, output or waste.

e) Zero resources waste such as Zero energy buildings, etc.

f) Zero inappropriate systems such as environmentally unfriendly Information Technology.

g) Zero product/output disposal. This means all products are recovered, disassembled, taken back or recycled.

Additionally, the 100% rules apply as follows:

- a) 100% renewable energy used.
- b) 100% ability to recycle resources in house or otherwise.
- c) 100% green land given back to that occupied.
- d) 100% habitat given back to that destroyed.

Keeping these as ideal zeroes and 100% rules in green management can help companies strive towards better environmental sustainability.

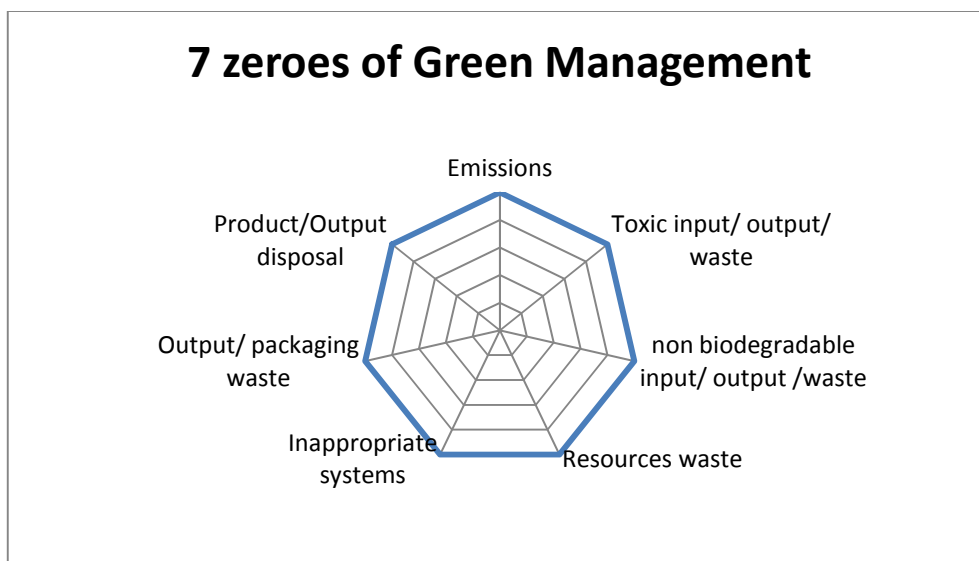


Figure 1.1 Spider Chart of 7 Zeroes of Green Management

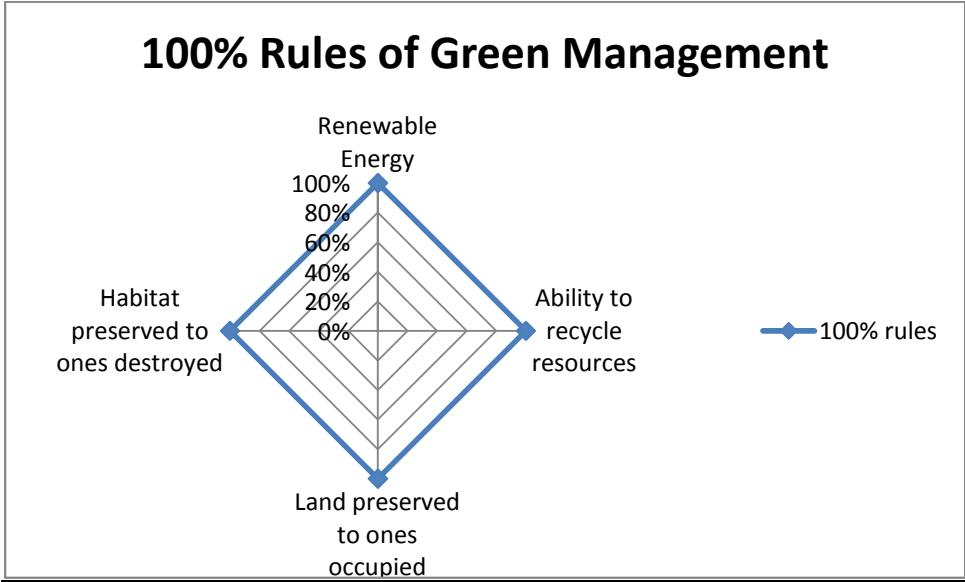


Figure 1.2 Spider Chart for 100% Rules of Green Management

CHAPTER 2

LITERATURE REVIEW

2.1 Current Environmental issues in the US

Below is the priority list used in the proposed methodology based on current issues in the US, compiled from various data sources such as Environment Protection Agency (EPA), Daniel Esty and Andrew Winston's book "Green to Gold" and data from World Wildlife Fund's (WWF) Living Planet 2008 Report.

- a) Climate change and Green House Gas (GHG),
- b) Energy,
- c) Toxic and other waste,
- d) Better management of inputs, outputs and resources that threaten human health.
- e) Water
- f) Land use and habitat loss and
- g) Individual industry concerns such as air pollution.

The top issue from products is human health and safety.

2.2 Priority list justification

The justification for the priority list drawn above is based on the following.

- a) Currently, according to WWF living planet report 2008 and Environment Protection Agency (EPA), USA leads the GHG production in the world, with the unverified total growing by 17% since 1992. It is the only industrialized country where GHG has grown since the Kyoto Protocol was ratified. Multiple Studies have forecasted a need for 70% global reduction in GHG by 2025 to maintain a 2 degree increase in global temperatures and prevent existing

environmental issues from escalating. Energy is the second issue, especially from coal and natural gas that contribute to GHG.

b) Toxic waste and waste management takes the next priority. US produces maximum waste in terms of products and otherwise. National hazardous waste sites are called Superfund and if not cleaned up, pose a big risk to public health.

c) Better management of resources, inputs and outputs is the next issue. This includes avoiding toxic substances, using environmentally friendly raw materials, producing biodegradable outputs, and greener management of resources to make production of goods and materials in an environmentally qualitative way and reduce the risk to human health.

d) The US has mild water stress currently, though it is seen to be an issue in the future.

e) The US has more land stress due to agriculture and other built activities. Land use and its management thus take the next priority. The US also has considerable natural resources such as forests, habitats, compared to other developed countries like Japan and EU. (Data from "The Living Report 2008", WWF) and thus takes the last priority.

f) According to the EPA, air quality has in fact improved over the last 20 years though some issues and challenges still exist with toxic emissions taking the next priority as part of individual industry concerns.

2.3 Currently existing rating schemes in the US

The currently existing rating schemes in the US are all proprietary and are as follows:

a) Fortune's Leaders and Laggards – Focuses on investor's choice of stocks and performance assessed based on financial ends alone.

b) Trillium Asset/ Franklin Research and Development Corporation- Has a simple rating system primarily to warn investors of leaders and laggards in the industry.

c) Risk Metrics (Investor Research Responsibility Center) – Eco value 21 rating scheme by Innovest, a private investment management firm, makes detailed quantitative and qualitative analysis primarily to advise investors of leader and laggards in an industry. The

model is based on 60 indicator variables and uses factor attribute analysis for modeling regression. The disadvantage is that it solely acts as a strategic value advisor for investors who need to be forewarned of risks posed by laggards. Methodology is not transparent to the public and it does not act as a whistleblower for environmental issues to companies or other stakeholders.

- d) Dow Jones sustainability Index – Is based on only 4 simple indicators such as land use, water use, GHG, other resource consumption and hence is incomplete.
- e) Council of Economic Priorities – Ratings are based on consumer's choice of products.
- f) ISO 14000 - Four variables were broadly designed to represent environmental performance: improved regulatory compliance, improved management of environmental impacts, reduced environmental risk, and reduced pollution. One of the weaknesses of the standard is its lack of specific performance indicators and common metrics for tracking and comparing environmental performance.
- g) KLD Analytics – Green rankings published by Newsweek for 2009. Is proprietary data, has partially transparent methodology and acts mostly as an investor information guide. This firm has been acquired by Risk Metrics Group.

2.4 Currently existing Methodologies

There are currently two existing methodologies for rating environmental performance and are as follows:

- a) Sustainability Balanced Score card - Epstein (1996) outlined 10 components of environmental integration in the form of a corporate environmental scorecard. Too many categories exist to obtain a single index or composite picture from different indicators. Is often confusing and does not list the kind of indicators.
- b) Metcalf et al Matrix – Designed an environmental performance matrix which encompasses 10 components (Ilinitch, 1998). Is too simple and not complete.

While composite scores can simplify comparison across companies, the criteria used to assign relative scores in the above schemes are often unclear. The resulting scores can mislead users and bring undeserved negative publicity to low-scoring companies. Also, most ratings are given to warn investors of laggards in the industry or understand potential of leaders for better choice of stocks, instead of evaluating the environmental performance to improve the intrinsic ethical worth of a company on grounds of value based sustainability and environmental quality. Even more dramatic is the weight that ratings schemes seem to place on particular environmental events. Both the improvement and event effects are empirically supported by a study which found that financial markets reward and punish companies for events that are significant enough to warrant public media coverage, such as winning an environmental award or suffering a major oil spill (Klassen and McLaughlin, 1996). Most lacked context to help readers understand the results. Some experts suggest that the relative complexity of this information may lead to increased public confusion and cynicism about its value (Weismann, 1994). Dold (1991) reports that few Americans view business and industry leaders credible when they provide information on environmental issues while Lober (1996) notes that although judgments are frequently made about which companies are most green, no clear or agreed upon definition of greenness exists. However, through various approaches discussed above, there has been substantial progress made toward clarifying the environmental performance construct. Thus, measures of environmental performance have proliferated in the absence of clear, generally accepted guidelines as to what constitutes good and bad environmental performance. As a result, the public is becoming increasingly confused and cynical about interpretation of such data (Ilinitch, 1998).

CHAPTER 3

RESEARCH APPROACH AND METHODOLOGY

3.1 Research Objective

This research aims to develop a complete and comprehensive methodology for rating the environmental performance of companies based on balanced approach to greening. Since there exists no clear definition of greenness, environmental initiatives range being very comprehensive while the existing methodologies being neither clear nor comprehensive, the author decided to propose a new methodology to rate corporate environmental performance and validate using real world data. First, different kinds of existing rating schemes in the US were explored. Since all the existing rating schemes were proprietary, different data points that determine the final variable were researched from existing schemes, company Corporate Sustainability Reports (CSR), articles and published journals. Using these data points, a grading standard was developed for different qualitative and quantitative data. Finally, real world data from 6 companies in the US were used to rate these companies using the methodology.

3.2 Research Plan

From the objectives above, the research plan is created to satisfy the objectives. The research plan explains steps needed to complete the dissertation. The steps are explained as follows.

- a) Survey literatures for different existing rating schemes and methodologies.
- b) Survey literatures for different vital data points that determine the final outcome of important variables that describe the environmental performance.

- From Corporate Sustainability Reports.
 - From Existing Rating Schemes.
 - From Existing Methodologies.
 - From published articles and journals.
 - From government sources.
- c) Survey literatures on current environmental issues in the US.
 - d) Survey literatures on retail industry data in the US, issues, trends and challenges.
 - e) Develop a priority list for the environmental issues in the US.
 - f) Identify the different primary variables, its categories and its criteria from the data points.
 - g) Allocate weights for categories based on priority list, and to criteria based on environmental risks and other factors.
 - h) Devise grading standards for every data point identified.
 - i) Develop a standardized methodology to rate environmental performance of companies across industries.
 - j) Survey literature for real world data set from CSRs, company websites, annual reports, government sources, published journals and articles.
 - k) Gather dataset and rate this real world data for 6 US retail companies using the proposed methodology.
 - l) Perform Sensitivity analysis to see if the weights themselves alter the outcome of the score.
 - m) Survey literature on previously published results and methodology for comparison – Newsweek’s 500 greenest companies.
 - n) Compare and analyze the published methodology and results with proposed methodology and generated results.
 - o) Insights and Issues.

p) Conclusion and further research.

3.3 Practical applications of the proposed methodology

The proposed methodology acts as a business case for various reasons mentioned below. Environmental ratings based on the proposed methodology can be used:

- to distinguish the environmental load of companies and efforts made to mitigate the load on the biosphere, both as an external and internal benchmark,
- to inform investors and insurance companies of possible risks and liabilities as strategic value advice,
- to inform different stakeholders including the public of how green the companies, their products, processes, technologies and management are, locally, across industries and globally,
- to understand which criteria drive the ratings and help understand which areas to focus on for a balanced approach to greening,
- by companies to screen suppliers for environmental laggards in specific categories, criteria or as a composite company score.

These apart,

- The proposed methodology is comprehensive and will be publicly available. The currently existing two methodologies are neither complete nor comprehensive while all other existing rating schemes are proprietary.
- Companies can look at the criteria and understand what data and units they need to provide for better clarity and transparency.
- Company rating reports details best practices and a mode for sharing them.
- The proposed methodology has clear justification for allocating weights to different criteria with sensitivity analysis having been performed to analyze weight variations.

- Finally, the methodology emphasizes on innovation, efforts, credibility, clarity of data reported and transparency of reports. Thus, not only the outcomes but the efforts are rewarded as well to encourage companies to make the efforts.

Due to reasons above, the proposed methodology will encourage companies, NGO's and Government agencies to strive towards better environmental performance in the right direction overall.

3.4 Corporate Environmental Performance Rating (CEPR) Research Methodology

3.4.1 Guidelines for Proposed methodology

The CEPR methodology has certain guidelines which are as follows:

- a) Companies are evaluated based on their industry classification on FTSE4 good as high, medium or low impact industries (FTSE4Good Inclusion Criteria).
- b) Companies will be given a score of F if they lack transparency or they are found to have minimal sustainability efforts.
- c) Grades have been assigned as follows:
 $8 < A \leq 10$, $6 < B \leq 8$, $4 < C \leq 6$, $2 < D \leq 4$, $0 < E \leq 2$ and $F = 0$. These grades have been given their numerical values for sensitivity analysis purpose.

3.4.2 Proposed CEPR Research Methodology

The 4 step standardized methodology involves:

- Identifying and enumerating different data points (criteria as variable for final outcome).
- Allocating weights to each criterion, category and primary variable justified appropriately. A chart showing the relationship between primary variables, categories and criteria is shown in Figure 1.1.

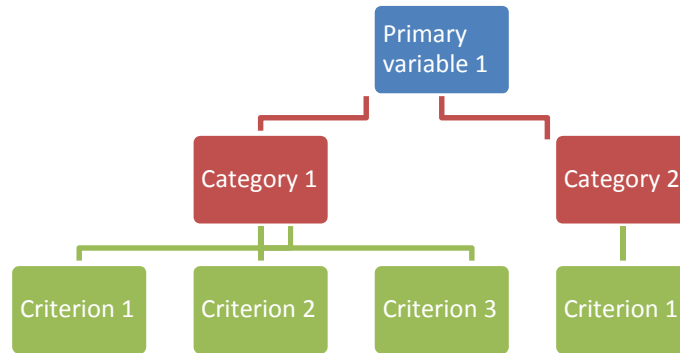


Figure 3.1 Relationship chart between Primary Variable, Category and Criterion

- Researching and defining best in class for each criterion.
- Develop grading standards for each criterion.
- Finally, rating data from real world settings by assigning quantifiable letter grades to various qualitative and quantitative data in each criterion based on the standards developed. Category grades are calculated using their assigned weights and criteria grades to give the final primary variable grades.

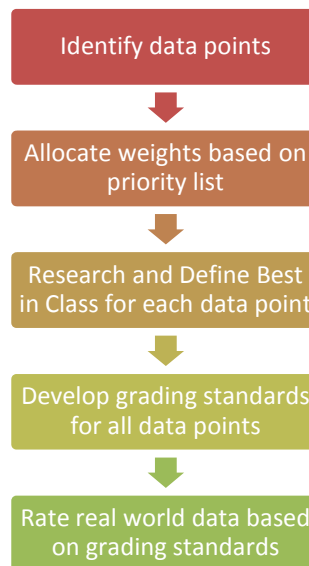


Figure 3.2 CEPR Methodology Flowchart

Currently, Best in class for retail industry in the US has been set as the standard. However, this bar can be raised across industries and across countries as well for global rating scheme.

3.4.3 Kinds of rating schemes available for use

The 4 kinds of rating schemes available using the CEPR methodology are as follows:



Figure 3.3 4 kinds of rating schemes available using CEPR

- a) Ideal rating scheme where companies are rated with respect to ideal principles as proposed in 7 pillars of green management. For example: If no non-biodegradable outputs are produced, only then will the company be awarded a grade A in its respective criterion. The other grades will be scored in relation to a fixed absolute scale. The reality is that even the most leading companies have a long way to go before they reach true sustainability. Switching the scoring to an absolute scale with zero impact in each of the seven pillars or seven zeroes of green management as the end goal would more effectively stimulate continuous improvement and would better illustrate how much work remains to be done. This change to a fixed scale would also have the positive side effect of providing companies with a better benchmark to track their performance over time since the scale wouldn't change from year to year.
- b) Industry ratings where companies are rated with respect to best in class in that industry. While much of the coverage this year has been on the aggregate rankings like the Newsweek's 500 greenest companies, the industry-level rankings are actually much more meaningful and useful, both for consumers seeking to purchase from the greenest companies and for business leaders looking to compare with their competitors. Further, with all the attention going to the

aggregate rankings, most companies that are not near the top or bottom have less incentive to focus on improving their score since their score is less likely to attract attention. Greater attention to industry-level rankings would better stimulate efforts to improve since there will be more high profile top slots for which companies could compete and each company's efforts would be less likely to go unnoticed.

c) Country ratings where companies are rated with respect to best in class in the country. Though industries mostly share common criteria, some industries have progressed much more than others in these common criteria. For instance, consumer cars industry's best in class already expects all its suppliers to be ISO 14001 certified while the best in class in retail industry has no supplier as ISO 14001 certified. Thus, while striving to be competitive among the industry peers, companies need to look beyond borders and compare themselves across industries in the country for best in class practices to enhance true sustainability.

d) Global ratings where companies are rated with respect to best in class, globally. The reasons mentioned in the country wise rating extends to global rating as well to compare across industries, across countries both for adopting best practices across the globe.

3.4.4 Country wise rating methodology

The standard methodology uses best in class within its industry. For country wise methodology, the following guidelines need to be applied.

- Create or identify the priority list of environmental issues that include global and local concerns topical to that country.
- Use the criteria listed in the methodology for every category.
- Allocate category weights according to the priority list. Criteria weights are common through nations.
- Rate with respect to best in class in that country/ industry respectively.

3.4.5 Global rating methodology

For rating companies globally, the following guidelines need to be applied.

- Create or identify the priority list of current global issues only.
- Use criteria for every category.
- Allocate weights to categories as per priority list.
- Rate with respect to best in class globally.

3.4.6 Primary Rating Variables

The CEPR rating scheme consists of four primary variables that are used to identify major loads. The four main primary variables are identified as follows:

- Environmental load from in house processes,
- Environmental load from products/ services,
- Compliance, Litigation and Controversies (CLC) and
- Environmental Management Quality.

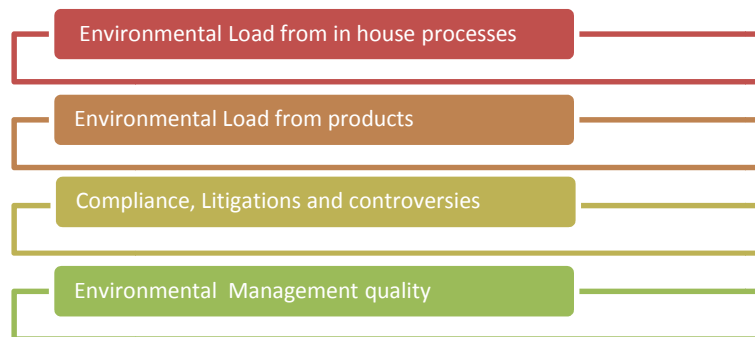


Figure 3.4 Primary Variables

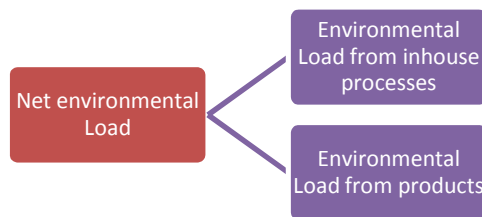


Figure 3.5 Net Environmental Load split-up

The final score will be in the form of letter grades for the Net Environmental Load that comprises of a) Environmental Load from in house processes and b) Environmental Load from products, Environmental CLC and Environmental Management Quality. One can further allocate weights to the above three primary variables to get a composite green score. However, it is recommended to compare companies based on primary variables instead of an aggregate score for reasons detailed in comparison of results with KLD's methodology.

CHAPTER 4

JUSTIFICATION OF WEIGHTS

This chapter covers how the weights are allocated to primary rating variables, categories and criteria and justifies them.

4.1 Justification of allocation of weights to primary rating variables

The following section details weight justification due to environmental load from in house processes.

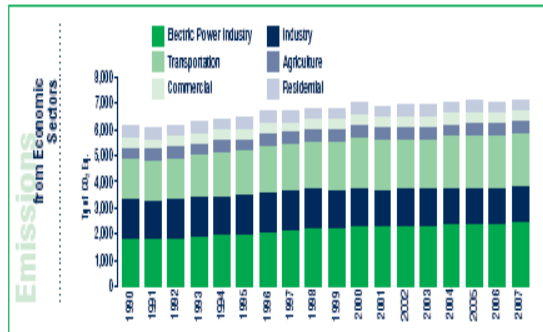
4.1.1 Environmental load from in house processes

This load involves activities that bear a load on the environment from in house processes only. The major environmental risks in this variable are GHG, energy use, mainly related to stores and transportation fleet and waste management. The GHG quick facts, certain vital trends in GHG, contributions by economic sector type in the US are shown in Figure 4.1.

Economic Sectors

U.S. Greenhouse Gas Emissions Allocated to Economic Sectors (Tg CO₂ Eq.)

Implied Sectors	1990	1995	2000	2005	2006	2007
Electric Power Industry	1,859.1	1,989.0	2,329.3	2,429.4	2,375.5	2,445.1
Transportation	1,543.6	1,685.2	1,919.7	1,998.9	1,994.4	1,995.2
Industry	1,496.0	1,524.5	1,467.5	1,364.9	1,388.4	1,386.3
Agriculture	428.5	453.7	470.2	482.6	502.9	502.8
Commercial	392.9	401.0	388.2	401.8	392.6	407.6
Residential	344.5	368.8	386.0	370.5	334.9	355.3
U.S. Territories	34.1	41.1	47.3	60.5	62.3	57.7
Total Emissions	6,098.7	6,463.3	7,008.2	7,108.6	7,051.1	7,150.1



U.S. Greenhouse Gas Emissions Allocated to Economic Sectors with Electricity Distributed (Tg CO₂ Eq.)

Implied Sectors	1990	1995	2000	2005	2006	2007
Industry	2,166.5	2,219.8	2,235.5	2,081.2	2,082.3	2,081.2
Transportation	1,546.7	1,688.3	1,923.2	2,003.6	1,999.0	2,000.1
Commercial	942.2	1,000.2	1,140.0	1,214.6	1,201.5	1,251.2
Residential	950.0	1,024.2	1,159.2	1,237.0	1,176.1	1,229.8
Agriculture	459.2	489.7	503.2	511.7	530.0	530.1
U.S. Territories	34.1	41.1	47.3	60.5	62.3	57.7
Total Emissions	6,098.7	6,463.3	7,008.2	7,108.6	7,051.1	7,150.1

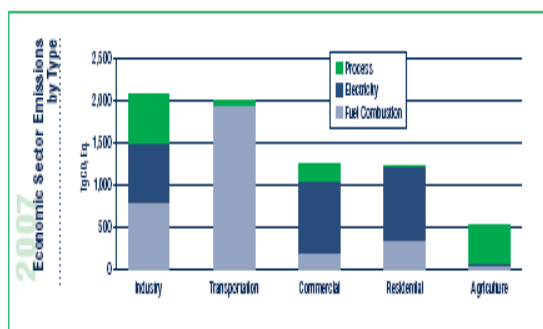


Figure 4.1 GHG quick facts from www.epa.gov

From the bottom right table in Figure 4.1, in 2007, Processes contribute 1250 Teragrams (Tg) Co₂ Equivalent (Eq.), Energy contributes 2250 Tg Co₂ Eq. and Fuel combustion contributes to 3150 Tg Co₂ Eq. Thus, ratio of energy contributing to GHG = $2250 / (1250 + 2250 + 3150) = 2250 / 6650 = .3383$ or 33.83% of total GHG while the rest including energy, fuel combustion, etc contribute to 100% of total GHG emissions in the US. Thus, ratio of Energy: GHG can be derived as 33.83: 100 or 1:3. Hence, Energy use is allocated a 20% while GHG a 40% weight for now, since the sensitivity analysis will take care of 1:3 ratio weight change. Waste management, the next issue is weighted equal with energy use of 20% weight. Natural resources conservation such as packaging, paper/wood, water, land use, is given a total weight of 20% according to the priority list.

However, to reduce human bias, Monte Carlo simulations/ sensitivity analysis has been performed to see how the composite/ individual criteria score varies with a range of

judgmentally acceptable values and to see if the weights themselves can alter the outcome score. Sensitivity analysis has been performed by entering distributions for each of the above category for environmental load from in house processes. The table below summarizes the inputs for sensitivity analysis.

Table 4.1 In house load Category Inputs for Sensitivity Analysis

Category	Distribution	Weight Range
1. Energy Use	Normal	15%-25%
2. GHG	Normal	35% -45%
3. Waste/ Packaging	Normal/ Exponential	15%-25% / 5%-15%
4. Water / wood , paper	Exponential	5%-15%/ 5%- 15%
5. Other Natural resources	Exponential	5%-15%

4.1.2 Environmental Load from products

This load involves activities that bear a load on the environment from products only. The major environmental risks in this variable include product life cycle (from the sourcing of raw materials to end-of-life recovery) and product safety (use of chemicals, GMOs etc). The world is starving for sustainable solutions. Any innovation in products is highly beneficial to companies. Thus, product innovation has been allocated a clear 30%. As mentioned before, the main risk from products is product safety and hence avoidance of toxics and integration of sustainable materials bear a high 30% weight. Reducing product waste by means of recovering, recycling, upgrading, reducing, reusing and repairing is a high environmental risk and thus has been allocated a 20% since product waste is a big portion of hazardous/ non hazardous waste generated in landfills. Efforts to introduce eco products/ technologies have been allocated a

10% weight. Following is a table showing the category inputs in this primary variable for sensitivity analysis purposes.

Table 4.2 Product Load Category Inputs for Sensitivity Analysis

Category	Distribution	Weight Range
1.Product innovation	Normal	25%-35%
2. Sustainable materials	Normal	25%-35%
3. Eco products/ Technologies	Exponential	10%-20%
4. Reducing product waste	Normal	15%-25%

The weight allocation is based on the priority list derived by weighing environmental risks faced by different criteria. This gives a structure to weight allocation justification. In this category, the risks are clear. However, if it is difficult to clearly sort them on the basis of risk prioritization, a Delphi method is recommended to be used, as sometimes, different individuals in management may have different prioritization of environmental risks. Delphi method can be used in practice as companies use this model and set their own weight allocations.

Another structured way of prioritizing risks or a risk prioritization scheme is suggested as follows:

- 1) Identify the environmental risks and the impact they have on the environment, on human health and on the business posed.
- 2) Categorize the impacts as None- 0, very low- 1, low-2, medium-3, high-4, very high – 5.
- 3) Assign the highest impact rank (HIR) to the criteria/ category amongst all the risks identified.
- 4) Do the above for all criteria in a category or all categories in a primary variable.
- 5) Prioritize the criteria/ categories based on the HIR.
- 6) If a clash occurs, either assign equal weights during allocation or see if any other factor such as probability of occurrence can resolve the issue.

Now, the Net Environmental Load includes the following:

- Environmental Load from In house processes,
- Environmental Load from Products/ services and
- External verification.

Environmental reporting and transparency is currently not mandatory in the US. Non transparency and non verification by third party makes it difficult for rating agencies as well stakeholders to verify a company’s activities and is vulnerable to green washing. Credibility, an important factor in any reporting is enhanced only by external verification. However, since external verification has not been used by any general retailer in the US for data other than GHG and energy by a few, credibility is a huge issue with companies in the eyes of both stakeholders and rating agencies. Hence, to encourage companies verify externally, a 10% weight has been allotted in the primary variables (E) Net environmental Load.

The following Table 4.3 shows the weight allocation for composite primary variable E Net Environmental Load.

Table 4.3 E. Net Environmental Load Inputs for Sensitivity Analysis

Primary variable	Distribution	Weight Range
1. Environmental load from in house processes.	Normal	40%- 50%
2. Environmental load from products/ services	Normal	40% -50%
3. External verification	Exponential	10%-20%

In some industries, the load due to production processes may be higher than that from products such as the textiles industry. In other industries, the load from products may be higher than the process itself such as consumer cars. For industries such as Retail, this ratio is almost similar and hence fixed at 45% each. Scenario analysis has been performed for 60%-30% ratio as well. However, there is a need for further research to create near exact ratios for various

industries classified in Industry Classification Benchmark (ICB), for environmental load from in house processes to environmental load from products. This can help in reducing subjectivity in this scheme for other industries.

4.1.3 Environmental Compliance, Litigations and Controversies (CLC)

Environmental CLC score of a company is contributed by various environmental criteria such as regulation compliance, litigations, government proceedings, shut-ins, permit denials, accidents, spills, Superfund and finally product safety recalls due to environment considerations. All the above are required for cost avoidance, measuring environmental liability for companies and are weight justified on the basis of environmental risk to human health and environment. Here, the environmental controversies through products have been allocated a high 35%, since it directly bears the highest implication on human health, safety and includes product safety recalls due to environmental considerations and controversies. Superfund, nation's hazardous cleanup sites bear a 20% weight, highlighting the environmental risk magnitude of hazardous waste sites to human health if not cleaned up. An overview of Superfund has been provided below in section 4.1.4. Compliance has been allotted a 15% weight that includes a 5% weight to compliance history and the rest to recent compliance fines and violations, a direct environmental risk. Spills (10%) and accidents (5%) together have been allocated an equal 15% unless it is of a catastrophic magnitude. If any criterion except for compliance history and litigation history score is of a catastrophic magnitude, then the CLC score automatically gets an F, irrespective of other initiatives. Lost Litigations bear a 15% weight since they are a direct sign of environmental risks posed to public health. Again, if a recently lost or filed litigation is of a catastrophic magnitude such as toxic torts to a community, the CLC score automatically takes an F. History of litigations bear a 5% while litigations in the recent year bear a 10% weight similar to compliance. The following Table 4.4 shows the weight allocation for inputs in CLC primary variable.

Table 4.4 Environmental CLC Inputs for Sensitivity Analysis

Category	Distribution	Weight Range
1.Compliance history	Exponential	5%-10%
2.Recent compliance	Exponential	10%-15%
3. Spills/ Accidents	Normal	10%-20%
4. Superfund status	Normal	15%-25%
5. Litigations	Exponential	15%-20%
6. Environmental controversies though products	Normal	35%-45%

4.1.3.1 Overview of Superfund

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Over five years, \$1.6 billion was collected and the tax went to a trust fund for cleaning up abandoned or uncontrolled hazardous waste sites. According to the EPA, if you are found to be a Potentially Responsible Party (PRP) under CERCLA, you are financially liable for the costs of cleanup and EPA oversight. Secondly, the costs of cleaning up (remediating) sites can be very expensive. CERCLA liability can have a major impact on the profitability of a company, and/or may even force them into bankruptcy. Thirdly, if a company's CERCLA liabilities exceed its ability to pay and/or the company goes bankrupt, the financial burden of cleaning up the site(s) falls on the taxpayer. The reason the Fund was initially established (with a special tax on the Petroleum and Chemical industries) was especially to pay for the clean-up of abandoned or "orphan" sites (with no identifiable PRPs), or sites with recalcitrant/non-complying PRPs. EPA still encounters some

issues with Superfund. It is very difficult to make a link between PRPs and the toxicity of waste at a site. The only truly accurate way is if they are the sole or only PRP at the site which is rather rare. Most often hazardous waste dumped at a site is commingled and it is difficult to identify which PRP is responsible for what. However, legally all the PRPs at a site fall under the 'joint and several liability' clause of CERCLA and are all equally liable, except for small volume waste contributors parties. (Data source from email correspondence between author and EPA) Further information on Superfund can be found in EPA's website.

4.1.4 Management

This involves green policies, principles and other management activities that contribute to balanced greening. Here, the Environmental Supply Chain Management (ESCM) activities take the highest priority in safety risks faced, since supplier owned activities are not wholly in control of the business and hence a 25% weight. Top level Environmental Strategy accounts for the next 15% weight since lack of structured policies and integration with core business can ruin the best greening initiatives planned. EMS and Corporate Governance are the next biggest risks, since lack of clear Board structure, environmental compensation for employees and environmental tools runs a high risk of incompetence and take 15% weight each. Environmental Audit and the quality of Reporting are vital to a firm's internal and external management and communication and take 10% weight while training of employees/ supplier creates environmental awareness, a chief promoter for innovation, motivation and efforts among employees and suppliers and hence 7.5% and partnerships a 2.5%. This allocation is based on priority list based on weighing environmental risks faced by different management categories. When seen from top to bottom, one can see that the environmental risk is highest in ESCM activities > Environmental Strategy > EMS/ Corporate Governance > Audit/ Reporting/ Training Partnerships. Thus, a general rule of thumb will be to sort the criteria identified on the basis of environmental risks affecting the business. Following the risk prioritization scheme suggested

earlier, the below mentioned management categories have been used as examples for data validation if the risks are not clear.

Table 4.5 Risk Prioritization Example

Category	Risks posed	Impact on business	Importance to business	Net Importance to business
1. ESCM	- Environmentally unsafe products - Product Recalls	- Human health threat and safety issues. - Reputation damage, Cost of recalls	Very high- 5 Very high- 5	Very high- 5
2. Corporate Governance	- Reputation damage - Lack of senior coordination - Lack of motivation among employees	- Tarnished reputation - Incompetence - Missed opportunities	High- 4 High- 4 Medium- 3	High- 4
3. Partnerships	Missed opportunities	Missed cost savings, profits	Low to medium	Low to medium- 2

Similarly, all other categories can be ranked and individual weight allocation to the categories can be justified. The following table shows the weight allocation in Management variable.

Table 4.6 M Management Inputs for Sensitivity Analysis

Categories	Distribution	Weight Range
1. Environmental Strategy	Normal	15%-25%
2. Corporate Governance	Exponential	15%-20%
3. Environmental Management Systems	Normal	15%-25%
4. Audit	Exponential	10%-15%
5. Reporting	Exponential	10%-15%
6. Training/certifications	Exponential/ exponential	7.5%-10%/2.5%-10%
7. ESCM	Normal	20%-30%

4.1.5 Cross industry validation

The industry chosen for data validation in this dissertation is the General Merchandisers or the retail industry. This occurs as a high impact industry in FTSE4Good categorization. The 3 primary variable categories, Environmental Load from in house processes, Environmental CLC and Environmental Management will remain the same for all industries. The remaining Environmental Load from products primary variable has by and large standardized criteria for all product industries with certain exceptions detailed in the grading standards itself in Appendix A. All other product industries have been cross checked as per Dow Jones/ FTSE Industry Classification Benchmark (ICB) in 10 product sectors as follows:

- Chevron for oil and gas,
- Dell for technology,
- PG&E for utility,
- Celanese for Basic Materials,
- Johnson and Johnson for Pharmaceuticals,
- Agilent Technology for Industrial Goods,
- Starbucks for consumer products, cars,
- Baxter for Healthcare and
- Coke for Food and Beverage.

4.1.6 Product verses service industry

The CEPR methodology is primarily for product industries, though can be applied to service industries also with the following changes. If a combination exists such as IBM, that calls itself a product and services company, then Environmental Load % will split into process, products and services, where products and services % will be apportioned as per the company's revenues for the same. For service industry, the three main primary variables will apply except the Environmental Load from products. Instead, this will read as Environmental load from services comprising of the following:

- a) Environmental investments held.
- b) Environmental discounts offered /other green services offered to customers.
- c) Environmental load from products offered in these services.
- d) Any other efforts to conserve natural resources.

Details of the above are beyond the scope this paper and is a potential topic for further research.

4.2 Rules of thumb for weight allocation justification to criteria in all categories

The general rules of thumb for weight allocation justification are as follows:

a) In general, weights to categories were allocated according to the priority list compiled with data from different sources such as the EPA, the Living Planet Report 2008, etc. Similarly, weights to individual criteria in the categories are allocated according to a priority list compiled from the environmental risks faced by the industry, after which certifications, innovation, efforts, normalized data, target reduction, partnerships take precedence.

Or in other words, the precedence rule can be re-written as follows:

Environmental Risks such as safety (Avoidance of toxics, etc) > = Raw material/ product Certifications > = Innovation/ efforts > = Sustainable Raw material integration > = Normalized data collected > = Target reduction > = Partnerships..... (1)

b) In case of packaging or products, avoidance of toxics take precedence over all else. The CEPR methodology emphasizes on human health and safety and thus the justification. If a Supply Chain is involved, then any supplier screening or Supply Chain Management (SCM) activity takes precedence over all else, since it is highly important to ensure the suppliers abide by the necessary environmental criteria and safety above all else.

c) If the criterion involves certifications like paper, etc, then this takes precedence over all, since raw materials that are certified enhance environmental sustainability directly. For instance, wood certified by Forest Stewardship Council (FSC) come from well managed forests and prohibits conversion of natural forests or other habitats around the world, prohibits the use of

highly hazardous pesticides around the world and the cultivation of genetically modified trees (GMOs). Similar independent certifications currently exist for seafood from Marine Stewardship Council (MSC), for coffee, palm oil, cocoa and tea from UTZ, etc. As environmental awareness increases, more product/ raw material certifications will be needed assuring environmental sustainability and for reasons mentioned above, this criterion will take the next priority of weights in its category.

d) In any criterion, innovation and efforts take the next priority of weights. If normalized data for the criterion is less important than another criterion like recycling rate, as in the example waste generated, then this criterion takes equal weight of efforts. Otherwise, as a general rule of thumb, normalized data takes precedence.

e) External verification or credibility forms an important issue as stated before. Currently, only GHG data and energy data have third party verification weight of 15% built into them. However, while calculating the net score for all primary variables, a 10% weight will automatically be allocated for external verification to encourage companies to ensure efforts to offer more credibility to their reporting.

4.3 Justification of weights for criteria in categories

Weight allocation has been justified for the first 3 categories in Environmental Load for In house processes as sample. Remaining categories follow similar principles that have been enumerated in the above section. Rule of thumb is that a 99% confidence interval has been chosen for the weight range specified in the sensitivity analysis. The following categories have been shown as examples for justification of weights for criteria.

4.3.1 Energy use

A study by New York-based management consulting firm McKinsey & Co. (2009) compared the cost of eliminating one ton of CO₂ emissions using different means. Wind power cost about \$38 per ton of CO₂ saved while solar power cost about \$30. Replacing incandescent lights in a home with light-emitting diodes saved about \$159 per ton of CO₂, and

using energy-efficient appliances saved about \$108 per ton. Some say it makes more sense to retrofit buildings for energy efficiency before adding renewable technologies, because buildings account for about half of the CO2 emissions in the U.S. Efficiency improvements are often an easy and inexpensive fix in the struggle to reduce CO2 emissions. Initiatives for Renewable energy pay itself in the long run while energy efficiency initiatives in short term. Ideally, a Life Cycle Cost Benefit Analysis (LCBA) environmental impact study should give key comparison results between the two. If a company has very little energy usage, yet from non green power, it still produces some GHG. Unlike another, which may use more but powered by green energy and contributes to minimal GHG. Also, government tax rebates are higher for renewable energy than for energy efficiency projects. Thus, it is not clear still if investing in renewable or energy efficiency projects makes better sense for a company or how much should a company invest in either. Until there is clear evidence for the same, a slightly higher weight has been allocated to Green energy for present. This is because even if the energy usage is higher, if it is powered totally by green energy, the impact on GHG is minimal and hence net lower environmental impact. Hence, renewable or amount of green power used has been allocated a 45% weight that includes a 10% for target reduction and 35% for green power usage itself. Higher weight has been allocated to usage to encourage companies to make target reduction timeframes to current.

Similarly, energy efficiency initiatives have been allocated a slightly lower 40% weight with 10% weight for target reduction, 15% for energy reduction efforts/ innovation in the area and 15% for normalized energy usage. Finally, external verification for energy data has been allocated a 15% weight. The following table details weight allocation for energy use category.

Table 4.7 Energy Use Category Inputs for Sensitivity Analysis

Criteria	Distribution	Weight Range
1. % Renewable	Normal	30%-40%
2.Target % of renewable	Exponential	10% -15%
3.Target energy reduction	Exponential	10%-15%
4.Energy reduction efforts	Exponential	15%-20%
5.Normalized energy usage	Exponential	15%-20%
6.External verification	Normal	10%-20%

External verification as mentioned earlier in this report has been allocated a 15% weight to encourage companies to verify externally. Currently, very few retailers have only their energy and GHG data verified externally and hence the provision of external verification criteria weight in both energy use and GHG categories.

4.3.2 Green House Gas

GHG involves energy, fuel usage, refrigerants, methane and 9 such potent gases. However, in this category, the focus is on all the rest except energy. Data from the EPA shows 1990– 2007 trends in the US that include the following:

- Total GHG emissions rose 17.2 percent since 1990.
- Dominant gas emitted was CO₂, mostly from fossil fuel combustion.
- Methane emissions decreased by 5.1 percent.
- Nitrous oxide emissions decreased by 1.0 percent.
- HFC, PFC, and SF₆ emissions have grown by 65.2 percent.

The normalized GHG is allocated a high 35% weight to encourage companies reduce working GHG emissions. Carbon reduction efforts and innovation in this area is allocated a 30% weight to emphasize innovation rewards. A 10% weight is allocated to reduction targets and timeframe

with more weight to the current GHG, to encourage companies to make efforts on the normalized target as well as work on timeframe target. External verification as mentioned in energy usage, gets a 15% weight. 5% is allocated to carbon risk assessment teams in place and partnerships formed. The following table details the weight allocation for criteria inputs in GHG category.

Table 4.8 GHG Category Inputs for Sensitivity Analysis

Criteria	Distribution	Weight range
1. Normalized GHG	Normal	30%-40%
2. Target reduction	Exponential	10%-15%
3. Carbon reduction efforts	Normal	25%-35%
4. Partnerships	Exponential	5%-10%
5. External verification	Normal	10%-20%
6. Risk Assessment Team	Exponential	5%-10%

4.3.3 Total Waste

Waste includes all solid wastes generated in all parts of the company. Here, the normalized waste data itself has been allocated only a 10% weight compared to the recycling rate that has a higher 25% weight. This is to emphasize the importance of recycling of waste generated, that makes more sense to compare between companies than the net amount of waste generated. The recycling rate has been split as 10% for operational, 10% for construction since a substantial portion of waste is usually generated from construction (nearly 84% in the UK, according to Marks and Spencer's) and 5% if there is food waste. Else, this food weight is shifted to operational waste appropriately. Actual reduction/ recycling/ reusing efforts/innovation in this area is allotted a 25% weight, while the reduction target assigned a 10% weight. Efforts to reduce toxic waste has been allocated a 15% to encourage reduction of toxics, while efforts

to reduce non biodegradable waste has been allocated a 10% and partnerships formed a 5% weight. All criteria in this category have been weight justified based on environmental risk prioritization. The following table details the weight allocation for different criteria inputs in total waste category.

Table 4.9 Category Inputs for Sensitivity Analysis

Criteria	Distribution	Weight Range
1. Normalized Waste data	Exponential	10%-15%
2. Recycling rate	Normal	20%-30%
3. Reduction targets	Exponential	10%-15%
4. Reduction efforts	Normal	20%-30%
5. Efforts to reduce toxic waste	Exponential	15%-20%
6. Partnerships	Exponential	5%-10%
7. Efforts to reduce non-biodegradable waste	Exponential	10%-15%

4.3.4 Water use

As in other categories, efforts and innovation take a 40% weight. The normalized water data itself takes 40% weight while the target reduction takes a 20% weight.

In the Management variable, criteria are allocated weights based on the environmental risk prioritization scheme as mentioned earlier. A priority list is established based on weighing environmental risks posed by different management criteria.

4.3.5 Environmental Strategy (M.1)

Integration with Core business and Consistency in Operations take the highest weight of 25% each. Environmental Strategies and objectives not integrated to core business can mean a very high risk as in the case of Kohl's, where only focused resource stewardship environmental strategy is integrated into core business while all else has been ignored and hence a high

product load. Consistent targets and efforts criterion globally is given more weight to ensure companies do not lag within the US and to encourage companies to do better in the US. As in the case of Walmart, where most targets/ efforts are better overseas than in the US, it gives insights as to why it is lagging in the domestic scene or what needs to improve in its US operations. Environmental policy steers environmental efforts towards a tangible goal, without which the efforts can run a risk of not being focused and hence takes a medium risk weight of 15%, along with efforts of senior management who help steer the efforts towards the mission and hence an equal 15% weight. Active use of targets comes next in precedence with 10% weight followed by any differences between actual data and reported or between reported data itself with 10% weight to avoid green washing and promote credibility.

4.3.6 Corporate Governance (M.2)

Board Structure is given the highest priority of 40% weight to encourage companies to hire separate environmental senior management and directly promote environmental sustainability operations. Green investment in processes, products and technologies and environmental factor in compensation for employees come next with equal weights of 30% each.

4.3.7 Environmental Management (M.3)

EMS certification criterion takes highest precedence of 30% weight as per the precedence rule, followed by environmental tools used such as Life Cycle Analysis (LCA), Design for Environment, Total Quality Environmental Management (TQEM), etc with 25% weight. The products made and processes used in the company run a high risk of missed opportunities by not integrating environmental factors within the lifecycle without the use of these tools and hence the high weight. Data that is reported takes the next weight of 20% for clarity in reporting. This directly follows the precedence rule proposed (1), where certifications > = Innovation/ efforts > = Data collected. Hiring of separate environmental staff helps promote environmental sustainability by focusing efforts and hence takes next precedence of 15%

weight, while existence of written Key Performance Indicators with the lowest risk in the category come finally with 10% weight.

4.4 Rules of thumb / Exceptions for data analysis and grading

The general rules of thumb followed for grading are as follows:

- a) In quantitative data, if the exact number is not known and is replaced by some information, then it is qualitatively graded. For instance, if avoidance of toxic substances is not exactly known, and the company claims some of the substances have been avoided, then it is qualitatively graded as follows: All avoided – A, Many avoided – B, Some avoided – C, Few Avoided - D, Very few avoided – E and None avoided – F.
- b) If any quantitative data required for a criterion is missing such as construction recycling rate and is replaced by unclear qualitative data such as “the company has been recycling aggressively for the past 5 years in construction”, the grade E is awarded for lack of clarity.
- c) If a particular criterion is not applicable, then the weight is appropriately shifted to another criterion in the same category.
- d) All Target reduction grades are in comparison to current data. If the normalized current data has been awarded an A, then target reduction automatically gets an A. If the normalized data has been given a B or otherwise, then if the company has targets or is making further efforts to improve towards best in class, then it is relatively graded with respect to efforts made towards the grade it strives to be.
- e) Grades for quantitative data are based on clarity of data reported, setting clear objectives and pursuing them. Some companies have used their own definition of units to sometimes convey something not actually positive as positive. For instance, in GHG calculation, J C Penney has reported that the absolute GHG has not increased in 2 years, though they have opened new stores and extended store hours. Now, though it seems like J C Penney looks positive in these absolute units, the other side of the story is due to plunging sales, the normalized intensity of GHG has in fact gone up and it really is not as positive as it has conveyed. Thus, the

methodology has also specified units to make realistic comparisons standardized and easy. Some companies have reported waste data in absolute numbers, such as n number of hangers recycled, x number of computers recycled and so on. This kind of data reporting is highly unclear for grading or comparison. Instead, a combined recycling rate for different materials or simply a recycling rate for operations such as the one proposed in the methodology will make more sense for comparison and a better internal benchmark.

4.5 About data gathered, results interpretation and choice of industry for data validation

4.5.1 Actual data

Actual data has been obtained from various sources such as Corporate Sustainability Reports, Carbon Disclosure Project responses and reports, Company annual reports, US EPA databases, company owned website reports, published articles in journals, etc.

4.5.2 Interpretation of results

The interpretation of the report itself can be used in various ways once rated. The methodology is primarily for rating criteria data, calculating category grades and thus the Net environmental load/ CLC/ Management score rating. However, a lot depends on the interpretation itself. For instance, a company could have a cutoff score of C in all categories to avoid laggards in any particular category instead of composite score cutoff. Or, a company could list its own cutoff grades in each category, to screen suppliers or have criteria such as no E or F in any category to avoid laggards. Then, there is the composite score of primary variables that is computed by allocating weights. This score can be used to compare companies within and outside sectors for their overall environmental assessment of business. The composite score will indicate industry leader, average and laggards in the industry out of the companies researched. However, the industry leader may not be the best in class in all categories and hence need not necessarily have the grade A, though will take the highest grade among the companies in the retail sector to indicate highest balanced greening score. Hence, this comparative rating will indicate if a company is an environmental laggard or is of medium quality environmentally with

respect to the leader. Comments have been included in each category, showing comparisons, issues and insights for the companies. This will help one understand what is lacking and what needs attention from the company.

4.5.3 Choice of industry for data validation

The US Retail Industry has been chosen for data validation. Analysis of the Retail industry shows that the key issues include product safety, product innovation, and energy, waste, and carbon risk assessments. The retail industry is a high impact industry but has advanced more slowly in environmental sustainability than other industries such as consumer cars, technology, etc within the US. 6 retail companies were analyzed including Walmart and IKEA with international operations, Kohl's, Target, Macy's and J C Penney's in the US only, while some key data from Marks and Spencer's in the UK, Aeon, the leading Japanese retailer and Carrefour in France, were used to compare global operations in companies.

Once the weights have been justified and allocated, the Best in Class for the data points were researched and grading standards for all data points have been developed as in Appendix A. The real world data has then been rated with respect to these grading standards.

CHAPTER 5

DATA ANALYSIS AND RESULTS

5.1 Quantitative results interpretation for different companies

The following shows the different company numbers for quantitative criteria. Total no of quantitative variables = 30.

Table 5.1 Company numbers for quantitative analysis

Company	Walmart	Target	Kohls	JCPenney	Macy	IKEA	M&S
	2008	2007 2008	2007 2008	2007 2008	2008	2007 2008	2007 2008
GHG(mill metric tons) -current	21.066	20.32 2.99	2.95 0.998		1.22 NI	0 1.286	1.189 0.441
GHG intensity = ghg/revenue	0.052507	0.054259 0.046037	0.046554 0.060895	0	0.065995889 NI	0 #VALUE!	0.060051 0.029689
Reduction target (%)	20					16%	100%
Timeframe (06 baseline)	2012					2010	2012
Energy (mill Mwh) -current	26.55	4.471	1.29	2.27	0.3467	NI	0.97137
Energy intensity = Energy/ revenue	66.17647	0 68.83969	0 78.71133	0 122.7956291	13.92817	0	0 65.394507
Reduction target Energy efficiency	20%					25%	25
Timeframe	2012					NI	2012
Renewables (%) -current	8%	15	71		3%	47	31
Non renewables energy intensity	60.88235	58.51373	22.82629		13.51032		45.12221
Target	100					100	100
Timeframe	NI					NI	2012
Water -current (cu. M)	NI			4,459,215.08			1,025,436
Water intensity				241,221.20			69034.334
Waste -current(tons)							69000
recycling rate (%) -current operational	57	70		75-80%		85% -stores, 90% -Dc	41
Target	100					90%	100
Timeframe	NI					2009	NI
Land							
Paper (mill cu.m)						0.7223	13.634
FSC certified -current	NI					7%	41%
Target	100%					30	100%
Timeframe	2013					2009	NI
Amt of renewables in products -current						72%	
Target						75%	
Timeframe						Fy09	
Green investment (mill \$)	500		75	50		15.4	
Green investment intensity	1.246261		4.57624	0 2.70474954		#VALUE!	
Revenue (\$b)	401.2	374.5 64.948	63.367 16.389	16.474 18.486	24.892	26.313 30.15575	19.8 14.854

The following Figure 5.1 shows the energy intensity graph for various companies analyzed. IKEA data is unavailable.

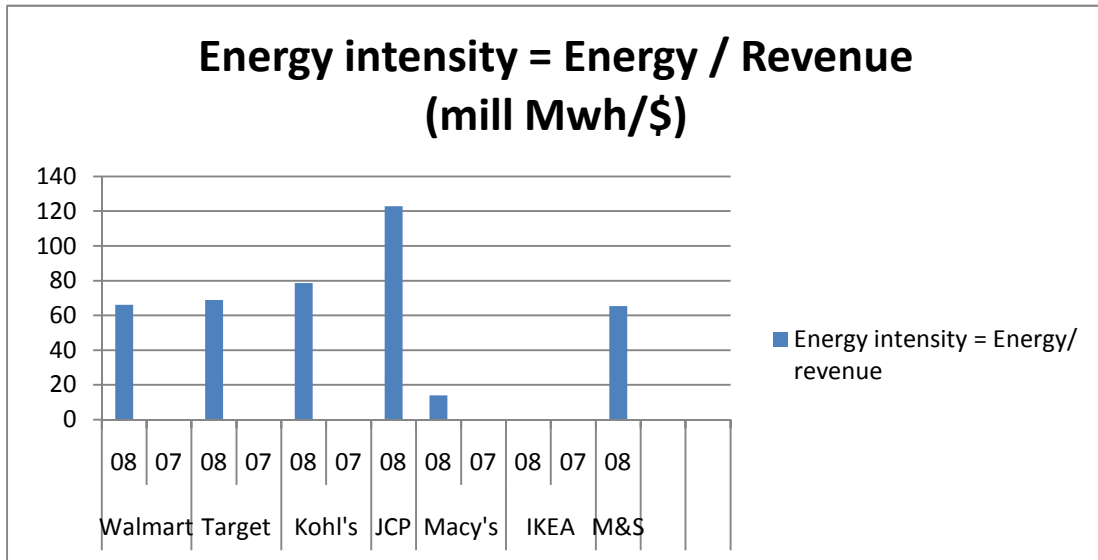


Figure 5.1 Normalized Energy intensity for companies

As seen above, the normalized energy intensity is highest for J C Penney's (JCP) and then Kohl's. However, Kohl's has recently targeted to become carbon neutral by year end 2010. If so, Kohl's non renewable energy intensity will be zero, the first general retailer to do so in the US. The above shows that, though JCP is claimed as one of the greenest companies due to its tremendous efforts in the area, its normalized energy intensity is still very high compared to its peers, reason why subsequently, its normalized GHG will be high as well and thus its environmental load being high. The energy intensity of normalized energy usage is almost twice that of Walmart. JCP has invested heavily in energy efficiency projects, which makes sense, since its energy usage itself is very high. However, if one looks only at the efforts and brands a company green, it is a mistaken identity, the load itself may be high as well. Also, JCP has invested lesser than its peers like Kohl's, Walmart or Macy's in renewable power which should affect its GHG as well. Hence, JCP needs to seriously look at its energy usage, reason why its

intensity is so high in the first place despite investing heavily in energy efficiency programs. This apart, Japanese top retailer, Aeon and France's Carrefour energy data has been taken to compute global grades for the same. Carrefour has one of the lowest energy intensities in the industry of 63.6403 while JCP has the highest of 122.7956, almost twice the usage of Carrefour. To understand the load verses efforts to mitigate the load matrix better, Figure 5.2 is a good visual aid. In any category, the desirable quadrant in the matrix below is the 2nd quadrant of high efforts/ low load or where the efforts are high enough to mitigate the load. Now JCP's energy use lies in the first quadrant where its energy usage is still high despite its high efforts. Thus, the conclusion is that its efforts are not high enough to mitigate the load and thus the low score.

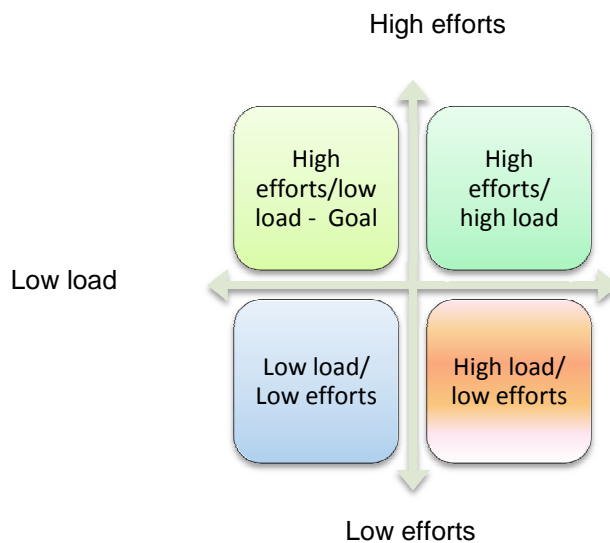


Figure 5.2. Environmental Load versus Efforts to mitigate load

The following Figure 5.3 shows the GHG intensity graph for various companies analyzed.

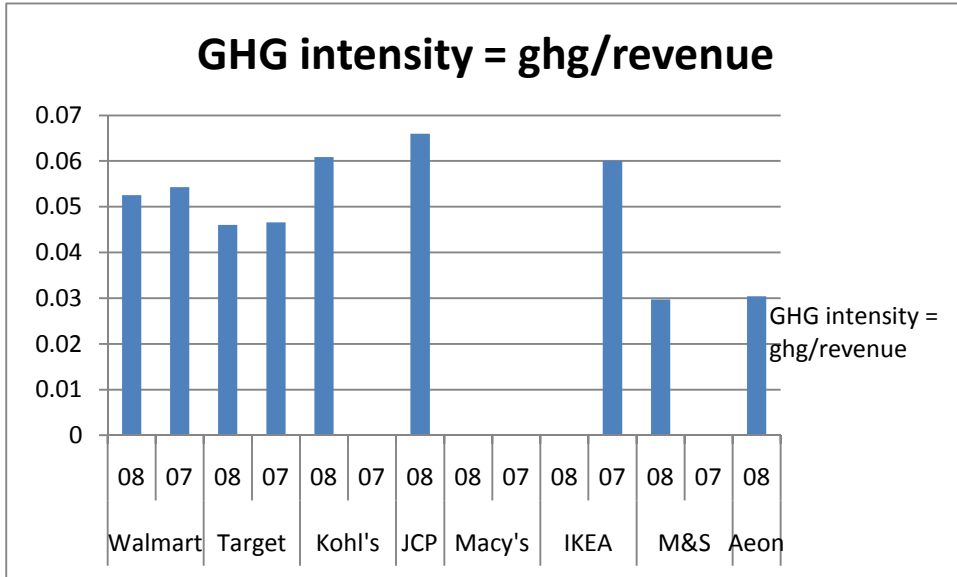


Figure 5.3. Normalized GHG intensity for companies

The above graph shows the normalized GHG intensity for the past 2 years for 6 companies listed above except Macy's, whose data has not been measured yet. JC Penney clearly has the highest GHG intensity compared to its peers. Its efforts are also high compared to its peers to mitigate the load. Since the energy intensity was high, as forecasted, the GHG intensity is also very high compared to its peers, almost twice as much as Marks and Spencer's or 20% more than that of Walmart. Currently, Kohl's and IKEA fare equally high on GHG intensity. However, this will reduce for Kohl's since it has committed to being carbon neutral by year end 2010.

5.2 Sensitivity analysis and results

The following figures show the sensitivity analysis results for Walmart in different scenarios for different primary variables.

Walmart: Primary variable E1 Net environmental load rating. (45%-45%)

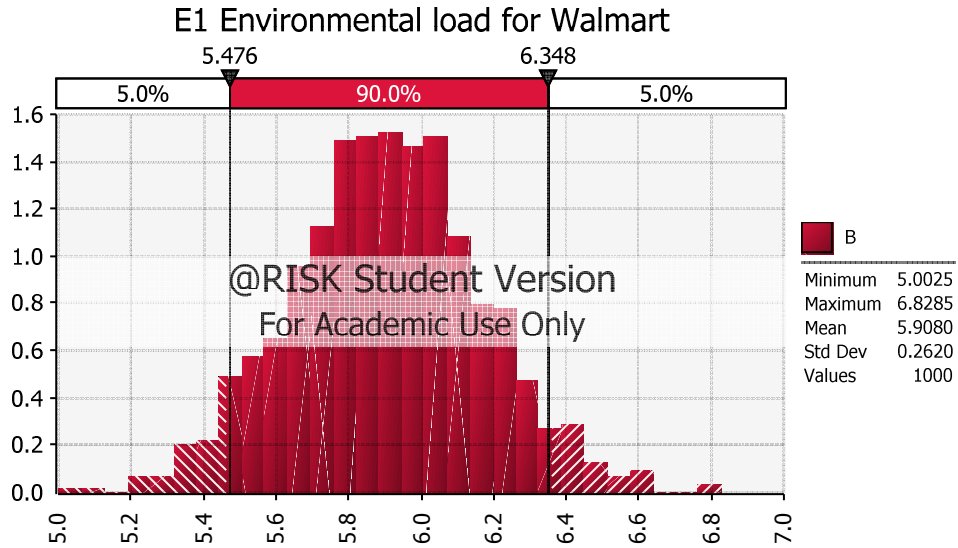


Figure 5.4 E1 Environmental load: Scenario 1-90%

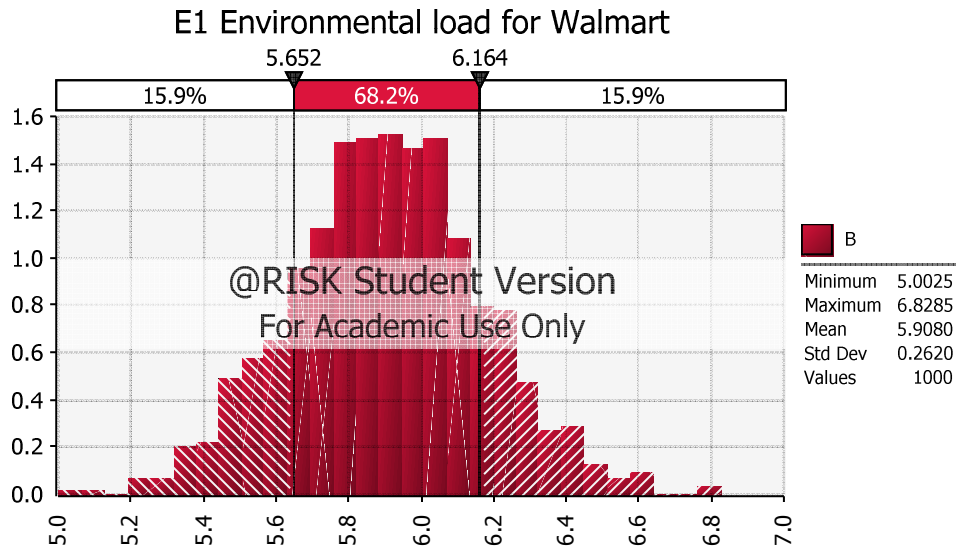


Figure 5.5 E1 Environmental load Scenario 2 -68.2%

Walmart: Primary variable E2 Net environmental load rating (60%-30%)

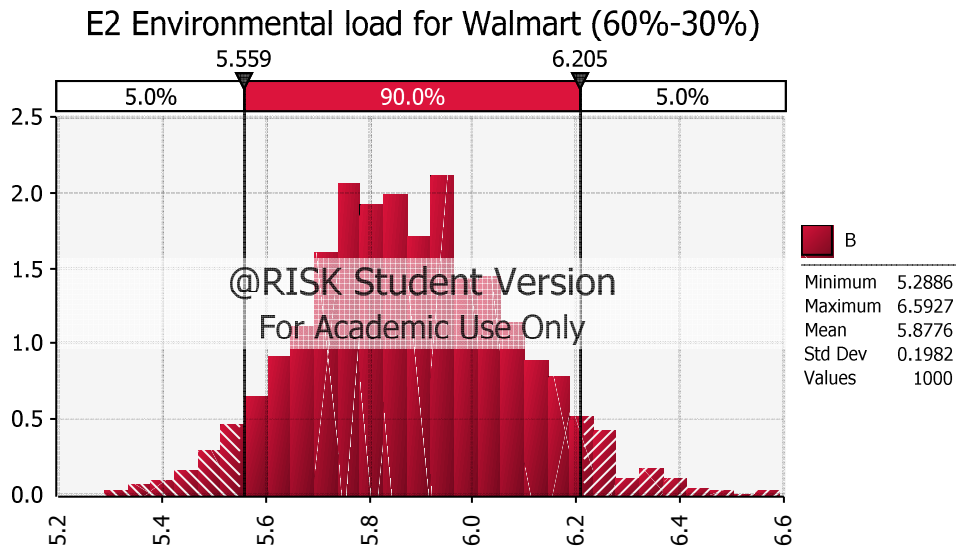


Figure 5.6 E2 Environmental load Scenario 1 - 90%

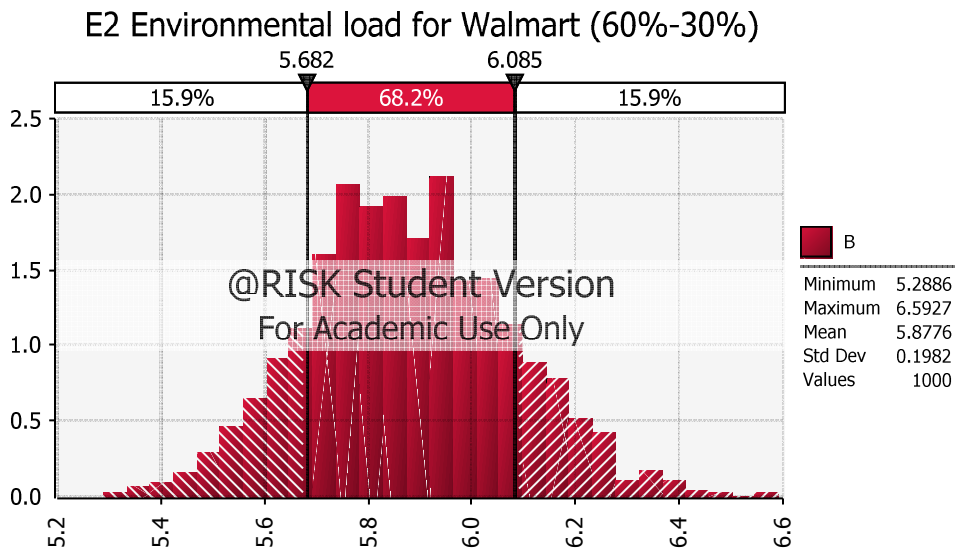


Figure 5.7 E2 Environmental load Scenario 2 - 68.2%

Walmart: Primary variable M Management score.

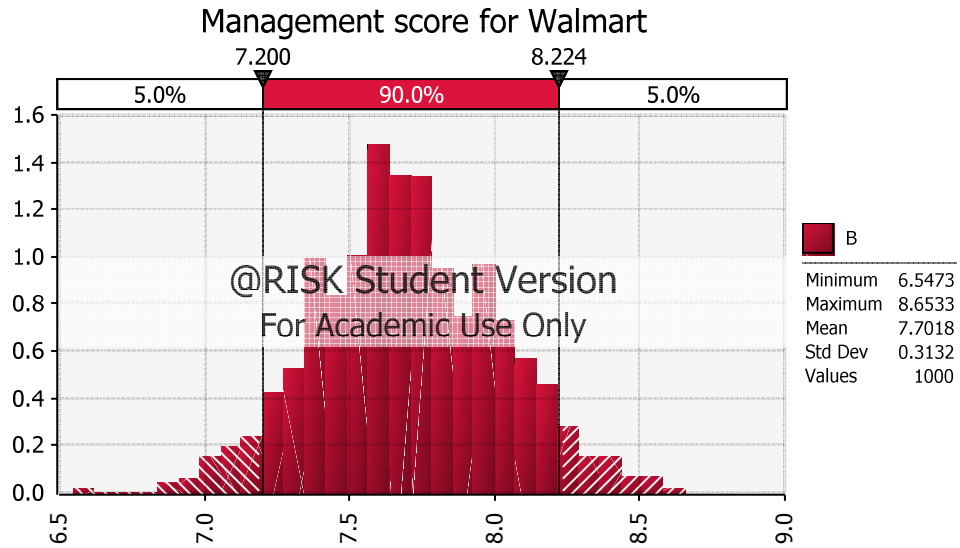


Figure 5.8 M. Management score Scenario 1 -90%

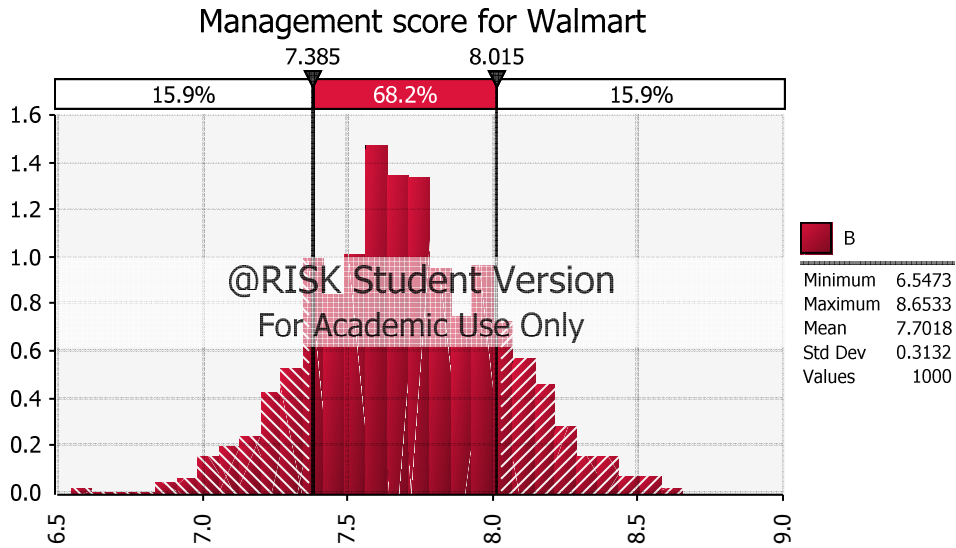


Figure 5.9 M. Management score Scenario 2 -68.2%

Walmart: Primary variable R. Compliance, Litigations and Controversies (CLC) score.

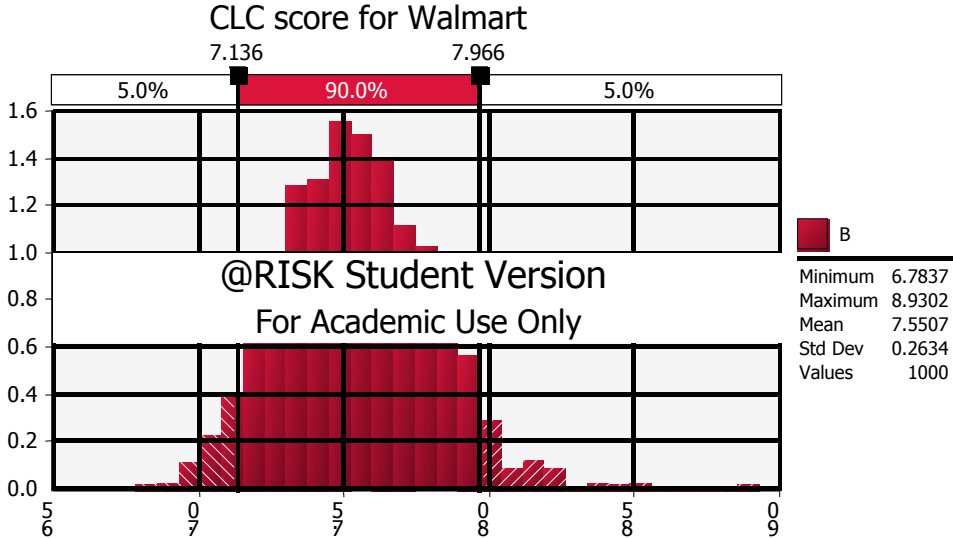


Figure 5.10 R. CLC Scenario 1 -90%

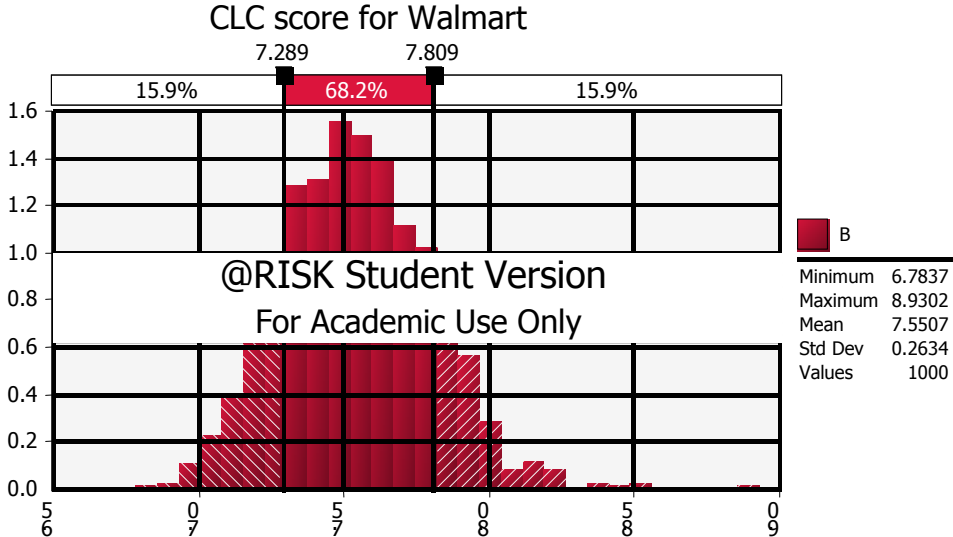


Figure 5.11 R. CLC Scenario 1 - 68.2%

Table 5.2 Sensitivity analysis comparison results

Company	E1. Environmental Load. (45%-45%)	E2. Environmental Load (60%-30%)	R. CLC Score	M. Management Score
Walmart Scenario 1	5.47- 6.34 B-C	5.55 – 6.20 B-C	7.2-8.22 A-B	7.13-7.96 B
Walmart Scenario 2	5.65 - 6.16 B-C	5.68 – 6.08 B-C	7.38-8 A-B	7.28-7.80 B
Target Scenario 1	4.81-5.56 C	5.02-5.62 C	6.9-7.76 B	5.11-6.08 B-C
Target Scenario 2	4.97-5.41 C	5.14-5.49 C	7.05-7.59 B	5.29-5.85 C
Kohl's Scenario 1	2.78-3.34 D	3.53-4.08 C-D	9.16-10 A	6.36-7.41 B
Kohl's Scenario 2	2.89-3.22 D	3.63-3.96 C	9.36-10 A	6.54-7.18 B
J C Penney's Scenario 1	3.71-4.32 C-D	3.78-4.25 C-D	5.76-6.62 B-C	6.14-7.14 C
J C Penney's Scenario 2	3.83-4.19 C-D	3.88-4.15 C-D	5.91-6.45 B-C	6.33-6.92 B
IKEA Scenario 1	5.97-6.93 B-C	5.5-6.12 B-C	9.61-10 A	6.59-7.66 B
IKEA Scenario 2	6.16-6.72 B	5.62-5.98 C	9.8-10 A	6.8-7.42 B
Macy's Scenario 1	2.4-2.83 D	2.55-2.91 D	7.6-8.55 A-B	3.58-4.28 C-D

Table 5.2 - *Continued*

Macy's	2.47-2.72	2.62-2.83	7.7-8.38	3.72-4.14
Scenario 2	D	D	A-B	C-D

Data in the table above shows the sensitivity analysis results performed using Palisade @RISK software as Excel add-in. Results in 90% scenario 1 show that grades of Walmart, IKEA and JC Penney's are altered by a grade each in their Environmental Load E1 and CLC score R respectively while Target and Macy's score altered by a grade in their Management Score M. However, in the second scenario (68.2% or within 1 standard deviation, for more conservative results), a similar situation occurs except that IKEA's Environmental load grade and Target's Management grade do not alter due to changed weights. Thus, the second scenario (within 1 standard deviation) is less sensitive to altered weights than the scenario 1 (90%).

CHAPTER 6

COMPARISON WITH PREVIOUSLY PUBLISHED RESULTS

6.1 Newsweek's 500 greenest companies' methodology

To compare results of CEPR methodology with previously published research results, there has been no prior academic research attempted in this area before. All results that exist are proprietary to compare with. Hence, the green rankings of US retailers by KLD analytics and their partially visible methodology published by Newsweek earlier in 2009, have been used to compare results of the CEPR methodology's data validation. Newsweek collaborated with three research partners to compile the rankings: KLD Research & Analytics, that tracks environmental, social and governance data on companies worldwide, Trucost, which specializes in quantitative environmental performance measurement and CorporateRegister.com, the world's largest online directory of social responsibility, sustainability and environmental reporting. The goal was to assess each company's actual resource use, emissions, its policies and strategies, along with its reputation among its peers. The 500 companies included in the rankings are the largest U.S. companies as measured by revenue, market capitalization and number of employees. The companies were broken out into 15 sectors, based on the FTSE/Dow Jones Industry Classification Benchmark (ICB).

The Green score for each company was based on 3 components:

a) The Environmental impact score was based on data compiled by Trucost. According to Newsweek, it is a comprehensive and standardized quantitative performance measurement that captures the total cost of most environmental impacts of a corporation's global operations. Over 700 variables are summarized in the Environment Impact Study (EIS). This figure is normalized

against a company's annual revenues, so that companies of all sizes and industries can be compared. Four of the major elements that contribute to the overall EIS score are GHG emissions, water use (including direct, purchased and cooling), solid waste disposed, and acid rain emissions (sulfur dioxide, nitrogen oxide and ammonia), all normalized by revenue. Additionally, toxic waste emissions and emissions normalized against a company's annual revenues are included. Emissions data is derived from the Toxic Release Inventory (TRI), a U.S. Environmental Protection Agency database of information on toxic chemical releases and waste management activities.

b) The Green Policies Score (GPS), derived from data collected by KLD, reflects an analytical assessment of a company's environmental policies and performance. Its scoring model captures best-in-class policies, programs and initiatives, as well as regulatory infractions, lawsuits and community impacts, among other indicators. The main elements incorporated in the GPS score are climate change policies and performance, pollution policies and performance, product impacts, environmental stewardship and environmental management.

c) The reputation score is based on an opinion survey of corporate social responsibility (CSR) professionals, academics and other environmental experts who subscribe to CorporateRegister.com. CEOs or high-ranking officials in all companies on the Newsweek 500 list were also invited to participate. The opinion survey, which was done exclusively for Newsweek, went out to 13,000 CorporateRegister.com users, of whom 6,600 were located in the U.S. and 6,400 were based internationally. Of those surveyed, 4,500 were identified as sector specialists, those having a specific working knowledge of environmental issues within their industry, and were only asked to score their sector peers. Additionally, CEOs or high-ranking officials in all companies on the Newsweek 500 list were invited to participate. CEO scores were given a weight of 3, sector specialists a weight of 2, and other participants a weight of 1. Any scores given to a company by its own employees were disregarded.

CorporateRegister.com uses a number of measures to verify user identification and details. The survey asked respondents to rate companies as leaders or laggards in five key green areas: green performance, commitment, communications, track record and ambassadors.

KLD, Trucost and CorporateRegister.com scored each company according to their specific methodologies. These results were converted to Z-scores, a widely accepted statistical technique that measures how well a firm compares to the average score of the collective group. The overall Newsweek Green Score was calculated as the weighted sum of the three component Z-scores: 45% for the Environmental Impact Score, 45% for the Green Policies Score, which takes into consideration sector differences, so that various industries could be judged against each other and 10% for the Reputation Score, which reflects sector analysis. (Data source: Newsweek, Sept 16th 2009)

6.2 Comparison with Newsweek's methodology

Results from comparison of Newsweek's with the CEPR methodology are enumerated as follows.

- A company's total green score was derived from its environmental impact score (45%), green policies score (45%), and reputation score (10%) by Newsweek's methodology or

$$\text{Net score} = \text{EIS} * (.45) + \text{GPS} (.45) + \text{Reputation score} (.1)$$

As a result, companies that wish to improve their score might easily choose to focus their sustainability efforts more on marketing and policy adoption instead of actually reducing their environmental impact. For the rankings to most effectively serve as a motivator of tangible environmental improvement, the environmental impact score should be the key grade for comparison as mentioned in this CEPR methodology with the management and CLC score as a reference behind the impact score.

- The shift in emphasis on impact score should be accompanied with an effort to address the environmental impacts that occur across the whole lifecycle of each company's products and services, from cradle to grave for balanced greening. Otherwise, these rankings could

encourage the outsourcing of dirty activities and might end up highlighting companies that rely on environmentally destructive inputs or that make products which cause environmental damage as a result of their use or disposal. Currently, the impact score comprises only of 4 major elements, GHG, solid waste, acid rain and water use. However, the CEPR methodology encompasses all activities from cradle to grave and incorporates all possible impacts including energy use, paper/ wood, packaging, land use, industry specific impacts and other impacts from products as well. Newsweek talks about product impact in Green policies, while this should rightfully be included in the Environmental Impact score as in the CEPR methodology.

- Newsweek is not transparent about how each of the components in the impact score are weighted relative to each other, unlike the CEPR methodology, where the weights have been clearly justified.

- The environmental reputation surveyed by Newsweek, is an opinion poll. The reputation score is an interesting gauge of the success of a company's green marketing efforts, but should be reported separately. A company's reputation itself says very little about the company's true environmental sustainability and as in other ranking systems, reputational components are vulnerable to manipulation. Also, since an entity's reputation is often largely informed by previous rankings, rankings based on reputation tend to be slow to change. In the CEPR methodology, a company's environmental reputation itself has not been taken into account and instead a liability score called the Compliance, Litigations and Controversies (CLC) score has been methodically calculated using a structure of environmental criteria that matter to a company's reputation and liability and have been allocated weights based on the environmental risks posed by them.

6.3 Comparison with Newsweek's published results

Following is the Table 6.1 comparing results of the CEPR methodology and Newsweek's published results of greenest companies in the Retail industry sector.

Table 6.1 Comparison of results with Newsweek's results

Results	Company	Green impact score	Management score	CLC Reputation score /
Newsweek	Kohl's	63.6 - B	72.55 -B	52.92 -C
CEPR		29.12 - D	63.2-B	93 - A
Newsweek	J C Penney's	61.50 - B	66.75 -B	33.17 -D
CEPR		38.36 -D	61.6-B	59-C
Newsweek	Macy's	60.90 -B	63.68 -B	34.41 -D
CEPR		24.57 -D	37.65-D	78- B
Newsweek	Walmart	59.20 -C	41.06 -C	100 -A
CEPR		56.65 - C	73.37-B	72.25-B
Newsweek	Target	62.30 -B	56.2 -C	41.15 -C
CEPR		49.72 - C	52.05-C	70-B
Newsweek	IKEA	Not rated	Not rated	Not rated
CEPR		62.15 -B	66.9-B	98- A

Newsweek's individual score has been divided by 10 to obtain a similar grading system used in sensitivity analysis performed using the CEPR methodology. The mean score in 45%-45% weights scenario has been used to grade the companies in the CEPR methodology. The fourth column shows the CLC score of CEPR methodology. As mentioned earlier, reputation says very little about a company's true sustainability while the CLC score is methodically calculated and weight justified liability score and hence the reputation score of Newsweek and CLC score in the fourth column are not used to compare with each other

Following are the results of comparison, company wise:

a) Kohl's:

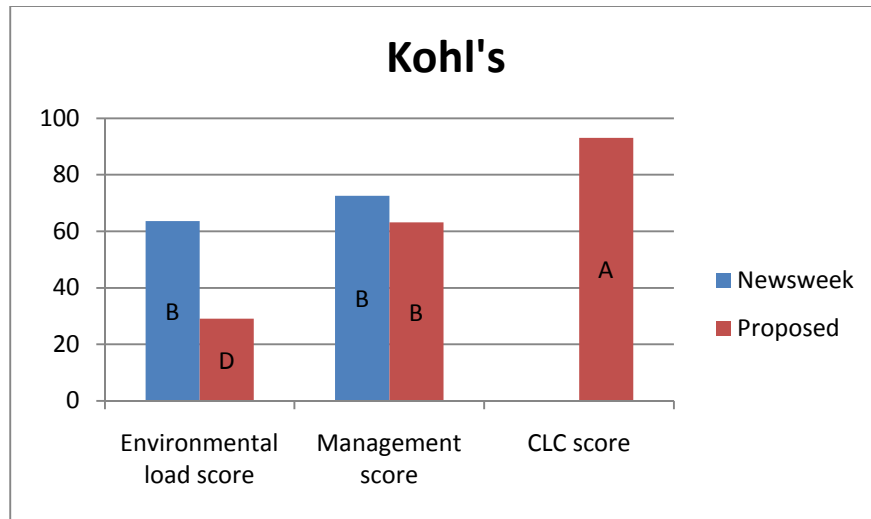


Figure.6.1 Kohl's: Grade comparison column chart

The CEPR methodology result conveys that Kohl's needs to work on its environmental load. Details are in the company report in Appendix B. Newsweek has rated Kohl's the highest in Retail industry since its efforts seem very high in energy efficiency projects and renewable energy. However, its load from products is very high as well and not been included in load calculation from cradle to grave and thus the difference. The difference also is because Kohl's Normalized energy intensity is the second highest compared to its peers despite its efforts and thus the GHG load being high as well. However, since Kohl's has committed to purchase 100% green power by year end 2010 and become carbon neutral, its score is expected to increase to a high B, the highest in process load score in the retail industry. However, since its product load also matters, its net environmental load will only increase by a grade to a low C, well below IKEA, Walmart and Target, unless Kohl's makes initiatives to reduce the product load. Also, Kohl's may have a high normalized energy intensity compared to its peers, but since all will be green powered, its net load on environmental will be zero. Management score is the same in both with a grade B, below IKEA and Walmart. The CLC score is very high from the

CEPR methodology since Kohl's has very few product controversies, no Superfund sites, etc and hence the grade A.

b) J C Penney's:

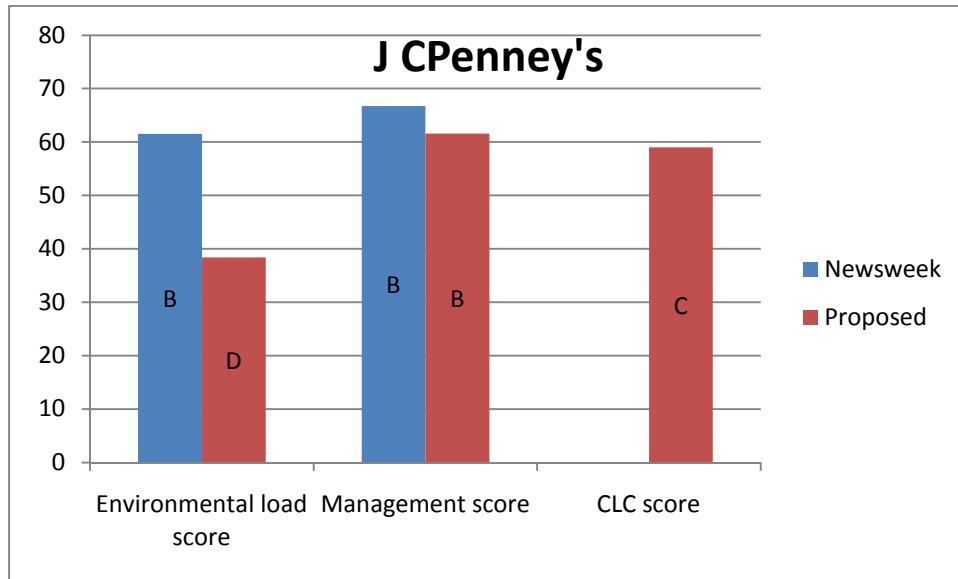


Figure 6.2 J C Penney's: Grade comparison column chart

Newsweek has ranked J C Penney's environmental load score as B. While its efforts seem very high compared to its peers in energy efficiency projects, its investment in renewable energy is low. Also, the normalized energy usage itself is very high compared to its peers, despite the energy efficiency reduction efforts. Thus, both its load on GHG (low green energy) and its energy usage contribution to the load is high, reason why the proposed grade is a high D. Its product load contribution is also not very low. Thus, these are the key areas JCP needs to focus on to reduce its environmental load. Since Newsweek takes into account only 4 major elements in its load calculation, it seems like JCP is one of the greenest companies. However, its actual environmental load is high as well, though its efforts to mitigate the load are high in few areas only. For more, see full length report in Appendix C. The management grade is B according to Newsweek and the CEPR results. The reputation score of JCP in Newsweek is a low D, while the CLC score from CEPR methodology is a medium C. However, among the

companies analyzed, the CLC score of JCP's is the lowest. This is because of almost 20 Superfund sites for which JCP is a Potentially Responsible Party, compared to zero of Kohl's. High number of product recalls due to environmental considerations is another reason why JCP fares low in the CLC score.

c) Macy's:

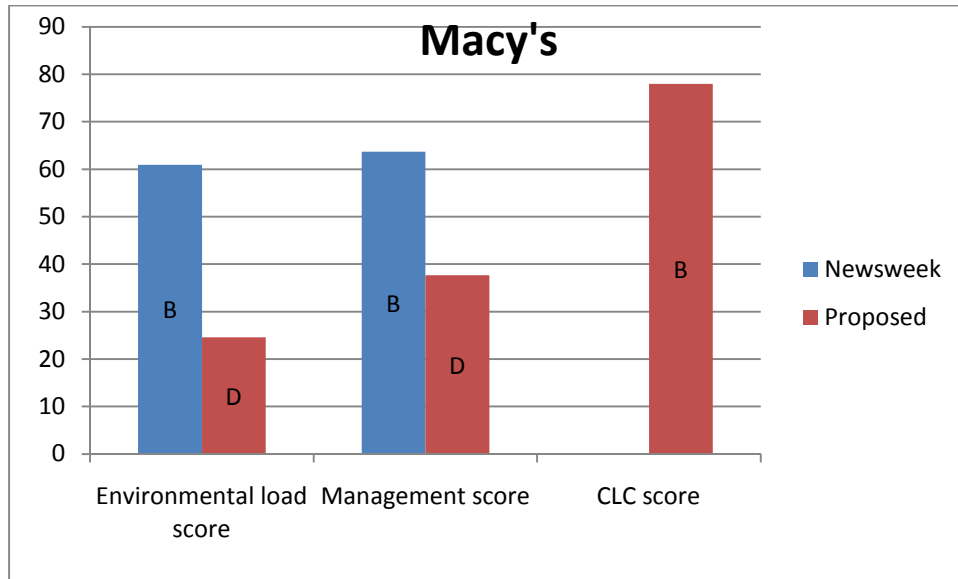


Figure 6.3 Macy's: Grade comparison column chart

Macy's environmental load ranking by Newsweek is a low B. Though Macy's has installed solar power in 40 stores, its green power till date is only 3% of its total power used. Again, reasons why Newsweek has ranked Macy's high, is only a part of the whole load story. Though Macy's has larger revenues than Kohl's and JCP, it has not measured its GHG inventory yet, has no specific targets for GHG reduction other than energy reduction targets as mentioned in the company report in Appendix D. These are some of the key reasons why its environmental load is high. Another reason being, its product load is fairly high as well due to non disclosure or low efforts in product load. Thus, the CEPR methodology ranks Macy's a low D. The management score also varies considerably in the two results. Newsweek has ranked a low B while the CEPR methodology has ranked a high D. No mention of environmental audit,

low transparency, no environmental factors in compensation apart and low efforts in Environmental supply chain activities including supplier screening has led to its Management grade being the lowest among companies analyzed. The reputation score however is a low D in Newsweek’s survey poll while the CLC score from CEPR results is a high B, primarily due to fewer product recalls due to environmental considerations, fewer Superfund sites compared to its peers like Walmart or JCP.

d) Walmart:

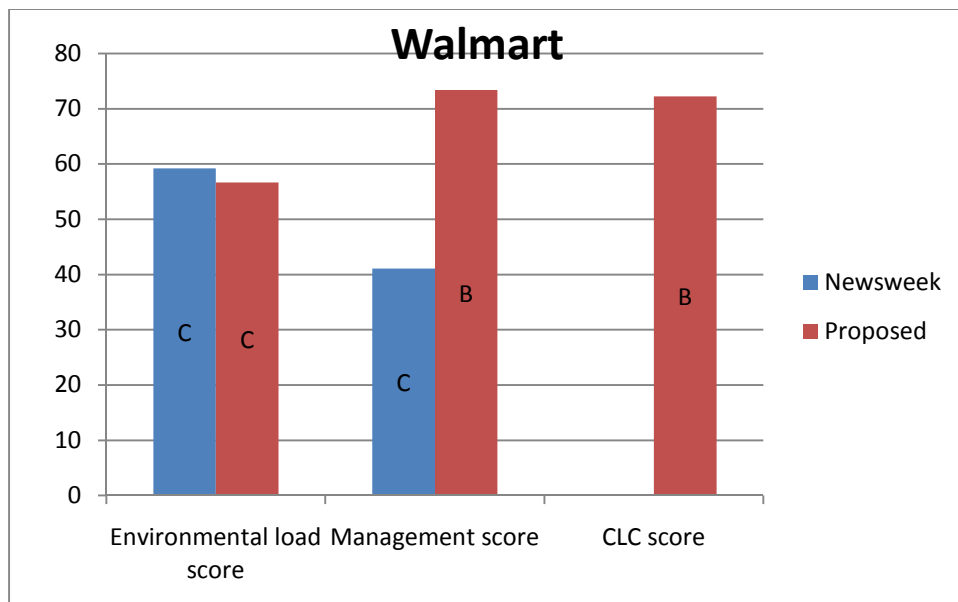


Figure 6.4 Walmart: Grade comparison column chart

Wal-Mart’s environmental load score is C in both Newsweek and CEPR results, though there is a difference in interpretation of the same. The CEPR results states that Wal-Mart’s composite score of high C is only second to IKEA in the companies analyzed and is ranked second in its total environmental load score. However, Newsweek has ranked Walmart after Kohl’s, J C Penney’s and Macy’s. Again, the difference is due to the cradle to grave approach in the CEPR methodology while Newsweek has taken fewer elements into its load calculation. The Management score is a low C by Newsweek while is a medium B from CEPR results, the highest in the industry. The reputation score is a high A or a 100% in Newsweek’s poll while

the CLC score from CEPR results is a medium B due to a high number of product recalls due to environmental considerations, 4 Superfund and a few minor accidents that have been reported. Further details on what the company needs to focus on, is in its full length report in Appendix E.

e) Target:

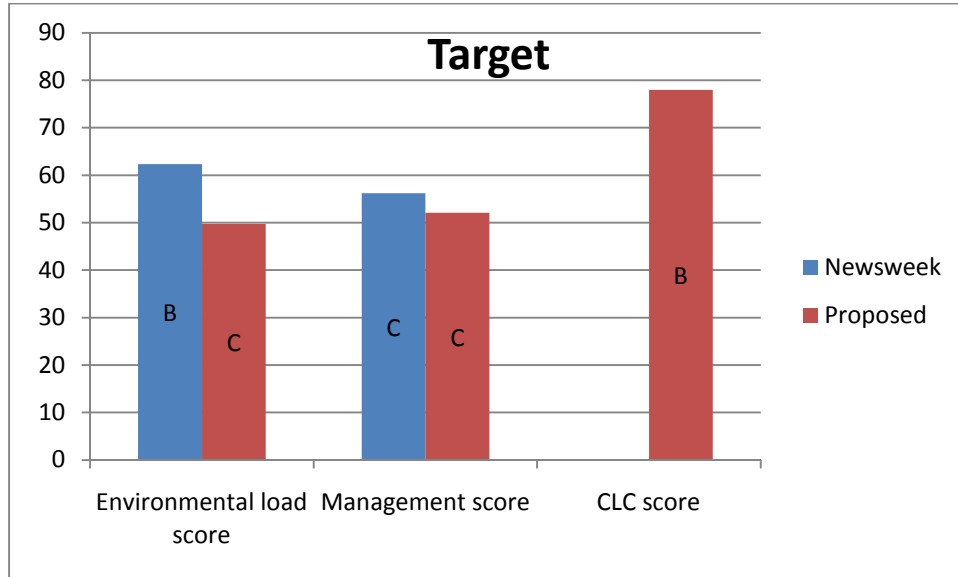


Figure 6.5 Target: Grade comparison column chart

Target has been ranked the lowest by Newsweek in its aggregate score. However, its environmental impact score has been ranked a low B, second to only Kohl's by Newsweek, which is what really matters the most. Since the management score and CLC score will only stand as a look up grade while companies will be primarily compared on their environmental load score only, the CEPR results has given Target, a medium C, next only to IKEA and Walmart. The management grade is the same C from both results, though it is second lowest only to Macy's in CEPR results due to lack of transparency about audits, no employee compensation factors or ESCM activities. While, the reputation score is a low C in Newsweek's poll, the CLC score is a high B in CEPR results, is medium with only JCP and Walmart faring

worse due to high number of product recalls due to environmental controversies, low score compliance. More details are found in its full length report in Appendix F.

f) IKEA:

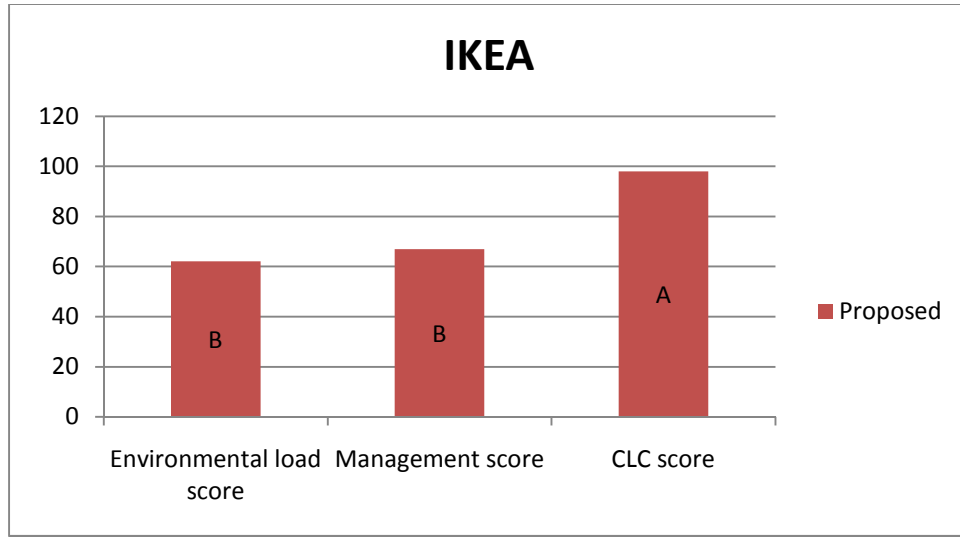


Figure 6.6 IKEA: Grade comparison column chart

IKEA has not been rated by Newsweek though it is one of the 500 biggest companies in the US. The CEPR results have rated IKEA to be the most balanced company when it comes to greening with the highest environmental impact score of a low B. This is because, IKEA's efforts in both in house processes and product loads with tools like design for environment integrated right from design, have been high. Also, IKEA adheres to the strictest regulations especially with regards to chemical safety, thus reducing the environmental risk to human health and safety in its products. More details can be found in its report in Appendix G. Its management score is of a medium B while the CLC score a high A, with no reports of Superfund sites or product recalls due to environmental reasons. Overall, IKEA leads the rating amongst the companies analyzed in all fronts except management where it lags second just behind Walmart.

Following are the graphs of each primary variable showing the results for companies in the two results compared.

a) Primary variable 1 – Net environmental Impact score.

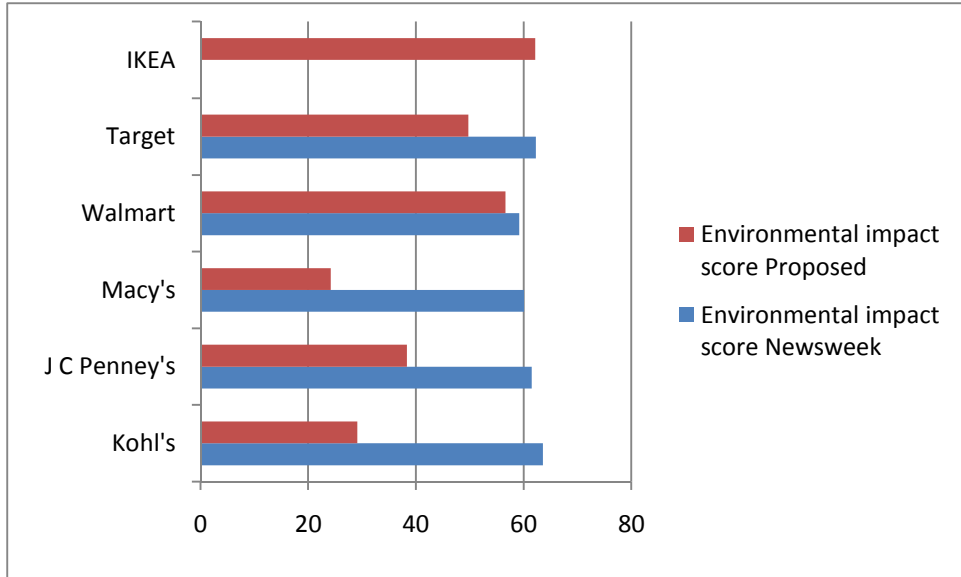


Figure 6.7 Environmental Impact score across companies

CEPR Rankings are as follows:

- 1) IKEA
- 2) Walmart
- 3) Target
- 4) J C Penney's
- 5) Kohl's
- 6) Macy's

Newsweek Rankings are as follows:

- 1) Kohl's
- 2) Target
- 3) J C Penney's
- 4) Macy's
- 5) Walmart

b) Primary variable 2 – Management Score

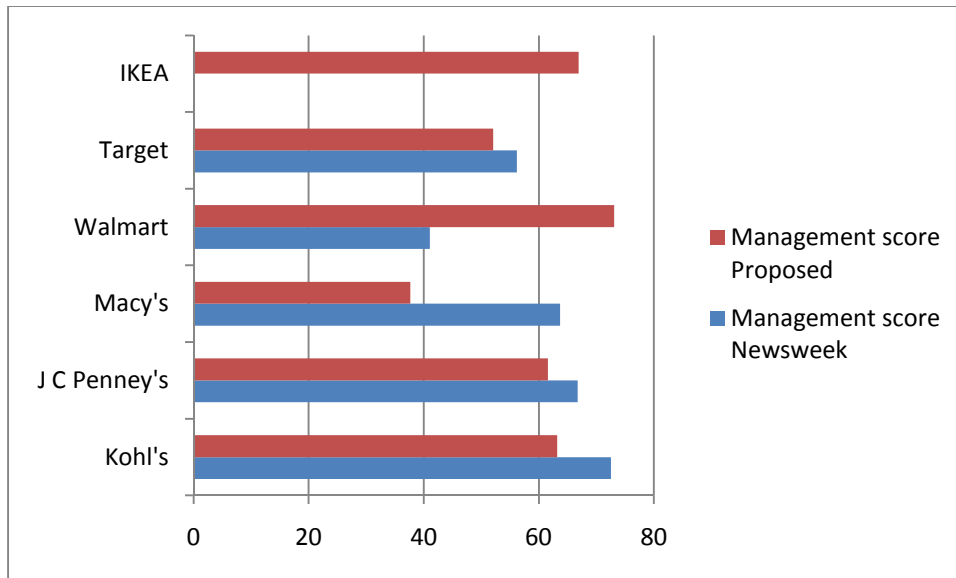


Figure 6.8 Management score chart across companies

CEPR Rankings:

- 1) Walmart
- 2) IKEA
- 3) Kohl's
- 4) J C Penney's
- 5) Target
- 6) Macy's

Newsweek Rankings:

- 1) Kohl's
- 2) J C Penney's
- 3) Macy's
- 4) Target
- 5) Walmart

c) Primary variable 3 – CLC score

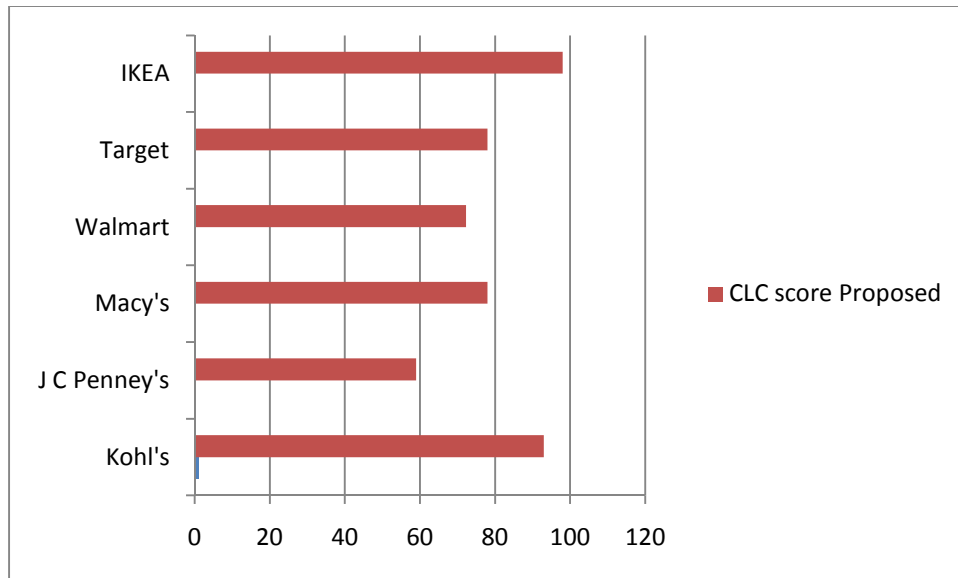


Figure 6.9 CLC score chart across companies

CEPR Rankings:

- 1) IKEA
- 2) Kohl's
- 3) Macy's
- 4) Target
- 5) Walmart
- 6) J C Penney's

For a good environmental comparison of companies, the (E) environmental load primary variable can be used to compare and improve, while making sure one is not a laggard in the CLC or management score, unless the CLC score is an F due to huge incident like spill, compliance violations, product controversy, etc of catastrophic magnitude. If so, the CLC score will take precedence as the green score. While the CLC and management scores are equally important, one cannot aggregate the three as a composite score for reasons that, to improve ratings, one could focus on management policies instead of trying to lower the environmental

load which is actually a bigger risk to the environment. Companies need to understand that without a sound management, it is difficult to manage environmental initiatives that help lower the environmental impact load which in turn affects the environmental CLC score.

For instance, product controversies and Superfund sites can be avoided right at the source, by complying with REACH and reducing hazardous waste like DELL. Thus, if companies work on their environmental load, their CLC or liability score should increase.

How the three primary variables exactly map together is a potential research topic, not within the scope of this dissertation. However, it is clear that IKEA, Walmart and Target are more balanced in that order than the rest, in all the scores, except Target lagging in Management. Macy's is clearly seen as a laggard in both its management and environmental score among the companies analyzed.

CHAPTER 7

INSIGHTS AND ISSUES

7.1 Environmental Insights from the analysis

The company reports incorporate industry's best practices as efforts for reference and sharing information. There are number of lessons to be learned and some insights that have arisen during this analysis.

a) Environmental – Economic link: There have been efforts where there has been substantial cost savings. A Key Performance Indicator called Fleet efficiency was calculated by Walmart by first dividing the number of miles traveled by the average fuel efficiency achieved in trucks as measured in miles per gallon. This leaves with the amount of fuel used to travel those miles. Next, the number of cases delivered during the same time period is divided by the amount of fuel used to deliver the cases. By calculating the efficiency in this way, one can tie in all of the aspects that play a role in fleet efficiency or: $\text{Fleet efficiency} = \text{Number of Case delivered} / (\text{No of miles traveled} / \text{Miles per gallon})$. 38% fleet efficiency was achieved by Walmart last year while the target is to double the same by 2015. This has alone saved Walmart \$200m.

Marks & Spencer's is already cost positive with 2 years more to go in plan A on the invested GBP 200. Plan A details its 100 sustainability commitments, drawn in 2007. The company claims that it has already reached the breakeven point on its investment last year and has no reason to look back despite the financial crunch.

J C Penney's backhaul utilization saved \$2.5 m. It increased the utilization of empty miles by 51% in 2008 over 2007, converting potentially empty trailers into 11,000 loads covering 1.3 million miles. This resulted in savings to JC Penney of \$2.5 million and a net reduction of

CO2 emissions of 4.1 million pounds. By being the leading participant in the Voluntary Inter industry Commerce Solutions Association (VICS) Empty Miles Backhaul Initiative that developed an online marketplace through which freight shippers and carriers can offer their available empty-mile truck lanes to other shippers, J C Penney was able to achieve these savings. Many instances of cost savings have been shown by companies investing in energy efficiency projects.

First, there is avoidance of costs through active environmental initiatives like avoiding compliance violations, fines, Superfund cleanup costs, cost of environmental safety recalls, litigations, government proceedings, etc and subsequent effect on the company's stock prices due to its plunged reputation . Second, there are cost savings that can be made as seen in the above examples during the analysis through innovations and best practices, which not only involves proactive environmental initiatives but innovation as well. Third, an area which is still emerging is profits from environmental initiatives in the retail industry. There are already instances in other industries that have made profits like in consumer cars (Toyota, Prius) etc. In crisis is embedded opportunity and thus, relooking the product from dirt to dirt with new tools to promote environmental sustainability, companies have the opportunity to convert from green to gold such as design for environment as in the case of IKEA. There has been immense innovation to design and create innovative products by IKEA that have been profitable. Among the general retailers, IKEA is perhaps the only retailer to embed design for environment in its products. With environmental accounting based on specific guidelines, a company can clearly understand its returns from its initiatives. There has been an instance where waste generated from construction was used and recycled to create a new company that offered them as construction panels, thus creating a new business opportunity.

Numerous studies support that adopting GSCM can reduce the cost (Duber-Smith, 2005, Günter, 2006). However, there are also papers that negate the model of positive Return on Assets (ROA) for greening of businesses (K.Mathur, 2000) while some have stated with

evidence that environmental performance has a neutral impact on firm performance (K.Elsayed, 2004). Klassen and Mc Laughlin (1996) link strong environmental management to improved future perceived economic performance, as measured by stock market's performance. While Bowen et al (2001) state that organizations will adopt green supply chain management practices if they identify that this will result in specific financial and operational benefits. Though academically, there have been contradicting theories about the environmental-economic link by various researchers, it is still unclear if greening initiatives are profitable or not.

Thus, one can view environmental sustainability as a platform to create a new opportunity window for profits and savings. However, it may not be true that every environmental initiative yields cost savings or profits. This depends on various other factors such as cost justification from LCBA analysis, innovation, proactive efforts, environmental opportunities present in the form of environmental sensitivity of geographic regions and demographic groups served, low phase out risk of green products/ services, environmental improvement potential, environment positioning within the sector , environmental performance in the form of current environmental businesses, environmental businesses under development, and strategic competence in the form of environmental business development strategies apart from the usual set of factors necessary to make profits.

A good place to start is to brainstorm some questions before embarking on greening initiatives such as 'Will it help us anticipate regulation and mitigate risk? Will it help us increase our efficiency, saving money or generating income? Will it help us drive new business opportunities?', as reported by Target stores.

b) As mentioned in Energy Use, it is still unclear if investing in energy efficiency projects or renewable energy pays more. However, it is clear that if a company invests in 100% green energy, then its GHG emissions is minimal. Most companies invest in both projects like Kohl's and Target while J C Penney has invested more in energy efficiency projects and very less in renewable energy. Though it may have saved millions in energy efficiency returns, its GHG is

still very high compared to its peers and hence the environmental load being high as well. Once you invest in 100% green power, there seems no further necessity to invest in energy efficiency projects. However, the question is whether the net load on environment will still be minimal even if it means using more power than its peers and needs further research for more clarity.

c) Another insight provided by the analysis is that balanced greening being more important than focused greening. The definition of environmental sustainability is generalized and hence incorporates all activities that support environmental health and safety that includes humans, plant, habitat and buildings. A clear example of focused greening is that of Kohl's. Kohl's environmental load from in house processes is one of the lowest in the industry. They have earned Energy star status in 20% of the stores, are intending to become carbon neutral by year end 2010, banned the carrying of cosmetic products that use animal testing, intend to become the leading environmental retailer through focused resource stewardship, some initiatives and targets being best in class in the industry. However, when it comes to environmental load from products, Kohl's lags far behind its peers, Walmart or Target. In house processes load is just one component of the total load which Kohl's needs to understand. Load from products is more or less an equal component that contributes to the environmental load. Thus, the net environmental load of Kohl's is much higher than Walmart or Target. Practically, if a customer wants to shop for eco friendly products, Kohl's has none promoting product innovation. This will confuse the customer whether to buy an eco friendly product or to buy an ordinary product from an eco friendly store. Ideally, IKEA serves the green customer the best since it is the most eco friendly store that offers eco friendly products. These ratings will help consumers and companies understand the importance of balanced greening.

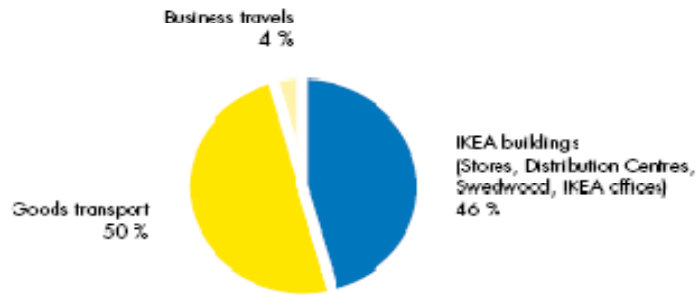
d) EU and Japan are far ahead of the US in terms of green management, corporate reporting and advancement in sustainable solutions for a better world. Necessity, being the mother of invention drives this. These countries along with developing countries that are already constrained of resources due to overpopulation have far more stringent laws and effective ways

to produce sustainable solutions. European Union and Japan are far ahead in compliance laws for human health especially in chemicals like Restriction of Hazardous substances (RoHs) and on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulations. Suppliers are not required to disclose the ingredients by law in the US or many ingredients are exempt from labeling requirements because the product formulas are protected as proprietary. This means, supplier may not enter potential substances of concern, though the product may include it. This means until a mishap occurs due to a product containing a harmful substance, it cannot be contained or restricted 100% in the US unlike REACH regulation in the EU, where all substances have to be tested and preregistered before released to the public. The recent recall of children's charm bracelets is a clear example of how the system is not foolproof and an important, very high risk safety issue. High levels of Cadmium in the bracelets were deemed unacceptable and recalled only after the issue was raised by an NGO. Thousands of products have been recalled in the retail industry due to risking the safety and health of public. In the wake of costly litigations, product sales bans, and reputational damage arising from asbestos, toxic materials in cosmetics and toys, and Teflon-related chemicals, U.S. investors are becoming increasingly wary of toxic chemical risks in products, in supply chains, and in their own portfolios. Common ingredients found in U.S. personal-care products include phthalates, which have been linked to malformed or underdeveloped reproductive organs in males, formaldehyde, classified as a carcinogen and parabens, endocrine-active preservatives that have been found in breast tumors. The U.S. cosmetics industry, which is dominated by 10 large companies, accounts for the use of nearly one in seven of the 75,000 chemicals registered for use in the United States. However, the FDA bans or restricts only nine of those substances. Thus, consumers in the US are susceptible to environmental safety risks like the above especially concerning chemicals, unless they are protected by more stringent laws such as the REACH or RoHs in future.

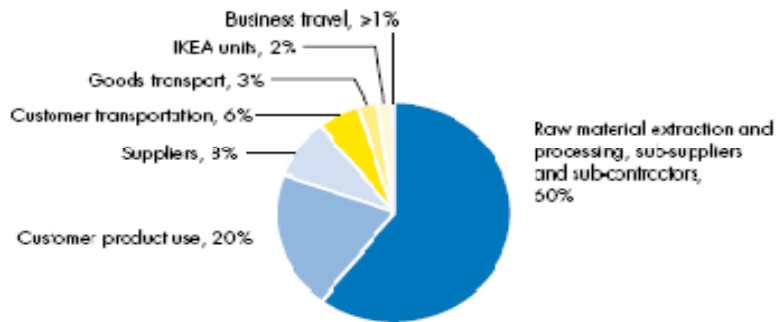
- e) There is an emerging need for reputable independent certifications in different raw material/ product/ industry categories to encourage environmental sustainability such as FSC, Electronic Product Environmental Assessment Tool (EPEAT), etc.
- f) The general retail industry has not shown much progress on green distribution, green production planning or green manufacturing activities, all of these a window of opportunities in future.
- g) A carbon foot printing pie chart as shown in Figure 7.1 developed by IKEA, will help companies understand which activities contribute most to the GHG component and help focus and plan initiatives around them, while an ecological foot printing chart will help show which activities contribute to most environmental damage.
- h) EU and Japan are way ahead in external verifications of data reported as well. This gives credibility to data provided by companies and prevents green washing through external assurance. None of the companies analyzed in the US, except Marks and Spencer's in the UK, have been externally verified other than a few for GHG and energy data alone.
- i) Most companies analyzed have conducted environmental audits for their supplier factories but have not disclosed information about their brand owned factories. For instance, Walmart dictates suppliers to reveal if they have been audited environmentally but provides no information about its own environmental audit as a company by a 3rd party. Such environmental audits by 3rd party or verification can help increase credibility of data collected, if not reported.
- j) It is also observed that companies make more efforts and lock better targets in countries where the public demand is more for environmental efforts or if it is foreseen to have tighter regulations such as the EU. Especially Walmart, in its international operations has made much more efforts and better targets worldwide though in different arenas than domestic. However, IKEA, in its international operations has been consistent in all its operations, targets and efforts worldwide. Consistency in operations worldwide makes its reputation consistent worldwide as

well. Inconsistency, as in the case of Walmart, gives rise to questions why the better international efforts cannot be made in the US too.

CO₂ EMISSIONS CAUSED BY IKEA OPERATIONS, %



CO₂ EMISSIONS, TOTAL CHART



There are still no established standards for measuring emissions throughout the entire process, but working together with academic institutions IKEA has started estimating these emissions. These calculations show that 95 percent of the carbon dioxide emissions related to IKEA and our products are attributed to material extraction, suppliers, customer transportation and the use of products.

Figure 7.1 Carbon Foot Printing Chart from IKEA's CSR

7.2 Issues

Certain issues that arose during this dissertation have been enumerated as follows:

- a) In GHG inventory calculation, there are clear guidelines prescribed by the EPA. However, if incomplete or partial data is provided by the company, for instance if only scope 1 (direct emissions) and scope 2 (indirect emissions) are reported but not scope 3 (company travel and Supply Chain emissions) in Carbon Disclosure Project (CDP) company response data, it makes it difficult for analyzers to compare such data and rate. With the new mandatory GHG reporting rule by EPA that came into effect Dec, 2009, the large companies, covering approximately 85% of total GHG emitted, are expected to provide clearer and complete data by 2011.
- b) There is a need for formal guidelines to calculate most criteria like water, waste, etc to be able to normally compare the data in the right units for rating purposes. Currently such guidelines exist only for GHG inventory. This will also help companies report such data correctly and credibly.
- c) Currently, there exists no formal CSR report format worldwide and hence difficulty in data collection for data analysis and comparison. CSR reports are rewarded for their creativity in report writing. Most reports are verbose, though not necessarily adequate or transparent. However, standardizing the report format can help analyzers gather data quickly, help companies communicate their data effectively and also help stakeholders understand clearly. The prescribed criteria in the CEPR methodology can help companies format their CSRs to provide clearer data.

CHAPTER 8

CONCLUSION AND FURTHER RESEARCH

8.1 Conclusion

Environmental concerns are becoming increasingly important to companies and a broad range of corporate stakeholders, including consumers, shareholders, potential investors, creditors, regulators, employees and the general public (Bringer and Benforado, 1994, Makower, 1993, Craig, 1992, Greenberg and Unger, 1991, Hall, 1992, Jacobson, 1992). While environmental information is becoming available from a growing number of sources, lack of transparency and clarity among rating schemes and clear methodologies can inhibit stakeholders' ability to interpret such data and make objective comparisons (Ilinitch, 1998). A comprehensive list of why environmental sustainability is important, why we need corporate environmental performance rating schemes, a critical review of shortcomings of existing rating schemes in the US and potential practical applications of proposed methodology has been enumerated.

A new 4 step methodology for corporate environmental performance rating has been developed, for which weight allocations have been appropriately justified. Data validation has been performed by analyzing 6 companies in the US general retail industry as an example. Sensitivity analysis has been performed after data validation to see if adjusted weights alter the outcome of final score. Results show that the final score is altered in a few outcomes by a single grade. Different scenarios have been tested (90% and 68.2%) to determine if the outcomes change. Results show that the final score is altered in a few outcomes by a single grade. Also, different product to process load ratios of 50%-50% and 35%-65% have been tested if changes

in product to process load weights alter the final outcome. Results show that outcome grades do not vary due to change in product to process ratio of weights.

The results have been compared with Newsweek's 500 greenest companies list published in 2009. The methodologies and companies' ratings have been researched and compared. Results show that there are marked differences both in the methodology, approach and results between the two, primarily due to cradle to grave approach in the CEPR methodology compared to very few variables in Newsweek's and other reasons enumerated in the dissertation. Further, full length detailed reports have been generated for each company in the Appendices for further reference and notes.

Certain environmental insights that have arisen during analysis have been enumerated and issues captured to help companies perform better environmentally. Finally, topics of further research have been listed.

8.2 Further research topics

Topics for further research include:-

- a) To calculate accurate/ approximate ratios of environmental load from in house processes to products for various industries in ICB. For instance, the textile industry has more impact from production processes than products while consumer cars have more impact from products than processes. This will help calculate a more accurate rating than the standard 50%-50% load ratio currently followed.
- b) Currently, the methodology has been cross checked for all product industries classified in ICB. For service industries, the management, CLC and environmental load from processes apply and a brief set of criteria has been prescribed for environmental load from services. Further research can validate the same for service industries as well and propose to include more service industry specific criteria.
- c) The model itself has been built analyzing 6 companies in the US, building metrics, best practices and data from these companies along with Marks and Spencer's in the UK,

Carrefour in France and Aeon in Japan. The model can be made stronger by analyzing a bigger sample space as future research to test if any new criteria are required and to validate the current criteria across other industries.

- d) The question whether it is better to invest in energy efficiency projects or green energy projects can be researched further to justify the weight allocation better in energy use category.
- e) Currently, the author suggests compare the net environmental load between companies for external ratings and use management and CLC score as a letter grade reference to avoid laggards, unless the CLC score is an F. If so, the CLC score will take precedence. However, a clearer picture of how these three elements can be mapped together is a potential future research topic.

APPENDIX A
CEPR METHODOLOGY'S GRADING STANDARDS

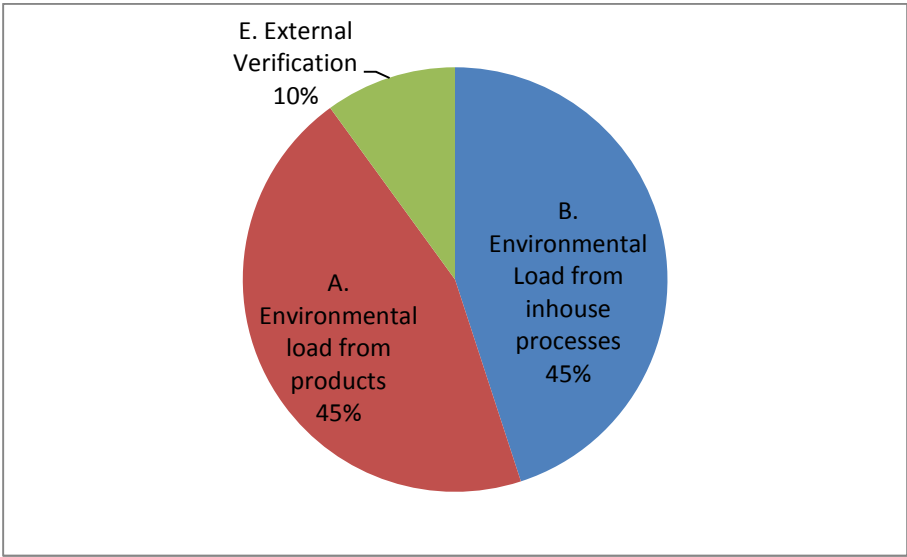


Figure A.1 E1 Net Environmental Load Pie Chart

Formula: $E1 = .45(B) + .45(A) + .1(E)$

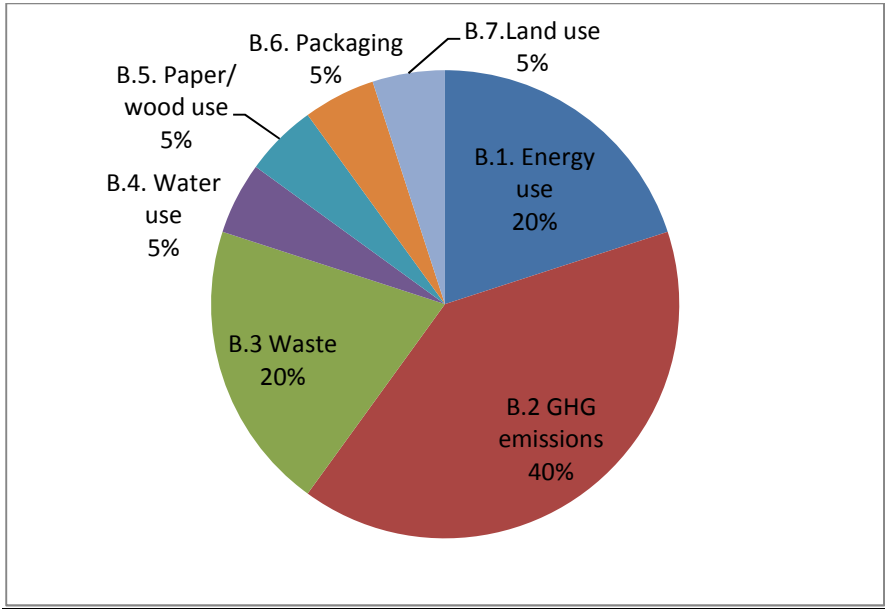


Figure A.2 B Environmental Load from In house Processes Pie Chart

Formula: $B = .2(B.1) + .4(B.2) + .2(B.3) + .05(B.4) + .05(B.5) + .05(B.6) + .05(B.7)$

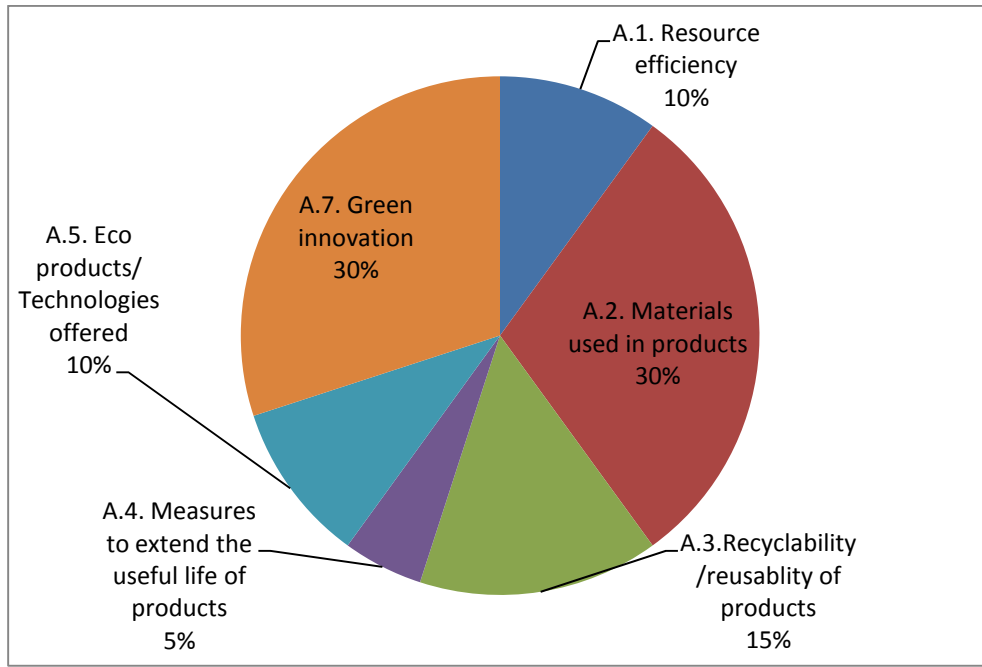


Figure A.3 A Environmental Load from Products Pie Chart

Formula: $A = .1(A.1) + .3(A.2) + .15(A.3) + .05(A.4) + .1(A.5) + .3(A.7)$

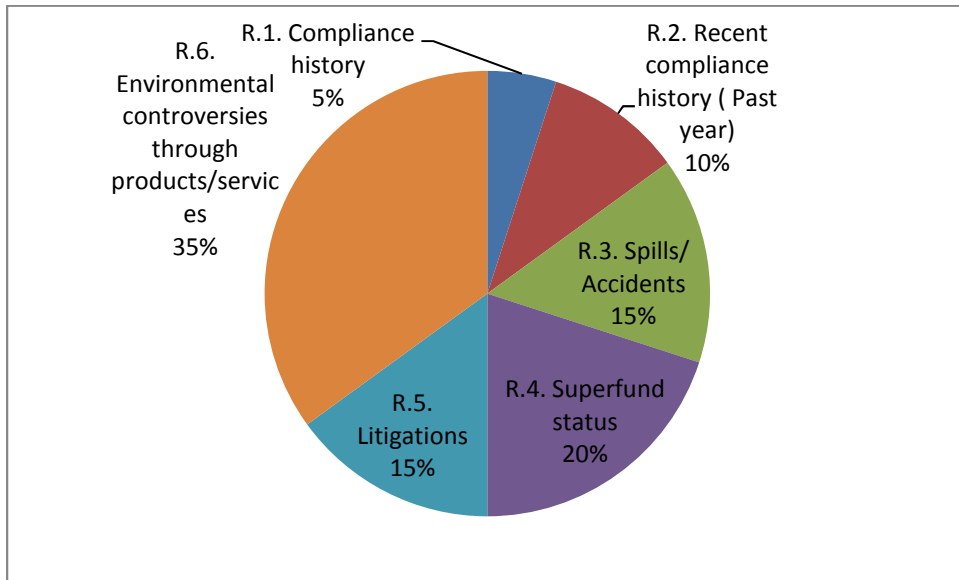


Figure A.4 R Compliance, Litigations and Controversies split up Pie Chart

Formula: $R = .05 (R.1) + .1 (R.2) + .15 (R.3) + .2 (R.4) + .15 (R.5) + .35 (R.6)$

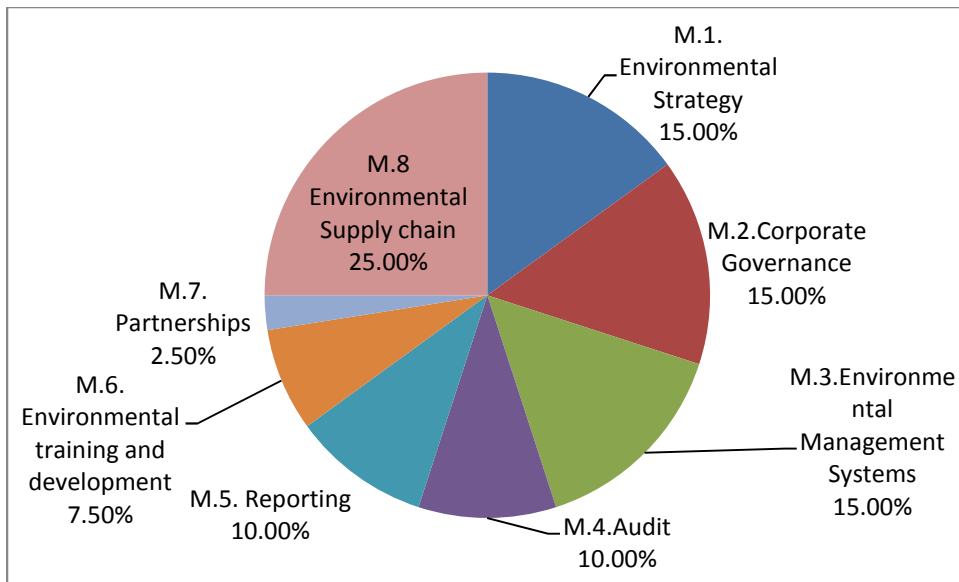


Figure A.5 M Management split up Pie Chart

Formula: $M = .15 (M.1) + .15 (M.2) + .15 (M.3) + .1 (M.4) + .1 (M.5) + .075 (M.6) + .025 (M.7) + .25 (M.8)$

	<i>Weight</i>	<i>Rating</i>
B Environmental Load from in house processes	45%	
B.1 Energy Use	20%	
B.1.1 % Renewable used	35%	
Best in class is 100% green power in the US (partnered with EPA as Green Power Purchaser)		
0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A		
B.1.2 Target % of renewable and timeframe	10%	
Best in class is 100% green power in the US (partnered with EPA as Green Power Purchaser)		
0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A.		
Any of the above except F with No/ Delayed timeframe - E		
B.1.3 Target reduction of energy use and timeframe	10%	
Best in class/high energy efficiency target		
for most buildings, detailed by a timeframe		
(Currently is 20% by 2012 by Wal-Mart)		
High target for some buildings or		
medium Energy efficiency target detailed only for all buildings		
Medium energy efficiency target detailed for some buildings or		
low target for all buildings.		
Low energy efficiency target for some buildings detailed with good timeframe		
Any target with no timeframe		
No targets defined		
Low, medium numbers with respect to best in class, expressed as a % on a Likert scale.		
Or Best in Class – 20%, High -14-19% Medium - 7-13%, Low – 1-6%		
B.1.4 Energy reduction efforts disclosure /innovation	15%	
Clear reduction efforts disclosure (Best in Class)		
High disclosure/efforts		
Medium disclosure/efforts		
Low disclosure/efforts		
No disclosure/efforts		
High, medium and low are rated with respect to Best in Class.		
B.1.5 Normalized energy use (Energy/ sales \$)	15%	
Net revenue in 2008 =		
Energy intensity = Energy/ Sales \$		
Best in class		
Rest expressed as a ratio to Best in Class numbers as follows:-		
Best in Class -A, Low - B, Medium - C, High - D, Very High - F		
Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading.		
B.1.6 External verification	15%	
Externally verified		
Verification plan in place with a good timeframe		

Verification plan in place without/ distant timeframe		D
Not verified with no plan in place.		F
B.2. GHG emissions:		40%
B.2.1 Normalized GHG emissions in 08	35%	
GHG intensity =GHG/ Revenue		
Best in class		A
Rated with respect to best in class numbers as follows:-		
Best in Class -A, Low - B, Medium - C, High - D, Very High - F		
Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading.		
B.2.2 Target reduction and timeframe	10%	
Best in class target detailed by a timeframe		A
(Currently is 20% overall by 2012 by Wal-Mart)		
Rated with respect to best in class numbers as follows:		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A		
B.2.3 Carbon reduction efforts/ innovation	30%	
Clear reduction efforts disclosure (Best in Class)		A
High disclosure and efforts		B
Medium disclosure and efforts		C
Low disclosure and efforts		D
No disclosure /efforts		F
High, medium and low are rated with respect to Best in class.		
B.2.4 Partnerships	5%	
Smart way leader and Leaders in CDLI and Climate Leaders, etc		A
A leader in one of the above		B
An active partner with all of the above		C
An active partner with any of the above		D
A passive partner with any of the above		E
No partnerships		F
B.2.5 External verification	15%	
Externally verified		A
Verification plan in place with a good timeframe		C
Verification plan in place without/ distant timeframe		D
Not verified with no plan in place.		F
B.2.6 Risk Assessment team	5%	
Risk assessment team in place		A
Risk Assessment team to be in place with a good timeframe		B
Risk Assessment team plan in place without/ distant timeframe		C
No team or idea		F
B.3 Total Waste		20%
B.3.1 Normalized waste data:- Amount of Waste to landfill/ Revenue	10%	
Best in class		A
Rest rated as a % to best in class as follows		

Best in Class -A, Low - B, Medium - C, High - D, Very High - F
 Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading.

B.3.2. Recycling rate:-	5%	
Best in class is 100% recycling rate from stores, DCs.		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A		
Operational	10%	
Construction	10%	
Food	5%	

B.3.3 Reduction targets and timeframe:	10%	
Best in class waste target detailed by a timeframe		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A or		
Distant or no time frame with any of the above		
No targets		F

B.3.4 Reduction/ recycling/ reuse efforts/ innovation:	25%	
Clear reduction efforts/ disclosure (Best in Class)		
High disclosure/ efforts		B
Medium disclosure/ efforts		C
Low disclosure/ efforts		D
No disclosure and efforts		F
High, medium and low are rated with respect to Best in Class.		

B.3.5 Efforts to reduce/ treat toxic waste:	15%	
Clear reduction efforts/ disclosure		
(Best in class)		A
High disclosure/ efforts		B
Medium efforts		C
Low efforts		D
No disclosure /efforts		F

B.3.6 Partnerships:	5%	
Leader in Waste wise, etc		
An active partner with Waste wise, etc		B
A passive partner with above		C
No partnerships		F

B.3.7 Efforts to reduce non biodegradable waste:-	10%	
Clear reduction efforts and disclosure		
(Best in class)		A
High disclosure/ efforts		B
Medium efforts		C
Low efforts		D
No disclosure /efforts		F

B.4 Water use: 5%

B.4.1 Normalized water data: Amount of Water/ Revenue	40%	
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Best in class A
 Best rated as a % to Best in Class as follows:
 Best in Class -A, Low - B, Medium - C, High - D, Very High - F
 Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading.

B.4.2 Recycling/ reuse/ reduction target and timeframe: 20%
 Best in class water target for all buildings, detailed by a timeframe A
 High target detailed for all buildings B
 High target for some buildings or
 medium target detailed only for all buildings C
 Medium target detailed for some buildings or D
 low target for all buildings or distant timeframe
 Low target for some buildings detailed/no timeframe E
 No targets defined F
 Low, medium numbers with respect to Best in Class, expressed as a % on a Likert scale.

B.4.3 Recycling / reuse/ reduction efforts/ innovation: 40%
 Clear reduction efforts disclosure (Best in Class) A
 High efforts and disclosure B
 Medium efforts and disclosure C
 Low efforts and disclosure D
 No efforts/ disclosure F
 High, medium and low are compared to Best in class.

B.5. Paper/Wood use: 5%

B.5.1 Normalized wood/paper data: - Amount of paper/ revenue 25%
 Best in class A
 Best in Class - A, Low - B, Medium - C, High - D, Very High - F
 Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading.

B.5.2 Recycling/ reuse/ reduction target and timeframe: 10%
 Best in class target detailed by a timeframe for all buildings A
 High target detailed for all buildings B
 High target for some buildings or medium target detailed only for all buildings C
 Medium target detailed for some buildings or D
 low target for all buildings or distant timeframe
 Low target for some buildings detailed/no timeframe E
 No targets defined F
 Low, medium numbers with respect to Best in Class, expressed as a % on a Likert scale.

B.5.3 Recycling / reuse/ reduction effort/ innovation: 30%
 Clear reduction efforts disclosure (Best in Class) A
 High efforts/ disclosure B
 Medium efforts/ disclosure C
 Low efforts/ disclosure D
 No efforts/ disclosure F
 High, medium and low are rated with respect to Best in class.

B.5.4. Amount certified by FSC or SFI or other: 35%
 Rated as a % to Best in Class - 100% certified by

Sustainable Forest Initiative or Forest Stewardship Council, etc.
 0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A

B.6. Packaging	5%	
B.6.1 Packaging reduction target/efforts Rated as a % to Best in Class - 100% (25% reduction target in non glass packaging by M&S in 3 years) 0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A	20%	
B.6.2 Sustainable materials integration/ innovation All packaging is from recycled or certified material Most packaging is from recycled or certified material Some packaging is from recycled or certified material Few packaging is from recycled or certified material No packaging is from recycled or certified material	20%	A B C D F
B.6.3 Avoidance of toxic/non biodegradable materials Elimination of PVC/Styrofoam, etc completely Elimination of PVC/Styrofoam in most products Elimination of PVC/ Styrofoam in some products Elimination of PVC/ Styrofoam completely with future target/ good timeframe Elimination of PVC/ Styrofoam in products with future target/ distant/no timeframe Elimination of PVC/ Styrofoam target not present	25%	A B C D E F
B.6.4 Packaging scorecard to screen suppliers for sustainable packaging Comprehensive supplier screening for sustainable packaging A Partial supplier screening for sustainable packaging B Comprehensive supplier screening future target for sustainable packaging with good timeframe Partial supplier screening future target for sustainable packaging with distant/no timeframe No supplier screening existent nor future targets for sustainable packaging	30%	C D F
B.6.5 Recycling rate of packaging materials (recycling/composting, etc) Rated as a % to Best in Class - 100% , 0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A Best in Class is Marks and Spencer whose recycled rate in packaging is 90% or certified by FSC materials	5%	
B.7. Land use:	5%	

B.7.1 Normalized Land use: - Land used/Revenue
 Best in Class -A, Low - B, Medium - C, High - D, Very High - F
 Or divide Lowest to Highest data in 6 equal parts and grade them from A-F for relative grading

B.7.2 Land given back to wilderness/ efforts to conserve natural resources: 100%
 (Currently Wal-Mart has pledged an acre for every built acre

of its store as land given back for conservation by 2015).

Clear reduction efforts/ disclosure (Best in Class)

High efforts/disclosure

Medium efforts /disclosure or target with good timeframe

Low efforts/disclosure or target with distant/ no timeframe

No efforts/ disclosure

High, medium and low are rated with respect to Best in class.

A
B
C
D
F

B.8 Other industry specific load:

Nuclear impact, Ozone depleting chemicals, acid rain, air pollution, VOC, SO₂, NO_x , SF₆, water pollution, etc.

Comment: B.8 will take 10-15% weight depending on the industry. For instance, oil and gas industry product itself has very less packaging and this weight will shift to B.8.

Pharmaceuticals and aerospace industries have heavy toxic air emissions and will be a weight shift from packaging.

All product industries are marked by these general criteria, though some have industry specific criteria, a few mentioned in B.8.

	<i>Weight</i>	<i>Rating</i>
A. Environmental load from Products	45%	
A.1 Resource Efficiency of products offered	10%	
A.1.1 Net reduction target	30%	
Best in class target for all products, detailed by a timeframe		A
High target detailed for all products		B
High target for some products or medium target detailed only for all products		C
Medium target detailed for some products or low target for all products or distant timeframe		D
low target for some products detailed/no timeframe		E
No targets defined		
F Low, medium numbers with respect to best in class, expressed as a % cutoff on a Likert scale.		
A.1.2 No of Energy Star, other eco label products offered	35%	
Best in class		A
(Rated as a % to best in class as follows)		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A		
Or All-A, Most-B, Some-C, Few-D or None-E		
A.1.3 Current Reduction efforts / innovation	30%	
Clear reduction efforts disclosure (best in class)		A
High efforts and disclosure		B
Medium efforts and disclosure		C
Low efforts and disclosure		D
No efforts/ disclosure		F
High, medium and low are with respect to Best in Class.		
A.1.4 Partnerships for reducing resource efficiencies	5%	
Existence		A
Working towards a goal/ timeframe		B
Working towards a goal without timeframe		C
No idea/partnership		
F		
A.2 Materials used in products	30%	
A.2.1 Avoidance of toxic substances	50%	
A.2.1.1 RoHs Compliance (If applicable)	10%	
All Products are RoHs compliant		A
Most products are compliant		B
Some products are compliant		C
Few products are compliant		D
No products are compliant		F
(All-100%, Most – 70-99%, Some – 30- 69%, Few – 1-29%, None – 0%)		
A.2.1.2 REACH compliant (This is 25% if electronics not sold)	15%	

All Products are REACH compliant		A
Most products are compliant		B
Some products are compliant		C
Few products are compliant		D
No products are compliant		F
(All-100%, Most – 70-99%, Some – 30- 69%, Few – 1-29%, None – 0%)		

A.2.1.3 Green screen tool	40%	
Green screen for product safety used for all products		
Best in Class		
Best rated as % with respect to Best in class.		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A		

A.2.1.4 Toxic usage reduction efforts in products	30%	
Clear reduction efforts disclosure (best in class)		A
High efforts and disclosure		B
Medium efforts and disclosure		C
Low efforts and disclosure		D
No efforts/ disclosure		F
High, medium and low are with respect to Best in Class.		

A.2.1.5 Non GM foods stocked (substances used if not foods)	5%	
No GM foods stocked (Best in class)		A
Very few GM foods stocked		B
Some GM foods stocked		C
Large number of GM foods stocked		F

A.2.2 Integration of sustainable materials in products	40%	
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A.2.2.1 Organic products offered (or Renewable in products offered)	35%	
Mostly organic products offered		A
Large number of organic products offered		B
Some organic products offered		C
Few organic products offered		D
No organic products offered		F

A.2.2.2 Substitution of toxics by non toxics/ sustainable materials	35%	
Best in class		A
(Rated as a % to best in class as follows)		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A or		
All toxics have been substituted by non toxics in products		A
Large number have been substituted		B
Some have been substituted		C
Few have been substituted		D
No toxics substituted		F

A.2.2.3 Certified/ sustainable raw materials (Seafood, wood, water, palm oil, etc) used	30%	
Best in class		A

(Rated as a % to best in class as follows)	
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A or	
All raw materials are certified	A
Large number have been certified	B
Some have been certified	C
Few have been certified	D
No raw materials certified	F
A.2.3 Animal testing	10%
Animal testing done	F
Intended Ban on animal testing without/ delayed timeframe	E
Intended ban with a timeframe	D
Existing ban on animal testing on some products	C
Existing ban on animal testing on all products	A
A.3. Recyclability/upgradability/reusability of products	15%
Best in Class – 100% recyclability or reusability or upgradability of all products	A
(Rest rated as a % to best in class for number of products as follows)	
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A or	
Low, medium high efforts with respect to Best in Class on a Likert scale or	
All products are recyclable/ reusable/ recoverable or Best in Class	A
Large number of products are recyclable	B
Some are recyclable	C
Few are recyclable	D
No products are recyclable	F
A.4. Measures to taken to extend the useful life of products.	5%
Clear durability efforts and disclosure (Best in Class)	A
High efforts and disclosure	B
Medium efforts and disclosure	C
Low efforts and disclosure	D
No efforts/ disclosure	F
High, medium and low are with respect to Best in Class.	
A.5. Eco-products/ technology offered	10%
% Number of Eco friendly products/ technology offered (Best in Class)	A
(Includes organic foods, organic textiles, energy efficient products, renewable products, etc and criteria involved to brand it as eco-friendly if brand owned)	
Rest rated as a % to the Best in Class.	
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A or	
No, Few, Some, Large, All products rated as F, D, C, B and A respectively.	
A.6. Environmental services offered	
A.7. Green product innovation	30%

Number of products offered through green product innovation

Best in class

A

Rest rated as a % to Best in Class.

0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A

Or

No, Low, medium, high, Very High efforts with respect to Best in Class, expressed on a Likert scale.

Comment: The above can be rated with respect to products or efforts as applicable.

A.8. Other industry specific product load.

a) This will take appropriate weight from other criteria not applicable. For instance, oil and gas industry will take the criteria A.5 and A.7 instead of A.1 and A.2.

b) If any subsection does not hold good, the weights are appropriately divided to other relevant/new subsections. For instance, in pharmaceuticals, products are consumed and hence A.3 (recyclability of products) weights will be allocated to A.2. In Food and Beverage industry, resource efficiency and eco technology will take more weight.

c) In utilities, A.2, A.3 and A.4 will shift weights to A.5 and A.7.

d) In Healthcare, product safety comprises of other elements. Hence, A.2 will move to A.8.

e) In almost all industries, the key criteria for product stewardship is resource efficiency, sustainable raw materials, product safety, product waste recoverability -3Rs, green product innovation(sustainable design, etc).

R. Environmental Compliance, Litigations and Controversies: (CLC)

This comprises of violations, fines, government proceedings, accidents, spills, permit denials, shut-ins, toxic torts, Superfund sites, headline risks, litigations, product recalls due to environmental considerations, etc. The below is rated as follows: If any of R.2, R.3, R.6 or R.8 is F then the overall score takes the F score, else the proposed weights are allocated

R.1. Compliance history checks with :

US EPA Enforcement Compliance History Online (ECHO), Toxics Release Inventory (TRI), Resource Conservation and Recovery Act (RCRA), Public Environment Reporting initiative (PERI).

	<i>Weight</i>	<i>Rating</i>
A brief history of compliance:	5%	
No violations/spills/accidents/shut-ins/ permit denials, etc of concern		A
Insignificant issues of less concern		B
Any issue/ issues of some significant concern		C
Any issue of large concern		D
Significant issues of large concern/Any issue of catastrophic magnitude		F

R.2. Recent Compliance for violations/fines in the most recent year: 10%

Will be graded from A – F depending on the magnitude of violations/fines where		
No penalties/ violations/ fines		A
Minimal violations		B
Some violations		C
Major Violations		D
Catastrophic violations		F
Violations include Air, water, toxics, etc.		
Total Amount of fines paid:		

R.3.Accidents/ Spills/ Permit denials/ Shut-ins: USEPA National Response Center's Oil Spill Data system (NRC), Right-to-know network (RTK), Emergency Response Notification Systems (ERNS) for accidents/ spills and RCRA for permit denials/shut-ins.

Spills:	10%	
No spills of concern		A
Insignificant spills of less concern		B
Any spill of some significant concern		C
Any spill of large concern		D
Significant spills of large concern/Any spill of catastrophic magnitude		F
Accidents:	5%	
No accidents of concern		A
Insignificant accidents of less concern		B
Any accident of some significant concern (involves severe injury to very few)		C
Any accident of large concern (involves severe injury to some but no mortality)		D
Any accident involving mortality		F
Permit denials: (If applicable)	5%	
No permit denials		A
Insignificant permit denial of less concern		B

Few permit denials of less concern		C
Any permit denial of large concern		D
Significant permit denials of large concern		F

Facility Shut-ins: (If applicable)	5%	
No Shut ins		A
Insignificant shut ins of less concern		B
Few shut ins of less concern		C
Any shut in of large concern		D
Significant shut ins of large concern		F

R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities. (Rated as R.7)
A brief history of industry specific liabilities.

R.5. Other historic liabilities (will be rated as R.7)

R.6. Superfund status from Comprehensive Environmental Response, Compensation, and Liability Information System or CERCLIS database. Information on Potentially Responsible Parties (PRP) can be retrieved by writing to EPA and is available on written request.

No of Superfund sites:-	20%	
No Superfund sites		A
PRP for very few sites		B
PRP for some sites		C
PRP for many sites		D
PRP for many sites posing threat to community		F

In retail, J C Penney tops the Superfund list with 18 sites as PRP while Kohl's has 0.

R.7.Litigations/ Government proceedings: USEPA	15%	
No litigations of concern		A
Insignificant litigations of less concern		B
Any litigation of some significant concern		C
Any litigation of large concern		D
Significant no of litigations of large concern		F

Litigations include lost or pending. 5% of the above is for litigation history while 10% towards litigations in most recent year.

R.8. Environmental controversies through products/ services:	35%	
Checks with Linux Legal.		
No issues of concern		A
Insignificant issues of less concern		B
Any issue of some significant concern		C
Any issue of large concern		E
Significant issues of large concern/ Any issue of catastrophic magnitude		F

R.9. Environmental controversies otherwise (Rated as R.7).

Comment:- Manufacturing-related environmental issues such as toxic emissions, hazardous waste generation, spills of hazardous materials, Superfund, site liabilities and related environmental compliance fines, will be much less significant for companies that do not engage in manufacturing. These in turn depend if subcontracted or not. If so, then supplier screening for

environmental criteria will take priority in ratings. Chemical industry is very spill/ hazardous waste prone and hence will take greater weights correspondingly for spills and Superfund sites.

M. Management Score	100%	
M.1. Environmental strategy	15%	
M.1.1 Policy:	15%	
Company has a policy that covers 100% of employees on sustainability		A
Rest rated as percentage of employees covered on sustainability.		
0% -F, 1-20% - E, 21-45% - D, 45-70% - C, 71- 99 % – B, 100% - A		
M.1.2 Integration with Core business:	25%	
Sustainability is integrated into all core business activities		A
Sustainability is integrated into business activities mostly		B
Sustainability is integrated into some core business activities		C
Sustainability is integrated into few core business activities		D
Sustainability not integrated into core business activities		F
M.1.3 Consistency in operations (International/ domestic):	25%	
Goals, targets and achievements are far/little better in domestic than worldwide		A
Goals, targets and achievements are consistent in domestic/ worldwide		A
Goals, targets and achievements are little better worldwide than domestic		C
Goals, targets and achievements are far better worldwide than domestic		D
M.1.4 Active commitment of senior management	15%	
Active commitment of senior management in all areas		A
Partial commitment, (in most areas)		B
Partial commitment (in some areas)		C
Partial commitment (in few areas)		D
No commitment of senior mgmt		F
M.1.5 Active use of targets and monitoring	10%	
Active use of targets and monitoring in all areas		A
Partial use of targets and monitoring (in most areas)		B
Partial use of targets and monitoring (in some areas)		C
Partial use of targets and monitoring (in few areas)		D
No commitment to use of targets or monitoring		F
M.1.6 Differences between actual and disclosed: (Commitment to targets/ green washing etc)	10%	
No differences between actual and disclosed or different disclosures		A
Very minor differences between actual and disclosed		C
Some differences between actual and disclosed		D
Major differences between actual and disclosed		F
M.2 Corporate Governance	15%	
M.2.1 Board Structure, Chief Sustainability Officer: (Highest level)	40%	
Clear hierarchy of Board structure involving		

right from CSO to bottom most employee	A
From VP	B
From Senior executive	C
From Manager	D
None	F

M.2.2 Environmental factor in compensation:	
30% Sustainability performance based specifically defined incentives for management/employees	A
Sustainability performance based specifically defined incentives for management only	B
Sustainability is a component of all salaried associates as part of some evaluation category	C
Sustainability is a component of some salaried associates as part of some evaluation category.	D
No factor in compensation at all	F

M.2.3 Green investment	30%
Green investment intensity = green investment \$/ sales \$	
Best in class by Wal-Mart (\$500m/ year)	
Rated as a % to Best in Class as 100%	
0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A	

M.3 Environmental Management Systems	15%
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M.3.1 % Number and Qualifications of separate Environmental staff:	15%
Best in Class –A, Rated as a % to Best in Class as 100%	
0% -F, 1-20% - E, 21-45% - D, 46-70% - C, 70- 99% – B, 100% - A	

M.3.2 ISO 14000 or other certified EMS, international certifications:	30%
ISO 14000 series/ EMAS/ other international certified EMS existent	A
Working towards an internationally certified EMS within a good timeframe	B
Working towards an internationally certified EMS with a distant/ no timeframe	C
An informal EMS existent	D
Working towards informal EMS	E
No idea of formal/ informal EMS or lack of information	F

M.3.3 Internal/ external Environmental Performance Indicators:	10%
All Indicators are adequately written and monitored regularly	A
Most Indicators are written and monitored regularly	B
Some Indicators are written and monitored regularly	C
Few indicators are written and monitored regularly	D
Lack of indicators or lack of regular monitoring	F

M.3.4 Existence and adequacy of all data collected, reported, managed:	20%
All necessary data are adequately collected, reported and managed	A
Most data are clearly/adequately collected, reported and managed	B
Some data are clearly/ adequately collected, reported and managed	C
Few data are clearly/adequately collected, reported and managed	D
Not much data available for adequacy	F

M.3.5 LCAs, dfEnvt and other environment tools used :	25%	
Product LCAs, dfEnvt, LCBA, TQEM and other tools used		A
Most of the tools above used		B
Some of the tools above used		C
Few of the tools above used		D
None of the tools above used / No information		F
M.4 Audit (Existence, adequacy and frequency): Internal/ External	10%	
Environmental Audit existent, adequate, frequent (Both Internal and External)		A
Environmental Audit existent, not adequate /not frequent (External)		B
Environmental Audit existent, adequate, frequent (Only External)		C
Environmental Audit existent, adequate, frequent (Only internal)		D
Environmental Audit existent, not adequate or not frequent (only internal)		E
Environmental Audit not existent (Internal nor External)		F
M.5 Reporting:(Existence, adequacy, transparency/3rd party verification)	10%	
Reporting is existent, adequate, regular, fully transparent, externally verified		A
Reporting is existent, regular, not adequate/ mostly transparent, externally verified		B
Reporting is existent, adequate, regular, mostly transparent, not externally verified		C
Reporting is existent, adequate, regular, not transparent, not externally verified		D
Reporting is existent, not adequate/not regular, not transparent/not externally verified		E
Reporting is not existent		F
Reports include CDP reports, CSR reports, and company website reports. Regularity of reports means annual release. Adequacy and transparency mean coverage of criteria and supporting data for this methodology.		
M.6 Environmental Training & Development:	7.5%	
Suppliers training	50%	
All suppliers covered by training		A
Most suppliers covered by training		B
Some suppliers covered by training		C
Few suppliers covered by training		D
None covered by training		F
Employee training	50%	
All employees covered by training		A
Most employees covered by training		B
Some employees covered by training		C
Few employees covered by training		D
None covered by training		F
M.7 Partnerships: (Ceres, Other outside code, voluntary EPA programs)	2.5%	
5 or more certifications/ partnerships		A
4 certifications/ partnerships		B
3 certifications/ partnerships		C
2 certifications/ partnerships		D
1 certifications/ partnerships		E
No partnerships/ certifications		F

M.8 Supplier Screening/ ESCM:	25%	
M.8.1 Environmental screening for suppliers	30%	
Comprehensive Environmental screening test existent for suppliers		A
Partial Environmental screening existent for suppliers (can range from B-D)		B
Comprehensive Environmental screening future target with a good timeframe		C
Partial Environmental screening future target with a good timeframe		D
Comprehensive/ Limited Environmental screening future target with distant timeframe		E
Environmental screening not existent nor a future target exists		F
M.8.2 Supplier collaborated environmental efforts/ programs:	15%	
Best in Class		A
Rest rated with respect to Best in Class. E.g.:- No of eco factories, etc		
M.8.3 % Number of environmentally certified suppliers	25%	
Best in Class		A
Rest rated as a % to the Best in Class.		
0% -F, 1-20% - E, 21-40% - D, 41-60% - C, 61- 80 % – B, 81-100% - A		
M.8.4. Environmental Supply Chain used:	30%	
Environmental/ Responsible purchasing, travel and transport, distribution (material handling/storage), EPRs or reverse logistics, Environmental PPC, etc.		
All of the above existent		A
Most of the above existent		B
Some of the above existent		C
Few of the above existent		D
None of the above existent		F

APPENDIX B
KOHL'S: COMPANY REPORT

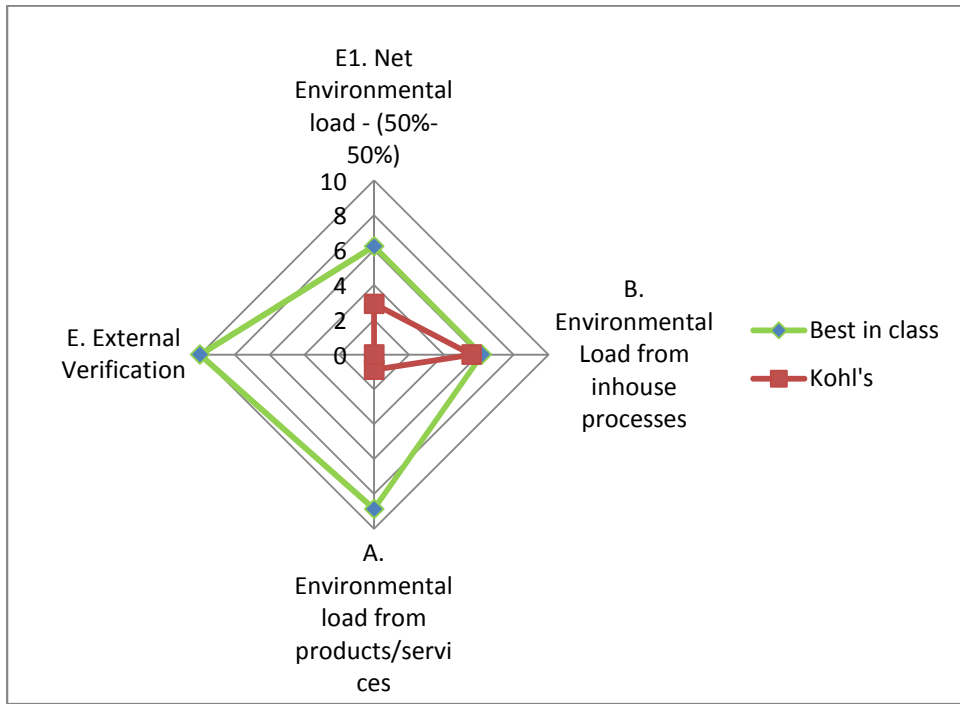


Figure B.1 Net Environmental Load Spider Chart - Kohl's

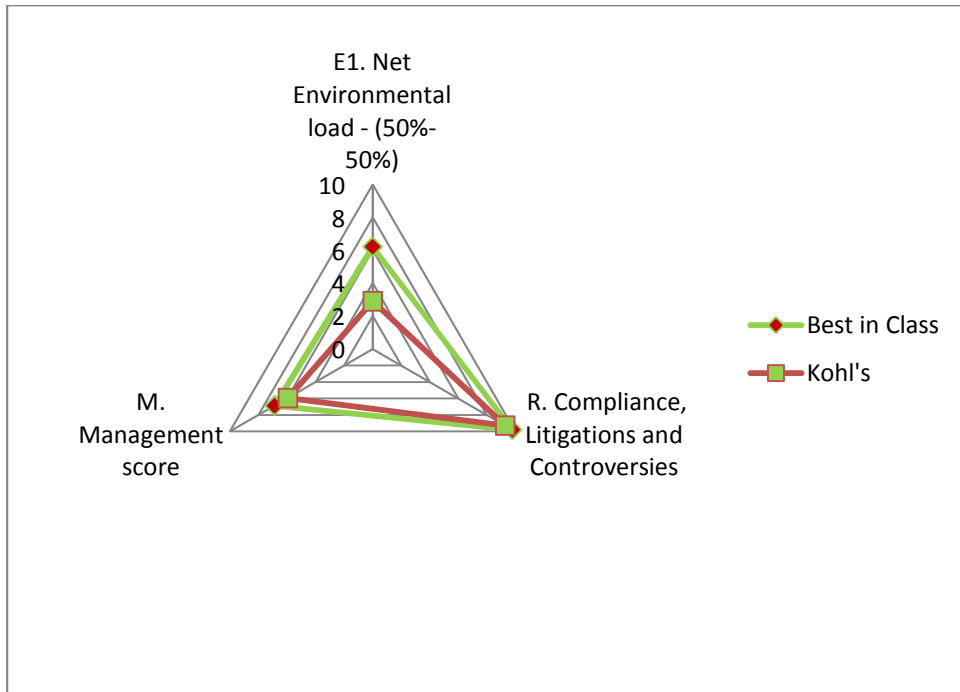


Figure B.2 Primary Variable Comparison Spider Chart - Kohl's

<u>Kohl's</u>	<i>Weight</i>	<i>Rating</i>
B Environmental Load from in house processes	50%	5.595
B.1 Energy Use	20%	7.3
B.1.1 % Renewable used 50% Green Power.	35%	C
B.1.2 Target % of renewable and timeframe 100% by 2010 end.	10%	A
B.1.3 Target reduction of energy usage and timeframe No specific energy reduction targets.	10%	F
B.1.4 Energy reduction efforts disclosure As of January 2010, over 399 Kohl's stores have earned the ENERGY STAR distinction and Kohl's leads the retail sector in labeled facilities. Kohl's actively uses the ENERGY STAR portfolio manager for all of its locations to continue to measure energy performance and to find new ways to be more efficient. Awarded Green Power Leadership award for photovoltaic solar generation. EPA's top 2 green power purchases among retail and # 15 among all. They say they are largest single host of solar power production in NA. 67 stores are 40% powered by solar, target is 100 in near term. High efficiency spotlights were replaced in 102 stores in 2008. The move to this technology will save Kohl's nearly 6,000,000 kWh annually in electricity usage. This new spotlight replaced 3 traditional spots with a single fixture and is now included in all new store prototypes beginning in 2008. Through careful monitoring, the Central Energy Management system controls most interior and exterior lighting as well as heating and cooling systems at the stores. As a result of this program, Kohl's says it has one of the lowest energy usages per square foot in the retail industry. Upgrades were made in 2008 to include all store locations in this program. Over the course of 2009, Kohl's will replace office copiers in 593 stores with the ENERGY STAR-rated Xerox Work Centre 5655. These units use 30% less power. Kohl's IT group is upgrading Kohl's store monitors to liquid crystal display monitors in 2009. Manufactured with fewer chemicals, LCD monitors use 30% less power and produce less heat. Using Demand Response Controls, Kohl's reduced power usage in peak hours.	15%	A
B.1.5 Normalized energy use (Energy/ sales \$) Energy intensity = 78.1113.	15%	B
B.1.6 External verification The data is externally verified.	15%	A

Comment: Kohl's is the first retailer in the US committed to become carbon neutral by the year end. It also has earned Energy Star certification in about 20% of the stores. However, though

the company says the energy usage per sq ft is the lowest in the industry, the normalized energy intensity calculated using net energy usage/ sales\$ revealed Kohl's intensity to be higher than its peers Walmart, Target and IKEA and it does not reveal any specific energy reduction targets. Kohl's has invested heavily in Green Power as well as energy efficiency activities.

B.2 GHG emissions: 40% 7.3

B.2.1 Normalized GHG usage in 08. 35% D

GHG intensity =GHG/ Revenue = .998/16.389 = .060895 tons of CO2.

B.2.2 Target reduction and timeframe 10% A

To be carbon neutral by year end 2010.

B.2.3 Carbon reduction efforts 30% B

Supply Chain emissions reported, 5% increase in emissions over 2007. Kohl's achieved a 1.14 out of 1.24 rating for miles traveled in 2007 on EPA Smart Way-rated carriers, which was a 35% improvement over the previous year's rating. The EPA recognized Kohl's with the EPA Smart Way Excellence Award in October 2008 for its leadership in efficient transportation. Corporate Carpooling Program was expanded in 2008 to offer 83 preferred parking locations at Kohl's Corporate Headquarters. Won Green Power Leadership Award 09. In October 2008, Kohl's opened 47 stores which will be certified as LEED retail locations in early 2009. Another 17 new stores are in construction using the LEED precertified prototype and will open in early 2009. The company says this accomplishment makes Kohl's the operator of the most environmentally friendly retail stores in the United States. 40% of inbound transportation moves on rail.

B.2.4 Partnerships 5% A

EPA Smart way Excellence award for 2008. Climate leaders partner, United States Green Building Council, Business for Social Responsibility, and Wisconsin Partners for Clean Air.

B.2.5 External verification 15% A

Data reported to Carbon Disclosure Project. Externally verified.

B.2.6 Risk Assessment team 5% A

Risk Assessment Team in place.

Comment: Though there have been enormous investments in Green Power and energy efficiency projects, GHG intensity for Kohl's is much higher than its peers Walmart or Target. One of the few retailers to be a member of Green Building Council to make greener buildings.

B.3 Total Waste 20% 3

B.3.1 Normalized waste data:	10%	F
Not known.		
B.3.2 Recycling/ reclaimed/used in energy production rate:	25%	2.4
Operational waste:	15%	C
The company states some of the waste is recycled.		
Construction waste:	10%	F
B.3.3 Reduction targets and timeframe:	10%	F
Not known.		
B.3.4 Reduction/ recycling/ reuse efforts:	25%	C
They say they have a waste reduction program in place, have quantitative mixed results for paper and 100% plastic recycled. Mohawk Recover Program recycled old carpet from 26 remodeled stores and 910,000 pounds of carpet was diverted from local landfills. Data disclosed for IT recycling efforts as absolute instead of %, eliminated paper paychecks.		
B.3.5 Efforts to reduce/ treat toxic waste:	5%	F
No information on targets to reduce.		
B.3.6 Partnerships:	5%	A
Waste wise.		
B.3.7 Non biodegradable waste reduction efforts:	10%	D
Reusable shopping 350,000 sold, does not say what material.		
<u>Comment:</u> Some amount of waste has been recycled though, the waste data, recycling rate, reduction targets for toxic, bio degradable and construction wastes are not included.		
B.4. Water use:	5%	2.4
B.4.1 Normalized water data:	40%	F
Not available.		
B.4.2 Recycling/ reuse/ reduction target and timeframe:	20%	F
No information.		
B.4.3 Recycling / reuse/ reduction efforts:	40%	C
Kohl's Store Planning team is partnering with the United States Green Building Council (USGBC) to modify all new store prototype plans to meet the USGBC "Leadership in Energy and Environmental Design" (LEED) criteria. There are a variety of improvements using the Retail Portfolio Program in Kohl's prototype store design particularly in energy and water efficiency.		

Comment: Not much information regarding water data or reduction targets, though LEED certification in itself leads to good water management.

B.5 Paper/Wood use:	5%	4.7
B.5.1. Normalized wood/paper data:	25%	F
Not known.		
B.5.2 Recycling/ reuse/ reduction target and timeframe:	10%	F
Data not available.		
B.5.3 Recycling / reuse/ reduction efforts:	30%	D
95,040 tons of paper and cardboard were recycled. Not sure what% was recycled.		
B.5.4 Amount certified by FSC or SFI or other:	35%	A
In 2008, 100% of all paper purchased was from certified sources. Source not mentioned.		

Comment: Key data such as reduction targets missing. However, one of the few retailers to have paper purchased 100% from certified sources. However, the certified source has not been mentioned and thus unclear.

B.6 Packaging (Paper/wood used)	5%	1.2
B.6.1 Packaging reduction efforts and target:	20%	F
Not known.		
B.6.2 Sustainable materials integration	20%	C
Some of the packaging is from recycled materials. Gift Boxes 100%, Restroom Papers 100%, Merchandise Bags 10-30%, E-Commerce Shipping Cartons 30%, Advertising Paper 20.5%, Office Supplies 12%.		
B.6.3 Avoidance of toxic materials	25%	F
Not known.		
B.6.4 Supplier screening for sustainable packaging	30%	F
No information available.		
B.6.5 Recycling rate of packaging materials	5%	F
Not known		

Comment: Not much data disclosed on the above.

B.7. Land use/ Natural resources conserved:	5%	4
B.7.1 Normalized Land use:		
Not known		

B.7.2 Land given back to wilderness, etc: 100% D
 Kohl's will not do business with partners who prohibit the International Trade in Endangered Species of Wild Fauna and Flora, as listed in the United States Endangered Species Act of 1973.

Comment: No data available on the above.

B.8. Other industry specific load: None

	<i>Weight</i>	<i>Rating</i>
A Environmental load from Products	45%	0.876
A.1 Resource Efficiency of products offered	10%	0
A.1.1 Net reduction target No information.	30%	F
A.1.2 No of Energy star/ eco label products offered No information.	35%	F
A.1.3 Reduction efforts No information.	30%	F
A.1.4 Partnerships No information.	5%	F
A.2 Materials used in products	30%	2.92
A.2.1 Avoidance of toxic substances	50%	2.4
A.2.1.1 RoHs Compliant Not known.	10%	F
A.2.1.2 REACH compliant Not known.	15%	F
A. 2.1.3 Green Screen tool All Kohl's suppliers are bound minimum environmental requirements guided by Kohl's national and international standards where applicable, prohibiting the use of ozone depleting chemicals.	40%	C
A.2.1.4 Toxic chemicals reduction efforts in products None.	30%	F
A.2.1.5 GM foods stocked / Use of GM No mention of GM substances used.	5%	F
A.2.2 Integration of sustainable substances in products	40%	1.8
A.2.2.1 Organic/ renewable products offered	25%	F

No information.
 A.2.2.2.Substitution of non toxics by toxics 25% F

No information.
 A.2.2.3 Certified raw materials 50% C

Paper is 100% certified.
A.2.3 Animal testing 10% A

The primary cosmetic manufacturers used by Kohl's do not perform any testing on animals.

A.3 Recyclability/take back/recoverability/reusability of products 15% F

No information.

A.4 Measures to taken to extend the useful life of products. 5% F

No information available.

A.5 Eco-products/ technology offered 10% F

No information.

A.6 Environmental services of products offered

Kohl's has a dedicated website called Green Scene, which it uses to educate and communicate to its stakeholders.

A.7 Green product innovation 30% F

None.

Comment: Kohl's, as one can see, has invested almost all of its efforts on environmental load from in house processes. However, there is load from products it sells as well. By far, Kohl's will make substantial cost savings on energy, reducing GHG and building green buildings. However, when it comes to load from products it sells, Kohl's lags far behind its industry peers, Walmart or JC Penney. This will confuse a customer whether to buy an eco friendly product for from an eco friendly store. Thus, a balanced approach to greening will make decisions easier for the customer as well.

R. Environmental Compliance and Controversies: (Litigation, compliance and controversies)

9.3

	Weight	Rating
R.1.A brief history of compliance Litigation and Compliance history: None.	15%	A
R.2. Recent Compliance for violations/fines in the most recent year: None.	15%	A
R.3.Accidents/ Spills/ Permit denials/ Shut ins: Spills: None.	15%	A
Accidents: None.	10%	A
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities -None		
R.5. Other historic liabilities - None		
R.6. Superfund status - No of Superfund sites: 0	20%	A
R.7.Litigations/ Government proceedings:	10%	A
R.8. Environmental controversies through products/ services: Metallic costume bracelets were recalled in thousands in 2005 due to lead poisoning hazard.	40%	B
R.9. Environmental controversies otherwise: None.		

M. Management Score

6.32

	Weight	Rating
M.1. Environmental strategy	15%	7.6
M.1.1 Policy: The company has a policy that covers 100% of employees on sustainability. Their mission:-To be a leading environmentally responsible retailer through focused resource stewardship by their associates, vendors and business partners.	15%	A
M.1.2 Integration with Core business: Partially Yes. Kohl's Resource Stewardship Strategies are to Maximize Energy Efficiency, Minimize Waste, Improve Building Design, Reduce Climate Damaging Emissions, and Encourage Environmental Values.	25%	C
M.1.3 Consistency in operations (International/ domestic): All environmental targets are consistent within the US.	25%	A
M.1.4. Active commitment of senior management: Active commitment of senior management is present but only in resource stewardship areas.	15%	C

M.1.5. Commitment to use of targets and monitoring:	10%	C
Most data is monitored annually and reported, though some key data such as, GHG reduction target and waste generated are missing. The load from product side is completely missing.		
M.1.6. Differences between actual and disclosed:	10%	C
Kohl's GHG data alone has been verified and shows no discrepancy anywhere.		
M.2. Corporate Governance	15%	5.2
M.2.1 Board Structure CSO:	40%	A
Vice President of Corporate Sustainability, Senior Manager Corporate Sustainability and Senior Energy Manager. This team reports to the Executive Vice President of Store Planning and Logistics and this EVP is the executive sponsor within Kohl's organization. The Executive Vice President of Store Planning and Logistics is updated on a monthly basis on all sustainability programs, including climate change. The Kohl's Board of Directors is updated annually on all sustainability programs including climate change in the annual 'Report to Shareholders on Social Responsibility'.		
M.2.2. Environmental factor in compensation:	30%	F
No information available on this.		
M.2.3. Green investment	30%	B
No exact data though Kohl's says it has invested tens of millions of \$ in green initiatives.		
M.3. Environmental Management Systems	15%	4.8
M.3.1. % Number and Qualifications of separate Environmental staff:	15%	A
Apart from the senior Management as in M.2.1, associates act as captains to promote awareness in stores.		
M.3.2. ISO 14000 or other certified EMS, international certifications:	30%	F
Lack of information/ no disclosure if they have any concept of EMS.		
M.3.3. Internal/ external Environmental Performance Indicators:	10%	C
Targets have been identified in some areas and are monitored annually.		
M.3.4. Existence and adequacy of data collected, reported, managed:	20%	C
Some of the data are collected, reported and managed adequately and clearly.		
M.3.5. LCAs, dfenvt and other environment tools used:	25%	C
No product tools used. ESCM used. Energy Management Tools used.		

M.8.3. % Number of environmentally certified suppliers: 25% F
None disclosed.

M.8.4. Environmental Supply Chain used: 30% C
Responsible purchasing has been initiated for paper through 100% certifications. However, it does not specify what certification it uses. There is no preemptive tool to chemically screen products, though all suppliers are bound by its minimal environmental requirements. Other transport efforts are detailed in GHG efforts. No mention of green manufacturing, production planning and distribution activities.

APPENDIX C

J C PENNEY'S: COMPANY REPORT

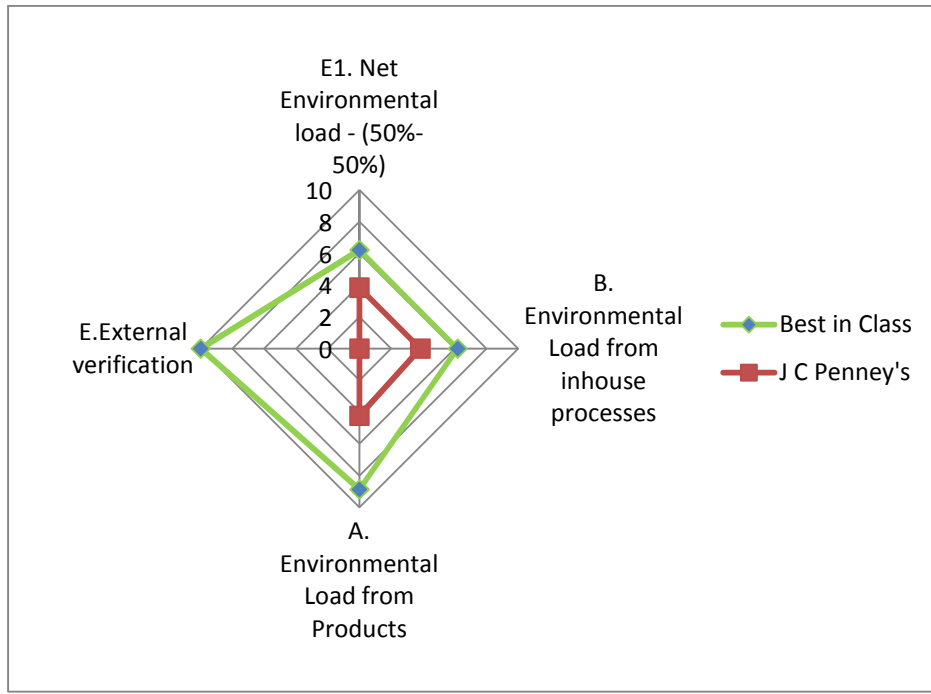


Figure C.1 Net Environmental Load Split up Spider Chart – J C Penney

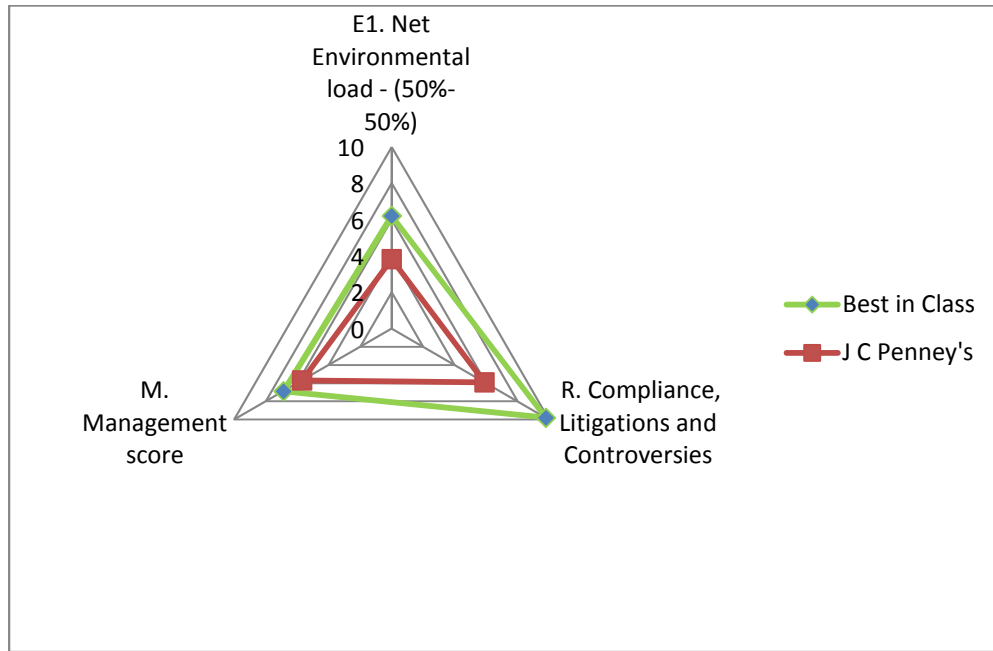


Figure C.2 Primary Variable Comparison Spider Chart – J C Penney

<u>J C Penney</u>	<i>Weight</i>	<i>Rating</i>
B. Environmental Load from in house processes	45%	4.28
B.1. Energy Use	20%	3.5
B.1.1. % Renewable used	35%	E
25% of energy in 9 stores in Ca and NJ.		
B.1.2. Target % of renewable and timeframe	10%	E
Details not disclosed. Began a pilot program to install wind turbines at J C Penney's 1.6 million-square-foot distribution center in Reno, Nevada.		
B.1.3. Target reduction of energy use and timeframe	10%	B
JCP has set a goal of attaining Energy Star status at 200 or more stores by 2011.		
B.1.4. Energy reduction efforts disclosure	15%	A
ENERGYSTAR Partner of the Year for Energy Management – the only retailer to receive an ENERGY STAR Partner Award for efforts to manage energy consumption. 47 stores received ENERGYSTAR certifications. Have Energy star targets for 2011. Net zero partner for buildings. Home office earned Energy star status. JC Penney has been recognized as an ENERGY STAR Partner of the Year twice, and is receiving Sustained Excellence recognition in 2008. Key accomplishments include: earning the ENERGY STAR for 47 retail stores in 2008 after becoming the first retailer to earn the ENERGY STAR when the label became available for retail stores in 2007; implementing a corporate policy to build all new stores to achieve, Designed to Earn the ENERGY STAR status. Completing a 5-year project in which more than 800 stores received new or updated energy management systems, resulting in energy savings of almost 6%. Providing district and store managers with their monthly energy performance ratings and focusing on performance improvement, implementing lighting retrofits in 74 stores in 2008, for a total of more than 240 stores since 2007 saving 27m Kwh. Expanding its Advanced Energy Management pilot program after realizing savings of 15% in 10 trial stores. An associate at each store has been named energy captain and takes responsibility to communicate the importance of energy and resource conservation to the store team. Net energy consumption last year was 2.27 million Mwh, of which .428 is self produced through stationary fuels.		
B.1.5. Normalized energy use (Energy/ sales \$)	15%	E
Net revenue in 2008 = \$ 18 .486		
Energy intensity = $2.27/18.486 = 122.7956$, in 2007 was 114.301.		
B.1.6. External verification	15%	F
The company says data is not externally verified.		

Comment: The energy intensity of normalized energy usage is very high compared to its industry peers, almost more than twice the number of Walmart nearby. JCP has invested heavily in energy efficiency projects, which makes sense, since its energy usage itself is very high. The company says that its usage was almost the same as last year despite opening new stores. However, its energy intensity that includes its sales\$, has in fact increased this year. Also, the company has invested lesser than its peers like Kohl's, Walmart or Macy's in renewable power which should affect its GHG as well. Hence, JCP needs to seriously look at its energy usage, reason its intensity is so high despite investing heavily in energy efficiency programs. Otherwise, Net zero Buildings partnership is an innovation as far retail industry is concerned.

B.2. GHG emissions:	40%	5.3
B.2.1 Normalized GHG emissions in 08 (International)	35%	E
Domestic		E
GHG intensity =GHG/ Revenue = 1.22/19.86 = .06599 tons CO2/\$		
B.2.2. Target reduction and timeframe	10%	F
No targets specified.		
B.2.3. Carbon reduction efforts	30%	A
1.22 million over last year's 1.21 million metric tons of GHG despite opening 35 new stores, 48 shops, increasing store hrs, etc .Opened a pilot "green" concept store in Denver to serve as a test for a number of green building concepts. Bid templates continue to incorporate SmartWay Partnership as an evaluation criterion in all current bids. Currently, 85% of freight uses SmartWay carriers. No idling policy implemented. Increased the utilization of empty miles by 51% in 2008 over 2007, converting potentially empty trailers into 11,000 loads covering 1.3 million miles. This resulted in savings to JC Penney of \$2.5 million and a net reduction of CO2 emissions of 4.1 million pounds. Leading participant in the VICS Empty Miles Backhaul Initiative. VICS—the Voluntary Inter industry Commerce Solutions Association that developed an online marketplace through which freight shippers and carriers can offer their available empty-mile truck lanes to other shippers. Committed to providing low-emissions, clean diesel technology to its Pacer transport carrier fleet. Operating on ultra-low sulfur truck reduced nitrogen oxide emissions by 78% and particulate matter emissions by 90% compared with a typical truck it replaces.		
B.2.4. Partnerships	5%	A
SmartWay, Coalition for Responsible Transportation (CRT), Voluntary Inter industry Commerce Solutions Association (VICS).		

B.2.5. External verification 15% D
 Data reported to CDP but not externally verified, though plans are in place to get it verified in future without a timeframe.

B.2.6. Risk Assessment team 5% A
 Climate change risks have been assessed such as physical, regulatory as per CDP report.
Comment: Since the energy intensity was high, as forecasted, the GHG intensity is also very high compared to its peers, almost twice as much as Marks and Spencer's or 20% more than that of Walmart. The company's absolute GHG has not increased significantly even after opening new stores. However, the GHG intensity has increased from .061 to .066. Also, there is no GHG reduction target specified. A number of efforts have been made on the transport front such as utilizing backhauls, make some cost savings as well as reducing GHG. Data not externally verified. A pie chart like IKEA, showing which areas contribute to GHG or carbon foot printing, can help JCP focus its efforts on GHG reduction.

B.3. Total Waste 20% 2.9

B.3.1. Normalized waste data: Not known. 10% F

B.3.2. Recycling rate: 25% 3.2

The company states it has a recycling rate of 75% for solid waste from stores, 80% for DC's redirected from landfill.

Operational – 75-80% 10% B

Food - No data 5% F

Construction - No data 10% F

B.3.3. Reduction targets and timeframe: 10% F

No reduction targets though JCP claims all sites are working to continue increasing their recycling rates.

B.3.4. Reduction/ recycling/ reuse efforts: 25% C

Reno Logistics Center estimated its recycling reached 93% in 2008. Milwaukee Logistics Center has installed a compactor to recycle expanded polystyrene used in packaging by reducing the polystyrene at a ratio of 50:1 to create blocks that can be easily transported and recycled into construction material. It is planned to annually recycle about 14,000 pounds (60,000 cubic feet) of expanded polystyrene. Food waste and compostable disposable items from the cafeteria are composted. Stores and logistics centers recycled approximately 93,500 tons of cardboard, 4,400 tons of plastic and 8,500 tons of plastic hangers, which translates to approximately 165 million hangers.

B.3.5. Efforts to reduce/ treat toxic waste:	15%	F
No information on targets to reduce.		
B.3.6. Partnerships:	5%	F
None disclosed.		
B.3.7. Non biodegradable waste reduction efforts:	10%	C
Launched Reusable bag nationwide in November 2007, selling over 400,000 through 2008. Due to a St. John's Bay recycled polyester fleece product in 2008 sold, 4 million plastic bottles were reused and kept out of landfills.		
<u>Comment:</u> No information is available on construction and food waste targets or reduction efforts for toxic waste. No waste data available or target recycling rates for operations.		

B.4. Water use:	5%	6.4
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B.4.1. Normalized water data:	40%	A
1178 m gallons or 4,459,215.08 cu.m		
Normalized Water intensity = $4459215.08/18.486*1000 = 241.221$		
B.4.2. Recycling/ reuse/ reduction target and timeframe:	20%	F
No targets have been set or data disclosed for the US.		
B.4.3. Recycling / reuse/ reduction efforts:	40%	C
Utilized and have been evaluating low-flow or no-flow urinals in some of the locations. At the Home Office achieved water reductions with motion-controlled faucets and native landscaping.		
<u>Comment:</u> One of the first retailers in the US to understand water being an issue in future after energy and GHG and undertook efforts to footprint water data. For any retailer, like GHG, the indirect usage is much higher than its direct usage in stores and DCs. However, since no other retailer data was available to compare within the US, UK's Marks and Spencer's data was used for comparison. The analysis showed that normalized JCP usage was almost 4 times that of M&S usage.		

B.5. Paper/Wood use:	5%	4.1
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B.5.1 Normalized wood/paper data:	25%	F
Data not available.		
B.5.2. Recycling/ reuse/ reduction target and timeframe:	10%	E
Target is 100% of stores recycling paper for 09. Target is unclear since it does not say what % the recycling rate is.		
B.5.3. Recycling / reuse/ reduction efforts:	30%	C

Transmission of electronic contracts and phasing out contracts printed on paper, reduced the use of wood. In 2008, the home office recycled 744 tons of paper, cardboard. Conversion of cafeteria paper and plastic goods to recycled and biodegradable products made.

B.5.4. Amount certified by FSC or SFI or other: 35% C

All office paper purchased SFI-certified, published their first FSC-certified catalog.

Comment: No data is available on paper use or other forestry use in construction, stores, DC's, etc.

B.6. Packaging 5% 7.1

B.6.1. Packaging reduction efforts and target: 20% B

Major efforts are underway to develop a Company-wide packaging organization which will focus on innovation, reduction activities and the use of recycled materials. Reduce packaging weight by 2% by 2010.

B.6.2. Sustainable materials integration/ innovation 20% B

Changing the inserts for home products to a 74% post-consumer waste material and beginning to replace PVC bags with PEVA.

B.6.3. Avoidance of toxic materials 25% C

Work continues to identify PVC in other products and packaging and to evaluate alternatives. PVC bags being replaced with PEVA.

B.6.4. Supplier screening for sustainable packaging 30% B

JCP includes sustainability as a criteria in competitive bids and has a Supplier sustainability questionnaire, a self analysis of suppliers to be submitted on a regular basis. JCP says packaging is one area of procurement sustainability targets.

B.6.5. Recycling rate of packaging materials 5% F

Information not disclosed.

Comment: PEVA, an alternative for PVC does not require phthalate additives to achieve flexibility, Phthalates, in PVC leads to its toxicity. PEVA has also been used as an alternative to PVC for use in children's toys including teething rings and sandwich wraps.

B.7. Land use/ Natural resources conserved: 5% 0

B.7.1. Normalized Land use:

No data available.

B.7.2. Land given back to wilderness: 100% F

None.

B.8. Other industry specific load : None

	<i>Weight</i>	<i>Rating</i>
A. Environmental score from Products	45%	4.24
A.1 Resource Efficiency of products offered	10%	5
Simply Green product line offers a category of Reduced, that either helps reduce energy use or is produced in such a way as to reduce impact on the environment during production.		
A.1.1 Net reduction target	30%	D
No specific targets but plan in place to reduce environmental impact in products offered in Simply Green line called Reduced. No information on number of products.		
A.1.2. No of Energy star, eco label products offered	35%	D
Some products offered are self eco-labeled, though the exact % is not known.		
A.1.3. Reduction efforts	30%	B
The newly launched Quick-Dry Towel dries 33% faster than conventional towels and 20% faster than other towels making a “fast dry” claim, saving time, energy and money. This towel consumes and discharges 30% less water and requires 30% less dye and finishing chemicals in its manufacturing versus conventional towels.		
A.1.4. Partnerships	5%	F
None		
A.2 Materials used in products	30%	4.48
A.2.1 Avoidance of toxic substances	50%	3.6
Comply with new Lead and phthalate standards in CPSIA. Plans to replace PVC by spring 2009.		
A.2.1.1. RoHs compliance	10%	F
Not disclosed.		
A.2.1.2. REACH compliance	15%	F
Information not disclosed if compliant or not.		
A.2.1.3. Green Screen tool	40%	C
Restricted substances list posted on supplier website. The list is based on national and industry standards and stakeholder concerns. Only suppliers have access to the same. Better disclosure will help understand if contentious substances are included or not.		

A.2.1.4 Toxic chemical usage in products	30%	D
Comply with new Lead and phthalate standards in the Consumer Product Safety Improvement Act, CPSIA. Plans to replace PVC by spring 2009.		
A.2.1.5. GM substances used	5%	F
No information available.		
A.2.2 Integration of sustainable substances in products	40%	6.7
A.2.2.1 Organic products offered	25%	C
Offers Simply Green organic product line which have 70% raw materials, such as organic cotton or linen, which have been grown without chemical fertilizers or pesticides		
A.2.2.2. Substitution of toxics by non toxics	25%	B
Plans are in place to convert shower curtains, curtain liners and bath mats to PVC alternates PEVA by spring 2009. Work continues to identify PVC in other products and packaging. JC Penney offers products from national brands like Levi's Eco jeans and the Dockers Outdoor line, which was jointly developed by JC Penney and Levi Strauss.		
A.2.2.3. Certified seafood, wood and other raw materials	50%	C
Simply Green products designated as renewable must be made from at least 25% renewable materials such as bamboo, sorona, ingeo, soy, capiz shells or wood that comes from certified, well-managed forests. Increase purchased certified forest products by 5% per year through 2011.		
A.2.3 Animal testing	10%	F
No information is available on this subject.		
A.3. Recyclability/upgradability/reusability of products	15%	D
JC Penney's procurement group acquires not-for-resale products and services for the enterprise. Procurement supports JC Penney's sustainability efforts in electronics disposal and recycling. No information is available on recyclability/reusability of other products.		
A.4. Measures to taken to extend the useful life of products.	5%	F
No information.		
A.5. Eco-products/ technology offered	10%	C
A wide range of merchandise from apparel to home accessories bears the Simply Green mark, which highlights customers' merchandise that lessens the impact on the environment such as organic, recycled, reduced impact and renewable criteria set by JCP. Simply Green products		

designated as recycled must contain at least 25% recycled materials, such as recycled cotton, recycled glass (home products) or recycled polyester made.

A.6. Environmental services offered

None disclosed.

A.7. Green product innovation

30% D

A PVC alternative PEVA has been successfully used in many areas. St. John’s Bay recycled polyester fleece was made from over 4 million reused plastic bottles. The quick dry tower mentioned in A.1.3 is another product innovation. Eco jeans in liaison with Levi’s are made with sustainable materials.

Environmental Compliance and Controversies: (CLC)

5.9

	Weight	Rating
R.1.A brief history of compliance: Litigation and Compliance violations history: None	15%	A
R.2. Recent Compliance for violations/fines in the most recent year: None.	15%	A
R.3.Accidents/ Spills/ Permit denials/ Shut-ins:- Spills: None.	15%	A
Accidents: None.	10%	A
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGP’s waste removal, industry specific liabilities. (Rated as R.7) – Not applicable		
R.5. Other historic liabilities: None		
R.6. Superfund status: No of Superfund sites: 18 Efforts to clean up: Data not available	15%	C
R.7.Litigations/ Government proceedings: None.	10%	A
R.8. Environmental controversies through products/ services: Since 2004 there have been recalls of more than 1,300,000 potentially hazardous JC Penney retailed products, including toys, children’s clothing, Christmas ornaments, and electrical appliances.	20%	D
R.9. Environmental controversies otherwise. None.		

	<i>Weight</i>	<i>Rating</i>
M. Management Score		6.16
M.1. Environmental strategy	15%	9.4
M.1.1 Policy:	15%	A
<p>The company has a policy that covers 100% of employees on sustainability. Sustainability mission: Our corporate social responsibility platform – JC Penney C.A.R.E.S. – is integral to achieving this, as its principles underlie the JC Penney, where Community, Associates, Responsible Sourcing, Environment and Sustainable Products stand for C.A.R.E.S.</p>		
M.1.2 Integration with Core business:	25%	A
<p>JCP says sustainability is integrated in its core business. JCP says it has a deep dedication to socially responsible practices woven into the way they conduct their business at JC Penney.</p>		
M.1.3 Consistency in operations (International/ domestic):	25%	A
<p>JCP has stores only in the US.</p>		
M.1.4. Active commitment of senior management	15%	A
<p>The Corporate Social Responsibility Steering Committee acts as the leadership team reports to the Executive Board. Reports are made as appropriate to the Corporate Governance Team in the Board.</p>		
M.1.5. Commitment to use of targets and monitoring	10%	C
<p>Key goal such as GHG reduction target is missing. Overall, partial use of targets and monitoring.</p>		
M.1.6. Differences between actual and disclosed:	10%	B
<p>Most objectives lack clarity in locking targets either in the form of timeframes or a definite number of units in the target to measure progress. All data need external verification. There are few differences in reporting such as number of stores that have Energy Star certification between CDP report and CSR reports.</p>		
M.2. Corporate Governance	15%	7
M.2.1 Board Structure CSO:	40%	A
<p>There is no Board Committee for climate change. However, the Corporate Governance Committee of the Board has oversight responsibility in this area. Climate change and other environmental issues are one of the focus areas for Corporate Social Responsibility Steering Committee which reports to the Executive Board. Reports on environmental performance, including climate change, are made to the Executive Board and to the Corporate Governance Committee of the Board, as appropriate.</p>		

M.2.2. Environmental factor in compensation:	30%	D
The company says it does not provide any incentive mechanisms for climate change factor in compensation. Sustainability goals are included for the group and for individual Associates in the appraisal process.		
M.2.3 Amount invested in greening initiatives	30%	C
Exact amount not known. JCP says it has invested tens of millions of \$ until now in green energy.		
M.3.Environmental Management Systems	15%	4.2
M.3.1. % Number and Qualifications of separate Environmental staff:	15%	C
The Corporate Responsibility Steering Team, along with Associates as Captains, work on environmental issues.		
M.3.2. ISO 14000 or other certified EMS, international certifications:	30%	F
Lack of information/ no disclosure if they have any concept of EMS.		
M.3.3. Internal/ external Environmental Performance Indicators:	10%	C
Targets have been identified in some areas and are monitored though more clarity is required in indicators such as timeframe, etc especially in core goals such as GHG, etc. Water targets does not exist either.		
M.3.4. Existence and adequacy of data collected, reported, managed:	20%	C
Some data are clearly/adequately collected, reported and managed.		
3.5. LCAs, dfenvt and other environment tools used (TQEM):	25%	C
JCP uses Environmental Supply Chain, dfEnvnt.		
M.4. Audit (Existence, adequacy and frequency): Internal/ External	10%	D
In 2008, JC Penney conducted 1,388 legal compliance audits of factories and mills. Non-compliant factories that cannot or will not meet the requirements to become compliant are suspended and not permitted to produce JCP. In 2008, 41 factories were suspended due to non-compliance issues. There is no information if external audits were conducted. Also, no data if JCP itself was environmentally audited as a company.		
M.5. Reporting:	10%	C
Reporting is regular, not externally verified. External reporting covers all of its sustainability activities in the form of Corporate Sustainability Reports and reports to Carbon Disclosure Project, apart from which there are regular updates on the company website in the form of		

factsheets. Some activities are transparent, yet most of its activities require clearer information like targets, timeframes, etc.

M.6. Environmental Training & Development:	7.5%	C
Suppliers	50%	F
Not known.		
Employees	50%	A

In each of the 15 logistics facilities, Associates have formed Green Teams. These voluntary teams are focused on raising awareness and educating their fellow Associates on ways to reduce environmental impact, both in their workplace and at home.

M.7. Partnerships	2.5%	A
SmartWay partner, Department of Energy, Net Zero Buildings, VICS, WWF, and Energy Star EPA.		

M.8 Supplier Screening:	25%	3.9
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M.8.1 Environment screening for suppliers	30%	D
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Sustainability included as a criteria in competitive bids. Supplier sustainability questionnaire, a pilot program involves a selected group of existing key suppliers who will self-assess their sustainability programs by completing questionnaire administered by JC Penney procurement.

M.8.2. Supplier collaborated efforts	15%	C
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In 2008, JC Penney collaborated with an advocacy group and other leading apparel and retail companies to work in partnership with second-tier sundry suppliers to achieve fair, safe, healthy and environmentally-friendly working conditions. JC Penney Private Brands felt compelled to start a new program with second-tier supplier mills to review and encourage improvements in water quality.

M.8.3 Number of environmentally certified suppliers (ISO 14000)	25%	F
None disclosed.		

M.8.4 Environmental Supply Chain used	30%	C
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SmartWay partner. For transport details, refer to GHG efforts reduction. Responsible purchasing has been initiated in some areas. Restricted substances list on the supplier websites has been chosen to chemically screen products. No disclosure on environmental distribution, etc.

APPENDIX D
MACY'S: COMPANY REPORT

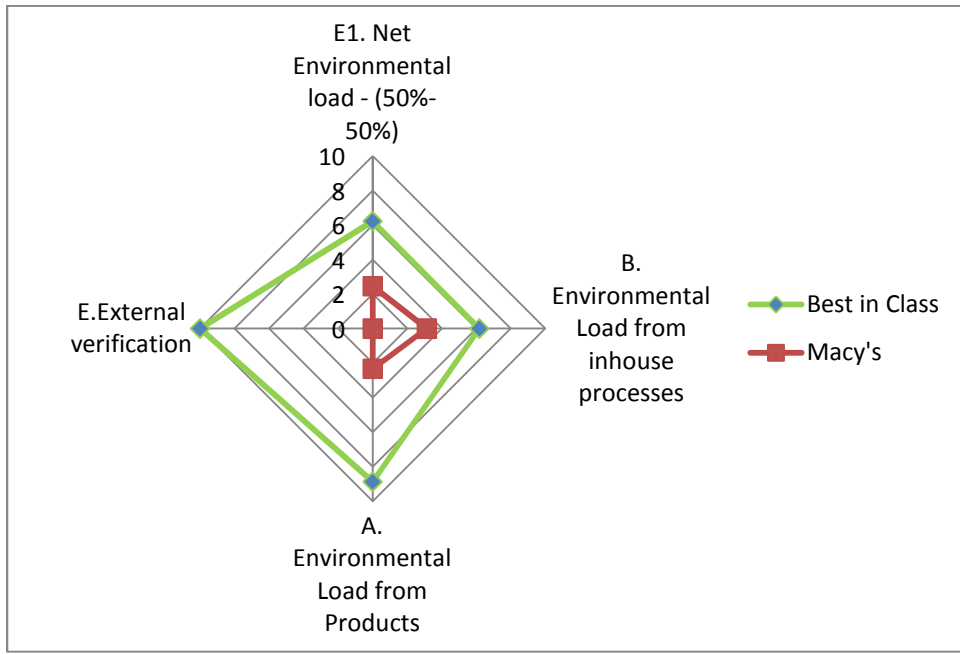


Figure D.1 Net Environmental Load comparison Spider Chart – Macy's

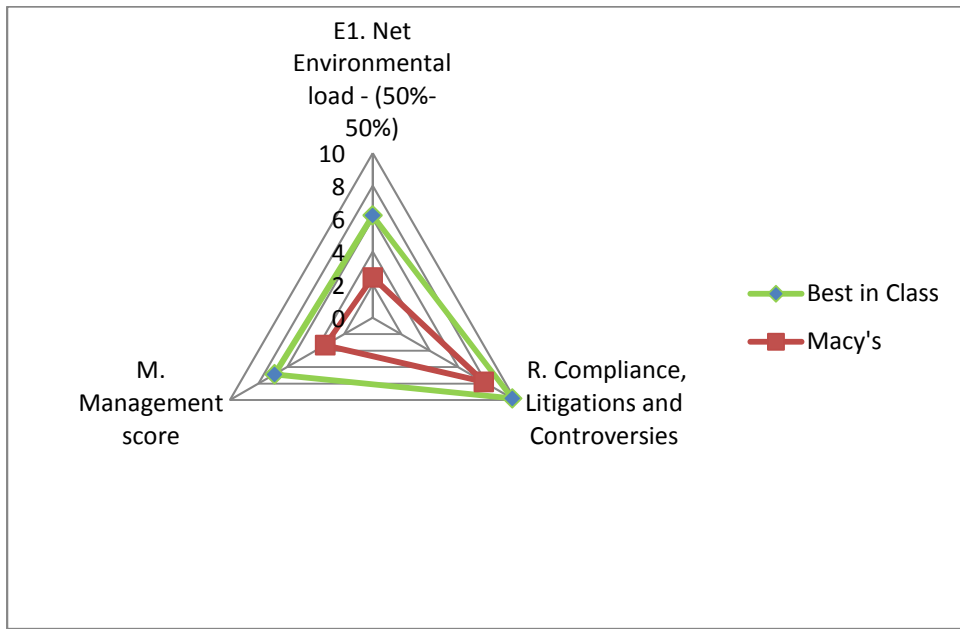


Figure D.2 Primary Variable Comparison Spider Chart – Macy's

<u>Macy's</u>	<i>Weight</i>	<i>Rating</i>
B. Environmental Load from in house processes	45%	3.14
B.1. Energy Use	20%	2.8
B.1.1. % Renewable used 3% Green Power till date.	35%	E
B.1.2. Target % of renewable and timeframe Increased use of renewable power sources (solar, wind, etc.) eight-fold by 2010 (from 2006 levels).	10%	D
B.1.3. Target reduction of energy use and timeframe Reduce total use of energy by another 10 percent to 15 percent by 2010 while the company has already reduced energy consumption by about 9 percent over the past five years.	10%	B
B.1.4. Energy reduction efforts disclosure 40 stores to have solar power. To reduce energy consumption between 20-40% in these stores. The current website data reveals solar panels have been installed on the roofs of more than 30 Macy's stores, primarily in California. The installation of solar panels in these locations has the environmental impact over 30 years of planting 21,000 acres of trees or providing power to more than 7,800 homes during the day. Macy's, Inc. is accelerating adoption of energy-savings technologies in its stores through two design products - one related to a new building and one for a retrofit of an existing store - now being conducted in conjunction with the U.S. Department of Energy National Technology Laboratory. Through these projects, it will develop a new commercial building design that will reduce energy consumption by 50 percent and retrofit an existing building design that will have a 30 percent energy savings. Among the tools is a companywide Energy Management Information System, a Web-based portal that allows management to pinpoint energy waste.	15%	C
B.1.5. Normalized energy use (Energy/ sales \$) Net revenue in 2008 = \$24.892b Energy intensity = Not known	15%	F
B.1.6. External verification Data not available.	15%	F

Comment: Macy's has a bigger share in the market than JC Penney or Kohl's. Yet, it has not divulged details of energy consumption data and has a renewable power consumption lesser than Kohl's or Walmart. The target consumption is less than 25% renewable by 2010. Macy's, though, has a good total energy usage reduction target compared to its peers. The company is also investing both in renewable power but more in energy efficiency projects.

B.2. GHG emissions:	40%	3.3
B.2.1 Normalized GHG emissions in 08 (International)	35%	F
Domestic		F
GHG intensity = Not yet measured by Macy's.	15%	C
Target is to design stores that are 50% energy efficient and retrofit existing stores that make them 30% energy efficient. No specific GHG targets.		
B.2.3. Carbon reduction efforts / innovation	30%	C
Same as Energy reduction efforts. No information on transportation, refrigerants and other GHG reduction efforts.		
B.2.4. Partnerships	5%	B
US EPA Green Power Leadership Award.		
B.2.5. External verification	10%	F
No data disclosed.		
B.2.6. Risk Assessment team	5%	A
Climate change risks have been assessed such as physical, regulatory as per CDP report.		
<u>Comment</u> :-. Again, Macy's though, bigger than Kohl's and JCP, has not measured its GHG inventory, and has no specific targets other than energy reduction targets already mentioned. Climate change risks, however have been assessed.		

B.3. Total Waste	20%	4.1
B.3.1. Normalized waste data: Not known.	10%	F
B.3.2. Recycling rate:	25%	5.6
The company states that nearly 75 percent of the paper used in advertising catalogs or direct mailers was recycled or certified.		
Operational- 75%	15%	B
Construction –They say they have been recycling but no data available.	10%	D
B.3.3. Reduction targets and timeframe:	10%	E
None disclosed but plans in place for waste reduction.		
B.3.4. Reduction/ recycling/ reuse efforts:	25%	C
By the end of 2009, the company is expecting to replace its clear plastic garment hangers with black ones that are lighter, require less material and are 100 percent recyclable. The company uses about 300 million hangers each year. In fall 2008, Macy's replaced its laminated handled shopping bags with new ones made from Kraft paper with 30 percent recycled materials. The new handled shopping bags are recycled and recyclable. 100% reusable cotton tote bags sold.		

B.3.5. Efforts to reduce/ treat toxic waste: 15% B

No information on targets to reduce.

B.3.6. Partnerships: 5% F

None known.

B.3.7. Non biodegradable waste reduction efforts: 10% A

The company's online businesses - macys.com and bloomingdales.com - began in 2008 to use loose fill in-the-box packing material that is 100 percent biodegradable, compostable and recyclable. The material is used to prevent damage to fragile merchandise as it is shipped to customers. Previously, the company used 'packing peanuts' (synthetic, non-biodegradable material) for this purpose. The new material is made from raw ingredients including pure corn and potato starch. It breaks down in water in nine minutes and will not harm the environment. (Each year, Macy's, Inc. uses approximately 3.1 million cubic feet of in-the-box packing material. Looking for alternatives for PVC. Macy's uses more than 43 m shopping bags annually. All bags are now made with Kraft paper with 30% recycled material. This bag is 100% recyclable.

Comment: It is not clear if Macy's has completely removed plastic bags or not. Also, if paper bags are used, it is not clear, what impact it has on paper use.

B.4. Water use: 5% 0

B.4.1. Normalized water data: 40% F

Data not available.

B.4.2. Recycling/ reuse/ reduction target and timeframe: 20% F

No specific targets.

B.4.3. Recycling / reuse/ reduction efforts: 20% F

No information disclosed.

Comment: No information.

B.5. Paper/Wood use: 5% 3.9

B.5.1 Normalized wood/paper data: 25% F

Data not available

B.5.2. Recycling/ reuse/ reduction target and timeframe: 10% B

Reduce the amount of paper used by at least 20 percent by 2010 (from 2006 levels). Increase the percentage of recycled (10 percent PCW or higher) and/or third-party certified paper used by 20-fold by 2010 (from 2006 levels) to at least 50 percent.

B.5.3. Recycling / reuse/ reduction efforts:	30%	B
In 2008, nearly 75 percent of the paper used in advertising catalogs or direct mailers was recycled or certified. Macy's says they will use fewer paper-related products, recycle more and seek to use paper made with post-consumer waste, migrate more of output from paper to electronic/ digital, including large-scale projects such as monthly customer billing statements.		
B.5.4. Amount certified by FSC or SFI or other:	35%	E
Not known exactly and by whom the certification was made.		
<u>Comment:</u> No data is available on paper use or other forestry use in construction, stores, DC's, etc.		

B.6. Packaging	5%	2.9
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B.6.1 Packaging reduction efforts and target:	20%	C
Macy's stores and macys.com continue to use recyclable folding gift boxes and wrapping tissue made from 100 percent recycled material. Each year, Macy's uses approximately 48 million folding gift boxes and 255 million sheets of wrapping tissue. Bloomingdale's wrapping tissue (75 million sheets used each year) converted to 100 percent recycled material in spring 2008. In addition, Bloomingdale's offered a 100 percent recycled paper and ribbon gift-wrapping option for holiday 2008.		

B.6.2 Sustainable materials integration	20%	C
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Use of recycled paper in all its foldable gift boxes and wrapping tissue.

B.6.3. Avoidance of toxic materials	25%	E
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Looking for alternatives for PVC in packaging.

B.6.4. Supplier screening for sustainable packaging	30%	F
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No information declared.

B.6.5. Recycling rate of packaging materials	5%	C
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100% for folding boxes and wrapping tissue.

Comment: No data on what the reduction targets are or about packaging other than foldable boxes.

B.7. Land use/ Natural Resources conserved	5%	E
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B.7.1. Normalized Land use:		
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No data.

B.7.2. Land given back to wilderness:	5%	E
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Macy's says whenever possible and sensible within the context of business requirements, Macy's, Inc. will be as aggressive as possible in changing for the better to preserve endangered forests, wildlife, water quality and eco-systems. The building materials used in stores will be environmentally certified whenever reasonably possible.

B.8. Other industry specific load: None

	<i>Weight</i>	<i>Rating</i>
A. Environmental score from Products	45%	2.32
A.1 Resource Efficiency of products offered	20%	0
No disclosure.		
A.1.1 Net reduction target	30%	F
Medium target some electronics only.		
A.1.2. No of Energy star, eco label products offered	35%	F
Some products offered are eco-labeled, though the exact % is not known.		
A.1.3. Reduction efforts	30%	F
A.1.4. Partnerships	5%	F
A.2 Materials used in products	30%	1.74
A.2.1 Avoidance of toxic substances	50%	1.8
A.2.1.1. RoHs compliance	10%	F
No information		
A.2.1.2. REACH compliance	10%	F
Information not disclosed if compliant or not.		
A.2.1.3. Green Screen tool	45%	F
There is no formal green screen tool but all suppliers are bound by federal law of US.		
A.2.1.4. Toxic chemical usage in products	30%	C
Target says guests will find personal care products that aren't tested on animals and that are free of synthetic ingredients like parabens, phthalates and sodium lauryl sulfates. No information if the same extends to other products like reducing phthalates in plastic parts or BPA in baby bottles.		
A.2.1.5. GM substances used.	5%	F
No information available.		
A.2.2 Integration of sustainable substances in products	40%	2.1
A.2.2.1 Organic/ renewable products offered	25%	D
A few organic and other eco- friendly products are offered in its website Ecoshop.		

A.2.2.2. Substitution of toxics by non toxics	25%	E
Phasing out PVC in shower curtains. No timeframe mentioned.		
A.2.2.3. Certified seafood and other raw materials	50%	F
None disclosed.		
A.2.3 Animal testing	10%	C
Target says guests will find personal care products that aren't tested on animals.		
A.3. Recyclability/upgradability/reusability of products	15%	F
No disclosure.		
A.4. Measures to taken to extend the useful life of products.	5%	F
No information.		
A.5. Eco-products/ technology offered	10%	C
Macy's offers a website 'Turn over a new Leaf', where its eco-shop and sustainability facts are hosted. A few products are that organic and earth friendly are offered.		
A.6. Environmental services offered	None.	
A.7. Green product innovation	30%	D
The biodegradable packing material for boxes is made from raw ingredients including pure corn and potato starch. It breaks down in water in nine minutes and will not harm the environment. (Each year, Macy's, Inc. uses approximately 3.1 million cubic feet of in-the-box packing material)		
R. Environmental Compliance and Controversies: (CLC)		7.8
	Weight	Rating
R.1. A brief history of compliance:	15%	B
Litigation and Compliance history: Two Macys stores were found to be in violation of the following citations (1) failure to make a hazardous waste determination, and (2) failure to minimize releases for their spent lamps. Both the hazardous waste regulations and the universal waste rules and regulations apply for the second count with a penalty of \$49,725 each and compliance action of \$34,440 each.2 more facilities compliance violation by RCRA for \$6300 each and 2 of \$9000 each.		

R.2. Recent Compliance for violations/fines in the most recent year:	15%	B
General facility requirements violations by 2 facilities with penalty of \$49, 725 each in 2008.		
R.3. Accidents/ Spills/ Permit denials/ Shut-ins:		
Spills: None	15%	A
Accidents: None	10%	A
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities - None		
R.5. Other historic liabilities - None		
R.6. Superfund status, No of Superfund sites: 12	15%	D
Efforts to clean up: Data not available		
R.7 Litigations/ Government proceedings:	10%	A
R.8. Environmental controversies through products/ services:	20%	B
Macy's recently sold some 2,900 children's necklaces labeled as lead, nickel free. It turned out that the necklaces were not lead-free, with one federal report saying that lab results showed the necklaces as containing high levels of lead. Macy's then removed the necklaces from their shelves.		
R.9. Environmental controversies otherwise: None		

	<i>Weight</i>	<i>Rating</i>
M. Management Score		3.76
M.1. Environmental strategy	15%	8.7
M.1.1 Policy:	15%	A
The company has a policy that covers 100% of employees on sustainability. Macy's pledges to reduce the impact on the environment and join their customers for the better.		
M.1.2 Integration with Core business:	25%	B
Macy's will reduce the impact on the environment by using a 5 point plan it has detailed in its website. The company says it will do so by using fewer resources and providing eco-friendly products.		
M.1.3 Consistency in operations (International/ domestic):	25%	A
Macy's stores operate only in the US.		
M.1.4. Active commitment of senior management	15%	A
The Company has created a sustainability leadership team of senior executives pulled from many functions within the company to, among other things, determine how, within the bounds of		

good business decision-making, they can adopt business practices that help preserve and protect the environment.

M.1.5. Commitment to use of targets and monitoring 10% D

Targets have been identified in few areas and are monitored. Overall, few objectives have been identified, though they all require more data to validate their statements. For instance, data is lacking in product environmental load and key data such as GHG, energy usage, waste recycling rate, etc.

M.1.6. Differences between actual and disclosed: 10% B

There is some difference in website data such as number of hangers used. One place says 43 m while another says 63 m.

M.2. Corporate Governance 15% 4.4

M.2.1 Board Structure CSO: 40% B

An executive body has an overall responsibility for climate change. This apart, see M.1.4.

M.2.2. Environmental factor in compensation: 30% F

None offered.

M.2.3 Amount invested in greening initiatives 30% D

Not disclosed.

M.3.Environmental Management Systems 15% 3.1

M.3.1. % Number and Qualifications of separate Environmental staff: 15% B

See M.1.4.

M.3.2. ISO 14000 or other certified EMS, international certifications: 30% F

Lack of information/ no disclosure if they have any concept of EMS.

M.3.3. Internal/ external Environmental Performance Indicators: 10% C

Targets have been identified in some areas and are monitored annually.

M.3.4. Existence and adequacy of data collected, reported, managed: 20% D

Few data are clearly/adequately collected, reported and managed.

M.3.5. LCAs ,dfenvt and other environment tools used (TQEM): 25% E

Macy's uses dfEnvt tool with vendors to produce eco friendly products.

M.4. Audit (Existence, adequacy and frequency): Internal/ External 10% F

No information disclosed.

M.5. Reporting:	10%	D
Reporting is to Carbon Disclosure Project, apart from which there are regular updates on the company website. Few activities are transparent, yet most of its activities require clearer information like targets, timeframes, etc. Does not release CSR.		
M.6. Environmental Training & Development	7.5%	F
Suppliers	50%	F
No data on supplier training.		
Employee	50%	F
No information disclosed.		
M.7. Partnerships:	2.5%	E
EPA's Green Power Partner.		
M.8 Supplier Screening:	25%	1.8
M.8.1 Environment screening for suppliers	30%	D
There is no formal preemptive environmental screening for suppliers but all are bound by basic laws in the US.		
M.8.2. Supplier collaborated efforts	15%	F
No information.		
M.8.3 Number of environmentally certified suppliers (ISO 14000)	25%	F
None disclosed.		
M.8.4 Environmental Supply Chain used	30%	E
Responsible purchasing has been initiated in areas such as paper from certified sources. No information on green distribution, production planning, green manufacturing, etc.		

APPENDIX E
WALMART: COMPANY REPORT

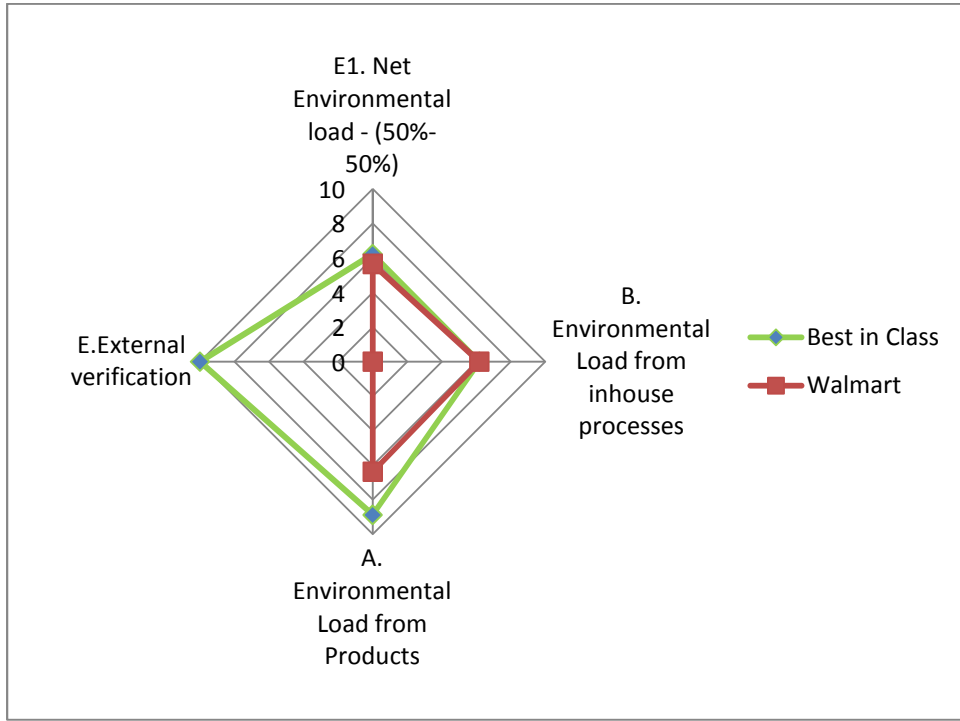


Figure E.1 Net Environmental Load Comparison Spider Chart – Walmart

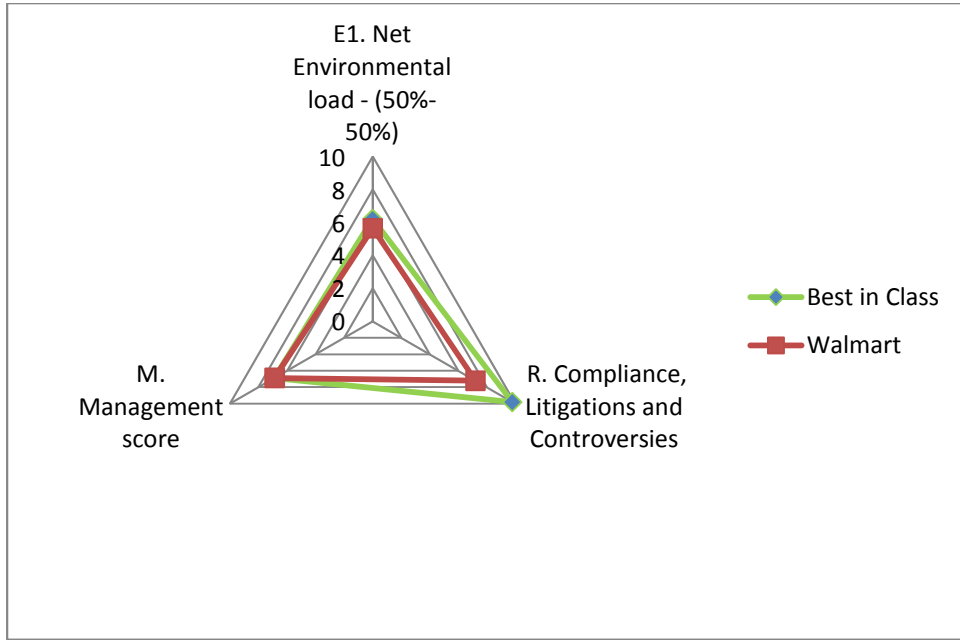


Figure E.2 Primary Variables Comparison Spider Chart - Walmart

WAL-MART

	<i>Weight</i>	<i>Rating</i>
B. Environmental Load from in house processes	45%	6.18
B.1. Energy Use	20%	6.1
B.1.1. % Renewable used	35%	E
8% until date in states of CA and TX only.		
B.1.2. Target % of renewable and timeframe	10%	E
100% target with no timeframe.		
B.1.3. Target reduction of energy use and timeframe	10%	B
20% per unit of production energy efficiency target for 200 top factories directly sourced from China by 2012. Other targets have been identified but not for stores acquired after 2005 or DCs.		
B.1.4. Energy reduction efforts disclosure	15%	B
Pilot store in Vegas opened uses 45% less energy. Walmart says they are improving their DC's but no data is available. 4 stores opened in 2008 uses 25% less energy. There are huge differences in targets across countries. Green stores with high energy efficiencies have already opened in the UK and Canada. Centralized Energy Management systems Technology used in all stores. LED refrigerated case technology and daylight harvesting are some of the technologies used. Several energy saving technologies such as retrofitted light fixtures, Energy Demand Monitoring systems, rapid doors, etc have been used in DC's. Again, no specific targets and varies across countries for DC's. Partnership formed with EPA for green Power.		
B.1.6. Normalized energy use (Energy/ sales \$)	15%	A
Net revenue in 2008 = \$ 401.2 b		
Energy intensity = $26.55\text{m}/401.2\text{b} = 66.1764$		
Normalized non renewable energy intensity = 60.88235		
B.1.7. External verification	15%	A
The company says data is externally verified.		
<u>Comment:-</u> Though the target of 100% renewable energy seems promising, target is unclear about timeframe or if it covers all of Wal-Mart's stores, Clubs and DCs. Walmart has installed only 8% of renewable until now unlike its peers like Kohl's who have installed 50%, aiming to be carbon neutral by the year end and Whole Foods with 100% Green Power. Again, target for energy efficiency only talks about China sourced factories and not about stores, DCs or Clubs. The normalized energy usage for the company is good compared to its peers. Targets vary across countries. Wal-Mart is making better energy usage initiatives in countries like the UK and		

Canada, where regulations are foreseen to be tighter and public demand is more for energy reduction.

B.2. GHG emissions:	40%	7.7
B.2.1 Normalized GHG emissions in 08 (International)	35%	D
Domestic		B

GHG intensity =GHG/ Revenue = 21.066m/401.2b = .0525074 tons CO2/\$

B.2.2. Target reduction and timeframe	10%	E
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20% reduction target in stores, club and DC's by 2012 from 05. 50% fleet efficiency reduction from 2005 by 2015. Target is to design stores/ DC's that produce 30% less GHG by 2009.

B.2.3. Carbon reduction efforts	30%	C
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Net emissions are 21.066 million metric tons over 20.32 last year. Efforts are staggered across the world to reduce GHG. Bottom line target is 20% less carbon by FY12 since 2005 through these efforts. In Canada, renewable energy products have quadrupled. Installing fuel-saving technologies, loading trucks/cases more efficiently, improving routing/eliminating number of empty miles on trucks traveled, improving engine calibration and installing technologies such as auxiliary power units (APUs) are some of the efforts. Owns 860 hybrids = 17% of fleet. More than 70% of the fuel sold at Sam's Club locations contains renewable fuel components. Renewable fuel use increased by 125% over previous year. Ethanol used as additive in E10 in various states. 38% fleet efficiency achieved saved, .2 net GHG and saved Wal-Mart \$200 m.

B.2.4. Partnerships	5%	A
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SmartWay partner, leader in 2006-07.

B.2.5. External verification	15%	A
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Data reported to CDP and externally verified, Scope 3 emissions not reported due to company owned fleet. Supply chain emissions not reported either. In 2007, Wal-Mart announced to CDP that it would measure SC emissions in 7 categories and is working to incorporate more.

B.2.6. Risk Assessment team	5%	A
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Climate change risks have been assessed such as physical, regulatory as per CDP report.

Comment:- Target reduction is good compared to its peers in the industry. Wal-Mart is investing heavily in energy and fuel efficiencies (\$500m annually). Efforts vary across countries. One of the first retailers who has plans to measure Supply Chain emissions and carbon label products. More disclosure on transport/green power/other contribution to GHG or Carbon foot printing like IKEA can help the company understand how it needs to prioritize its GHG efforts.

B.3. Total Waste	20%	3.9
B.3.1. Normalized waste data: Not known.	10%	F
B.3.2. Recycling rate:	25%	2.0
The company states it has a recycling rate of 57% for solid waste from stores, DC's redirected from landfill.		
Operational – 57%	10%	C
Food - No data	5%	F
Construction –No data	10%	F
B.3.3. Reduction targets and timeframe:	10%	D
Wal-Mart Canada aims for 85% recycling rate in stores. Short term goal is to reduce waste 25% by 2008 in the US. Target is zero waste and packaging network, redirecting all US operational solid waste from landfill by 2025.		
B.3.4. Reduction/ recycling/ reuse efforts:	25%	A
Closed loop recycling program being developed with suppliers to return recycled materials as products back in Wal-Mart. Technologies used include Rubber Mulch for tires, sandwich baler for 32 items including plastic and paper in stores. Sam's Club has an online program partnered with Eco-NEW that trades in used electronics that qualifies or helps recycle any electronics from any retailer with shipping free, one of the first in the country to do so. Walmart.com has teamed up with Gazelle, the nation's largest online consumer electronics reCommerce service, to power an Electronics Trade-In Program. Reusable bags offered at 50c. No data on number sold till date. Construction materials/waste, food waste and other waste targets not specified since most waste occurs from construction. Fifteen Class 8 trucks will be retrofitted to run on reclaimed grease fuel made of waste brown cooking grease from Wal-Mart stores. Wal-Mart claims progress is being made but unclear if target has been achieved or not.		
Recycled waste split up data is as follows:-		
<ul style="list-style-type: none"> • 182 million pounds of plastic, • 18.9 million pounds of plastic hangers, • 12.4 million pounds of office paper, and • 1.3 million pounds of aluminum from going to landfills. • 		
B.3.5. Efforts to reduce/ treat toxic waste:	15%	F
No information on targets to reduce.		
B.3.6. Partnerships:	5%	F
None disclosed.		
B.3.7. Non biodegradable waste reduction efforts:	10%	D

Target is to reduce the weight of global plastic shopping bag waste by an average of 33 percent per store by 2013(baseline 2007). Wal-Mart's commitment to reduce plastic bag waste globally by 33 percent includes a 25 percent reduction from U.S. stores and a 50 percent reduction from international operations.

Comment:-No information is available on construction and food waste targets or reduction efforts for toxic waste. Different targets across countries. While Wal-Mart Canada is aiming for an 85% recycling rate, Wal-Mart UK (ASDA) has already removed shopping bags from near the counter to discourage customers to use them. A trend is seen in countries where public demand or tightening of regulations is more, Wal-Mart creates better targets and makes more efforts. Also, the short term goal of waste reduction of 25% is not known if achieved.

B.4. Water use: 5% 2.4

B.4.1. Normalized water data: 40% F

Data not disclosed.

B.4.2. Recycling/ reuse/ reduction target and timeframe: 20% F

No targets have been set or data disclosed for US. However, differences exist across countries. Wal-Mart Mexico has committed to 20% by 2013 and Wal-Mart China to 50% water reduction by 2010 and already has achieved 35% in China.

B.4.3. Recycling / reuse/ reduction efforts: 40% C

There are staggered efforts to improve water utilization and efficiencies such as retrofitting facilities with high-efficiency plumbing fixtures, such as toilets, urinals and sink faucets and use of native plants and water-conserving irrigation systems such as subterranean drip irrigation systems.

Comment: Wal-Mart Mexico and China are way ahead in water conservation than the US, where no specific targets have been set.

B.5. Paper/Wood use: 5% 3.1

B.5.1. Normalized wood/paper data: 25% F

Data not disclosed.

B.5.2. Recycling/ reuse/ reduction target and timeframe: 10% C

Target is to eliminate unwanted wood sources by July 2013. Again, target is unclear as to how much and from where the certification is due.

B.5.3. Recycling / reuse/ reduction efforts: 30% C

12.4 million pounds of office paper recycled. A preliminary baseline assessment of the wood product supply chain was completed in 2008.

B.5.4. Amount certified by FSC or SFI or other: 35% E

Wal-Mart partners with Global Trade and Forest Network or GTFN for sustainable forest resources. 71 to 99 percent of wooden outdoor furniture or products are certified by the Forest Stewardship Council.

Comment: No data is available on paper use or other forestry use in construction, stores, DC's, etc.

B.6. Packaging 5% 6.5

B.6.1. Packaging reduction efforts and target: 20% A

International D

Commitment: Aim is towards zero waste in packaging, reduce by 5% globally by 2013 (baseline 07). Be packaging neutral, globally by 2025. Reduce plastic bags globally by 33% in stores by 2013 baseline (07). Eliminate PVC from all private brand packaging by 2007. Goal not met.

B.6.2. Sustainable materials integration 20% C

Convert all boxes to recycled materials by 2010. This corresponds to some packaging only.

B.6.3. Avoidance of toxic materials 25% C

Progress to date: Eliminated 91% of jewelry pallets. Remaining 9% comes from recycled materials. PVC is still used in some packaging. Alternatives are being explored.

B.6.4. Supplier screening for sustainable packaging 30% A

Wal-Mart says it officially uses a comprehensive online packaging scorecard to screen suppliers towards sustainable packaging.

B.6.5. Recycling rate of packaging materials 5% F

Information not disclosed.

Comment: Packaging efforts worldwide are not consistent. For instance, UK Wal-Mart has reduced packaging by 25%, while Wal-Mart Canada has reduced its plastic packaging in energy saving light bulbs. Perhaps the same efforts could be introduced in US markets as well. Walmart is the one of the first retailers to have a comprehensive packaging screening for suppliers online for sustainable packaging. Also, no information on what happens to the packaging materials, how much is recycled, recovered, etc.

B.7. Land use/ Natural resources conserved: 5% A

B.7.1. Normalized Land use:

Though no data is directly available from the company, land use is projected at more than 75K acres according to a 2005 report by the Institute for Local Self-Reliance.

B.7.2. Land given back to wilderness: 100% A
 Called Acres for America and pledging \$35 million over 10 years to the project, Wal-Mart is committed to protecting enough land to account for its stores' current land-use and development through 2015. Wal-Mart has already conserved 395000 acres in various states.

Comment: No information is available for DC's and Clubs built land.

B.8. Other industry specific load: None

	<i>Weight</i>	<i>Rating</i>
A. Environmental score from Products	45%	6.38
A.1. Resource Efficiency of products offered		

10% 5

- Commitment: i) To make products 25% more energy efficient by 2011, baseline 2007.
 ii) Every air conditioner in the US to be Energy Star rated by 2010.
 iii) All flat panel TV's to be 30% more energy efficient by 2010.
 iv) Double the sale of products in the U.S. that helps make homes more energy efficient by 2011 (2008 baseline).

Sell only concentrated liquid detergent by May 2008. Commitment met 100%.

- Progress till date: i) Have identified the products to get more energy efficient.
 ii) 75% of air conditioners are Energy Star rated, according to the company.
 iii) No data available on progress.
 iv) Selected products have been sold 25% more. (Products falling under this category include caulk, weather stripping, air filters, programmable thermostats, expanding foam and power strips).

Comment: The initial commitment did not say what percent of products and hence unclear.

A.1.1 Net reduction target	30%	D
Medium target some electronics only.		
A.1.2. No of Energy star, eco label products offered	35%	D
Some products offered are eco-labeled, though the exact % is not known.		
A.1.3. Reduction efforts	30%	B

A.1.4. Partnerships	5%	F
None.		

A.2 Materials used in products	30%	5.96
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A.2.1 Avoidance of toxic substances	50%	5.60
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A.2.1.1. RoHs compliance	10%	C
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Commitment: The company states that all personal computers and large electronics (televisions, personal computers, MP3 players, video games and cameras) at Wal-Mart will be RoHs-compliant by December 2007 in the US. The RoHs Directive bans the use of six hazardous materials. The materials are four metals: lead, cadmium, hexavalent chromium, and mercury; and two brominated flame retardants: polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

Progress: Commitment fulfilled 100% by timeline.

Comment: Other electronics items are still at contention.

A.2.1.2. REACH compliance	15%	F
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Information not disclosed if compliant or not.

A.2.1.3. Green Screen tool	40%	B
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Wal-Mart claims it has identified a tool GREENWERCS, that will screen suppliers for chemicals of concern in their products. Commitment in 2007: Will identify 20 chemicals of concern to wipe out from products. The tool primarily takes in Material Data sheets from Suppliers and identifies chemicals of concern, since suppliers are not required to disclose the ingredients by law in the US. The drawbacks of this tool include:

- Supplier may not enter potential substances of concern, though the product may include it and hence the system is not really foolproof. This means until a mishap occurs due to a product containing a harmful substance, it cannot be contained or restricted 100% unlike REACH regulation in the US, where all substances have to be tested and preregistered before released to the public.

- The recent recall of children's charm bracelets is a clear example of how the system is not foolproof. They contained high levels of Cadmium that were deemed unacceptable and recalled only after the issue was raised by an NGO.

A.2.1.4. Toxic chemical usage in products	30%	C
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Company says it is trying to reduce toxic chemical usage in textiles. No information available further. Though the company states it has converted all PVC private brand packaging to PET, PVC is still used in over-the-counter, tamper-evident bands, metal can sealants, meat wrapping, etc. All children's toys and jewelry will be lead and phthalate free by Feb 2010. No information

is available on reducing phthalates in other plastic parts. Walmart has announced their intent to study or use alternatives to PFOA-based products or packaging. Commitment: To reduce phosphates in laundry detergent by 70% by 2011.

A.2.1.5. GM foods stocked 5% F

No information available.

A.2.2 Integration of sustainable substances in products 40% 7.9

A.2.2.1. Organic products offered 35% B

Largest purchase of organic cotton products in the US. Launched organic line of 6 coffees. However, organic produce and products are available more in Wal-mart Brazil than in the US.

A.2.2.2. Substitution of toxics by non toxics 35% C

The company claims it has increased its offering of organic cotton and recycled polyester in fabrics, alternative fiber clothing and bedding, etc, eliminated polybags from tags and uses recycled leather in their own brand, increased locally grown produce, recycled tire rubber mulch, made available sustainable furniture but unclear about how much and what its targets are.

A.2.2.3. Certified seafood, wood and other raw materials 30% A

a) To purchase all of wild caught fresh and frozen fish from Marine Stewardship Council certified by 2011. To date, the company claims that 49% of pounds of fish have been MSC or Aquaculture Certification Council (ACC) certified.

b) To purchase all shrimp, catfish, tilapia and salmon from farms of foreign vendors who are ACC certified by 2011. All shrimp purchased meet Factory Criteria set by ACC.

A.2.3 Animal testing 10% F

No information is available on this subject.

A.3. Recyclability/upgradability/reusability of products 15% A

a) Sam's Club has an online program partnered with Eco-NEW that trades in used electronics that qualifies or helps recycle any electronics from any retailer with shipping free, one of the first in the country to do so.

b) 16 million tires from its Tire and Lube Express were recycled of which 2.5 million went to products on its shelves.

c) No information is available on recyclability/reusability of other products.

A.4. Measures to taken to extend the useful life of products 5% F

No information.

A.5. Eco-products/ technology offered **10%** **B**

Wal-Mart offers Earth friendly products line that it says are eco friendlier than others like CFLs, etc. Sam's Club offers green living interactive tour on its website that lists its green products. No information is available as to what the basis of category is or what the requirements are or what percentage of products are eco friendly.

A.6. Environmental services offered

None

A.7. Green product innovation **30%** **C**

Wal-Mart offers 2 reusable bags in the US, made of recyclable materials and can be recycled once worn out. The company claims that it displaces 75-100 bags in its lifetime. Though it has made aggressive stances in the UK, like removing the plastic bags from the counter to encourage reusable bags and offering at least 15 types of different bags in Japan, it has been more passive to sell these bags in the US. Organic Cotton line for yoga has been a bestseller for Sam's Club and recycled fiber in brand owned Faded Glory in the US. 200 rPET bottles were made into a blanket, selling 92,000 of them in 2009 in Brazil. A soap Topmax purely made of used Wal-Mart kitchen oil was sold in Brazil.

Comment:- Efforts are more staggered and not consistent worldwide though the company has made efforts in different arenas in various degrees.

R. Environmental Compliance and Controversies: **7.22**

	Weight	Rating
R.1. A brief history of compliance:	5%	C

Litigation and Compliance history: The store and 10 of the store's contractors were the target of the first national enforcement action for multi-state violations of the storm water regulations. The violations occurred at 17 Wal-Mart Stores construction sites in Texas, New Mexico, Oklahoma and Massachusetts. The settlement commits Wal-Mart Stores to a comprehensive environmental management plan (valued at \$4.5 million) to increase compliance at each of the store's construction sites nationwide through additional inspections, training and recordkeeping and required the company to pay a \$1 million penalty. On Sept. 22 an agreement was reached with Wal-Mart regarding 29 sites in nine states. The settlement includes a \$3.1 million civil penalty, for storm water violations. These actions will contribute to \$65 million dollars of injunctive relief. Has 9 hazardous waste handling penalties of few thousands since 1999.

R.2. Recent Compliance for violations/fines in the most recent year:	10%	A
None.		
R.3. Accidents/ Spills/ Permit denials/ Shut-ins:		
Spills: None	10%	A
Accidents: 23 minor accidents with no reported damage in \$ or injuries.	5%	B
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities.		
None.		
R.5. Other historic liabilities - None		
R.6. Superfund status, No of Superfund sites: 4	20%	B
R.7. Litigations/ Government proceedings:	15%	A
None.		
R.8. Environmental controversies through products/ services:	35%	D
Walmart says it is phasing out baby bottles with controversial chemical BPA (Bisphenol A) but has not confirmed the same. The same has been pulled out of Canadian stores already. The Food and Drug Administration has long permitted the use of BPA, but in recent years concerns about the chemical have grown as studies have indicated low doses of the substance can disrupt hormone systems in laboratory animals and possibly increase the risk of cancer or other serious illness. There are also other plastic products that contain BPA, linked to breast cancer. No information of their removal from shelves.		
Recently, Walmart pulled out children's bracelets with unacceptable level of cadmium. Since 2004, there have been sixty-five recalls involving thousands of potentially hazardous Wal-Mart retailed products, including toys, infant car seats children's accessories, and electrical appliances and the recently recalled PVC bibs.		
R.9. Environmental controversies otherwise:		None

	<i>Weight</i>	<i>Rating</i>
M. Management Score		7.33
M.1. Environmental strategy	15%	9.03
M.1.1 Policy:	15%	A
The company has a policy that covers 100% of employees on sustainability. The company says sustainability is part of every initiative they take. Sustainability mission: Sustainability 360 is the framework they are using to achieve their goals and bring sustainable solutions to more than 2 million associates, more than 100,000 suppliers		

and more than 200 million customers and members they serve each week. Sustainability 360 lives within every aspect of their business, in every country where they operate, within every salaried associate's job description, and extends beyond their walls to their suppliers, products and customers.

M.1.2 Integration with Core business: 25% A

Sustainability is integrated into core business activities into 3 long term goals that include zero waste, 100% renewable energy and to sell products that sustain their resources and the environment. Existing stores to be 25% more efficient in 7 years while new stores 30% more efficient in 4 years. 25% reduction in solid waste in 3 years, all private brand packaging improved in 2 years. Reduce GHG by 20% over next 8 years, 20% supply base aligned in 3 years, all baseline 2007.

M.1.3 Consistency in operations (International/ domestic): 25% D

Wal-Mart has different targets and goals achieved across countries. The company generally makes more efforts and stronger targets in countries like Canada and UK than the US where public demand or regulations are foreseen to be tighter. For instance, green stores have already been opened and plastic bags removed away from the counter in the UK. In Brazil, organic produce is stocked and in Mexico, water conservation goals have been identified. In Canada, renewable products have quadrupled in the last year. In China, 35% water reduction has already been achieved. Even plastic bags reduction goals have been set higher outside the US to be 50% compared to the US (25%).

M.1.4. Active commitment of senior management 15% A

Wal-Mart has an active commitment from senior management in the form of Vice President of Sustainability and 12 sustainable Value Network teams. Quarterly updates provided through executive management to CEO from 12 Sustainable Value networks created within the company.

M.1.5. Commitment to use of targets and monitoring 10% B

Targets have been identified in most areas and are monitored though more clarity is required in indicators, timeframe, etc. For instance, 100% renewable energy does not define a timeframe, a primary goal in the company. Other areas such as water do not have targets set within the US. Also, Wal-Mart has not disclosed exactly how much GHG has been reduced till date, an important target in its strategy. Overall, most objectives have been identified, though they all require more clarity in certain indicators.

M.1.6. Differences between actual and disclosed: 10% A

Some target indicators have timeframes associated with them. Wal-Mart is mostly on track on

whatever it has committed. Most objectives lack clarity in locking targets either in the form of timeframes or a definite number of units in the target to measure progress. There is no difference found between actual and disclosed on GHG and energy data. However, all other data need external verification.

M.2. Corporate Governance **15%** **8.8**

M.2.1 Board Structure CSO: 40% A

Quarterly updates are provided through executive management to the CEO. Executive Network Sponsor is Senior Vice President level or higher who oversees Sustainability Team consisting of Members overseeing network activities, aligning overall efforts, providing guidelines. The next level consists of Network Captains: Director or Vice President level, guide network efforts and drive SVN initiatives toward goals. Finally the SVNs comprise of Wal-Mart Associates, Non-Governmental Organizations, Academics, Government Agencies, Supplier Companies.

M.2.2. Environmental factor in compensation: 30% C

While there are no specifically defined monetary incentives for management of climate change issues or attainment of GHG targets, those individuals that bear direct responsibility for accomplishment of the goals are held accountable for progress on these goals. There are other incentives in the form of recognition and career advancement opportunities that are used to reward superior performance. As an example, several members of the Sustainable Value Networks were recently awarded one of the highest internal honors available at Wal-Mart, the Sam M. Walton Entrepreneur of the Year Award, in specific recognition of their contributions toward Sustainability. More broadly, Sustainability is a component of all salaried associates' Strive for Excellence evaluation category.

M.2.3 Amount invested in greening initiatives 30% A
\$500m annually.

M.3.Environmental Management Systems **15%** **5.9**

M.3.1. % Number and Qualifications of separate Environmental staff: 20% A

A separate sustainability division exists with 12 sustainable Value Networks for different areas. Around 200 representatives work in Packaging SVN.

M.3.2. ISO 14000 or other certified EMS, international certifications: 20% F

Lack of information/ no disclosure if they have any concept of EMS.

M.3.3. Internal/ external Environmental Performance Indicators: 20% B

Targets have been identified in most areas and are monitored though more clarity is required in indicators such as timeframe, etc especially in core goals such as waste, renewable, etc. Water targets do not exist for the US.

M.3.4. Existence and adequacy of data collected, reported, managed: 20% B

Most data are clearly/adequately collected, reported and managed.

M.3.5. LCAs, dfenvt and other environment tools used (TQEM): 20% B

Wal-Mart uses Environmental Supply Chain, LCAs in packaging, will use product LCA for carbon labeling.

M.4. Audit (Existence, adequacy and frequency): Internal/ External 10% C

Factory audits contain questions that cover a broad range of social and environmental criteria that help guide assessment of a given supplier factory. Notably, the 2009 questionnaire contains more than 150 questions and includes expanded environmental criteria – increased from 21 to 51 environmental questions. Following the completion of a factory audit, a color-coded system is used to signify the overall assessment of the audit findings. The color assigned to the factory would depend on the number and type of violations discovered during the audit. Factories with few or less serious violations receive highest rating — green. The factories having progressively more severe or numerous violations receive lower ratings, from yellow, to orange and red. In 2008, Wal-Mart's ethical standards group and third-party audit firms conducted 11,502 audits in more than 7,000 supplier factories. Of the audited factories, approximately 5,000 produced merchandise for direct import program, and 2,000 produced domestically-sourced merchandise. However, Wal-mart itself as a company has not disclosed it has been audited environmentally.

M.5. Reporting: 10% C

Reporting is regular since 2006, externally verified for energy and GHG alone. External reporting covers all of its sustainability activities in the form of Corporate Sustainability Reports and reports to Carbon Disclosure Project, apart from which there are regular updates on the company website in the form of factsheets. Some activities are transparent, yet most of its activities require clearer information like targets, timeframes, etc.

M.6. Environmental Training & Development: 7.5% 5

Suppliers 50% A

All direct Wal-Mart Stores, Inc. and Sam's Club suppliers should plan on attending a Sustainability Education Training Session. These day long classroom training sessions enable suppliers to learn how to efficiently enter packages into the retailers' Sustainable Packaging Scorecard and how to find ways to improve their package scores. Participants also learn about Wal-Mart's overall sustainability.

No data available on employee training. 50% F

M.7. Partnerships: 2.5% D

SmartWay leader in 07. Green power partnership in 09 for 8% renewable.

M.8 Supplier Screening: 25% 6.6

M.8.1 Environment screening for suppliers 30% A

By 2012, Wal-Mart will require suppliers to source 95 percent of their production from factories that receive the highest ratings in audits of environmental and social practices. The first version of this "supplier scorecard" is rolling out now to all 60,000 suppliers and asks 15 questions in three categories: energy and climate; material efficiency; natural resources. The top-tier suppliers in the U.S. have been asked to complete the survey by October 1, 2009, and are working with other suppliers to determine an appropriate timeline for them to complete the survey. How the suppliers will be screened or the methodology on screening has been clearly disclosed.

M.8.2. Supplier collaborated efforts 15% B

Wal-Mart has offered to conduct "energy audits" of supplier facilities. In Supplier Energy Efficiency Program, using learning gained from its own efforts to improve building efficiency, Wal-Mart helps suppliers identify projects that can help save energy and money.

M.8.3 Number of environmentally certified suppliers (ISO 14000) 25% F

None disclosed.

M.8.4 Environmental Supply Chain used 30% B

Fleet efficiency improved by 38 percent between 2005 and 2008 and saved over \$200m. Target is 50% by 2015. Committed to 200 hybrids for transporting associates. 17% of fleet comprises of hybrids. In 2008, added more than 1,100 aerodynamic trucks to their fleet to further improve fleet efficiency. SmartWay leader in 06-07. Responsible purchasing has been initiated in many areas such as seafood, wood, etc from certified sources and targets have been set. GreenWercs tool has been chosen to chemically screen products. No information in green distribution, green manufacturing or green production planning.

APPENDIX F
TARGET: COMPANY REPORT

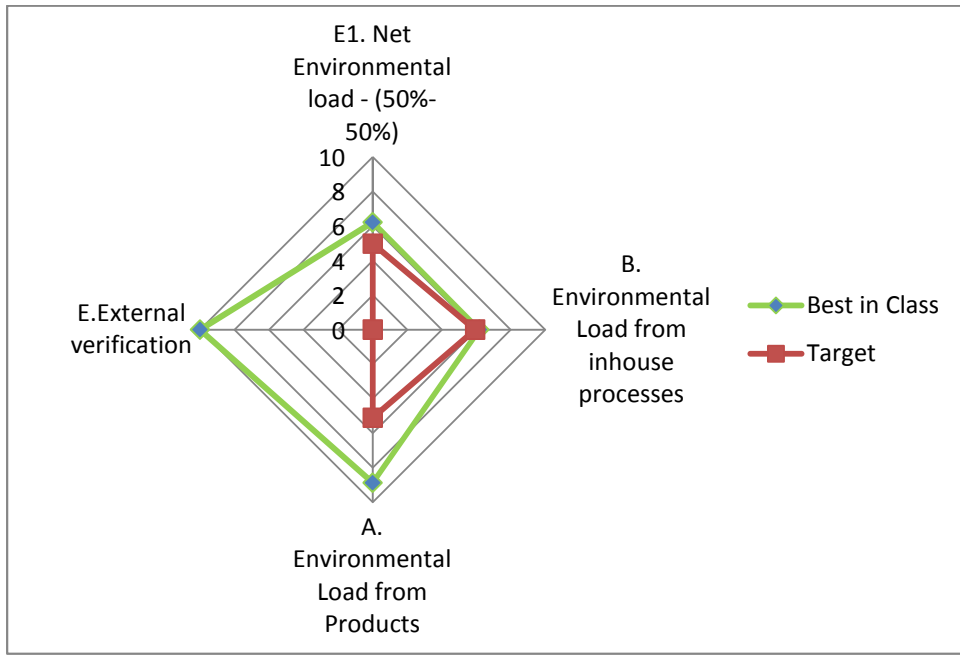


Figure F.1 Net Environmental Load Comparison Spider Chart – Target

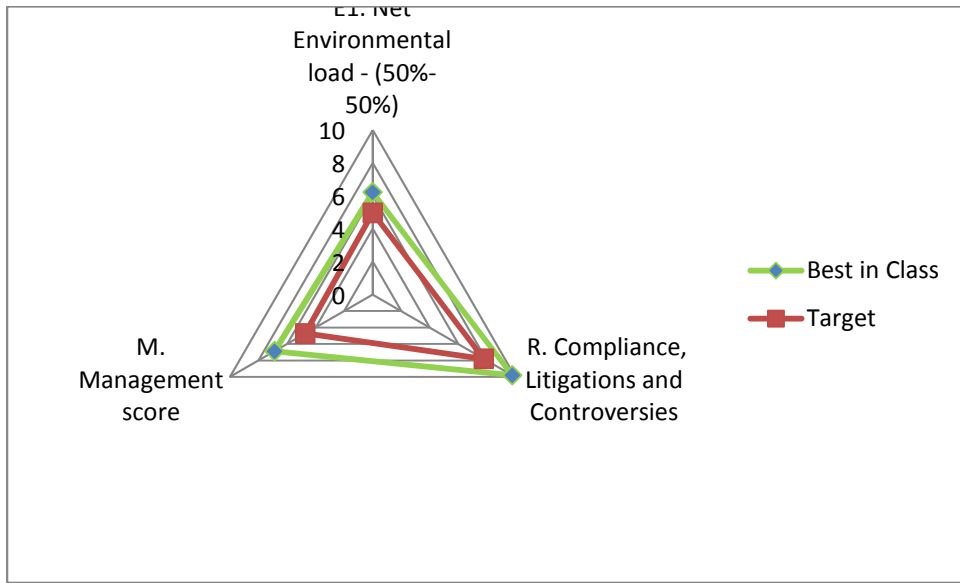


Figure F.2 Primary Variables Comparison Spider Chart - Target

Target

	<i>Weight</i>	<i>Rating</i>
B. Environmental Load from in house processes	45%	5.94
B.1. Energy Use	15%	4.7
B.1.1. % Renewable used	35%	E
15% until date, Renewable Portfolio Standard regulation fulfilled.		
B.1.2. Target % of renewable and timeframe	10%	E
Target not known though plans are in place to increase % of renewable.		
B.1.3. Target reduction of energy use and timeframe	10%	E
16% energy reduction in new store design. Timeframes not known.		
B.1.4. Energy reduction efforts disclosure	15%	B
Shifting overnight cleaning schedules and reducing overnight lighting levels in stores saved \$10 million annually. Retrofitting existing store four-lamp fixtures to two lamps, 400,000 fewer fluorescent lamps used and \$4.5 million annual energy savings. Adding LED Lighting and Motion Sensors to Reach-in Freezer and Cooler Door Cases made 50% savings in energy costs in these areas. Implementing more energy-efficient fluorescent lamps made \$2 million annual savings. Implementing temperature set point changes and methods of controlling heating and air conditioning systems made \$4 million annual savings. Target's newest prototype store developed for 2009 has energy features providing an average of 16 percent energy reduction versus their previous prototype. Target is one of nine retailers working with the Department of Energy (DOE) and several national laboratories to develop a new store building design with 50 percent improved energy performance over existing standards within the next few years. They also will produce a retrofit design for an existing store with 30 percent improved energy efficiency.		
B.1.5. Normalized energy use (Energy/ sales \$)	15%	A
Net revenue in 2008 = \$64.948		
Energy intensity = $4.471 \text{ m}/64.948 \text{ b} = 68.839$		
Normalized non renewable energy intensity = 58.513		
B.1.6. External verification	10%	C
The company says plans are in place to get data externally verified.		
<u>Comment:</u> Target has been a follower with respect to Green Power, or the company has purchased the minimum 14% required in Regulation Portfolio. Though, it has plans to diversify, targets have not been declared either for renewable power or energy efficiency projects. However, the high energy efficiency efforts have saved Target millions. The normalized energy		

use is low, comparable to Walmart, effects of its energy efficiency efforts. A retailer with good understanding that one needs to invest both in renewable and energy efficiency efforts for long term gain.

B.2. GHG emissions: 40% 8.0

B.2.1 Normalized GHG emissions in 08 (International) 35% C
 Domestic A

GHG intensity =GHG/ Revenue = 2.99/64.948b = 0.046037 tons CO2/\$
 FY 07 = 2.95/63.367 = 0.046554

B.2.2. Target reduction and timeframe 10% E

Target is to design stores that are 16% energy efficient. No specific GHG targets.

B.2.3. Carbon reduction efforts / innovation 30% C

No SC GHG registry. Shipping partner of SmartWay. Carriers are contract, can't modify them. They say emissions have decreased 1% but numbers show differently. No specific targets, timelines but have actions and plans. They have general action plans such as implementing policies, such as our No-idle policy, which requires trucks to shut off their engines, encourage transportation providers to initiate emissions reduction initiatives, create the most efficient possible routing, maximize the amount of product each truck carries through efficient packing, ensure trucks don't travel empty from stores back to DCs, choose the transportation mode that creates the least emissions, such as container ships rather than airplanes for imported goods, and rail cars rather than trucks within the United States. Use the Leadership in Energy and Environmental Design (LEED) rating system, developed by the U.S. Green Building Council (USGBC), as a guide for the design, construction and operation of performance for green buildings. Five stores are LEED certified.

B.2.4. Partnerships 5% A

Climate Leader, SmartWay, Retailer Energy Alliance, USEPA Energy Star, LEED, USGBC.

B.2.5. External verification 15% A

Data reported to CDP and externally verified by 09 end. Scope 3 emissions not reported. Supply chain emissions not reported either.

B.2.6. Risk Assessment team 5% A

Climate change risks have been assessed such as physical, regulatory as per CDP report.

Comment: Normalized GHG intensity is low amongst its peers in the industry in US. However, it is rated C compared to international retail standards where IKEA, M&S and Aeon fare much lower and have specific targets for GHG reduction unlike Target. Carbon reduction efforts are

mostly actions and plans that are generalized than specific with numbers. One of the few retailers in the country to have their stores LEED certified.

B.3. Total Waste **20%** **5.2**

B.3.1. Normalized waste data: Not known. 10% F

B.3.2. Recycling rate: 25% 5.6

The company states it has a recycling rate of 70% for solid waste from stores, DC’s redirected from landfill.

Operational – 70% 15% B

Construction –They say they have been recycling but no data. 10% D

B.3.3. Reduction targets and timeframe: 10% E

None disclosed but plans in place for waste reduction.

B.3.4. Reduction/ recycling/ reuse efforts: 25% A

Target says it recycles electronics, including product returns and company-owned equipment, using a third-party vendor. The recycling vendor uses the “Glass to Glass” recycling method, meaning that nearly all components are recycled and little to no waste is generated. Damaged shopping carts are recycled. They say they have been recycling construction waste for the past 5 years. Initiated the Garment Hanger reuse program where the hanger gets reused at least 4 times or not until not functional. Merchandise Salvage program sends unsold product to organizations for resale. Overstocks and damaged products are returned through vendor return program, encouraging them to recycle. Grocery overstocks are donated to Feeding America, formerly known as America’s Second Harvest, a nationwide network of food banks. Their Resource Recovery team decides whether to sell, donate, recycle or reuse the equipment being replaced, always with an eye toward managing risk and maximizing recovery.

B.3.5. Efforts to reduce/ treat toxic waste: 15% F

No information on targets to reduce.

B.3.6. Partnerships: 5% A

WasteWise, National Recycling Coalition (NRC), National Brownfield Association.

B.3.7. Non biodegradable waste reduction efforts: 10% C

Made available Retote bag, say they eliminated .75 mil plastic bags. On Earth day, 1 million guests were given free Retote bags.

Comment: The only retailer to reveal in detail how they handle their waste including construction. However, more quantitative data will help understand how much has been recycled. No Toxic waste data or plastic bag reduction data.

B.4. Water use:	5%	2.4
B.4.1. Normalized water data	40%	F
Data not available.		
B.4.2. Recycling/ reuse/ reduction target and timeframe:	20%	F
No specific targets.		
B.4.3. Recycling / reuse/ reduction efforts:	40%	C
<p>Target store designers use Low Impact Development (LID) design techniques where permissible to mimic the way rainwater would have percolated naturally through a site. LID techniques include pervious pavement and infiltration systems, rain gardens and bio retention systems. LID improves water quality and results in more aesthetically pleasing landscapes. Target goes beyond regulatory requirements to ensure storm water compliance by performing periodic, third-party owner’s inspection on new stores and remodels under construction. Wherever they build stores, they work closely with local agencies to protect local water quality, conserve water supplies and preserve wildlife habitats, including wetlands, surface water and woodlands.</p> <p><u>Comment:</u> Target has not set any targets or measured the normalized operational water data though it has indulged in other water efficiency/ conservation efforts.</p>		

B.5. Paper/Wood use:	5%	2.5
B.5.1 Normalized wood/paper data:	25%	F
Data not available.		
B.5.2. Recycling/ reuse/ reduction target and timeframe:	10%	F
No information.		
B.5.3. Recycling / reuse/ reduction efforts:	30%	C
<p>Is part of waste efforts and not mentioned separately. 935 million pounds of corrugate was recycled. Pallets are recycled into composite lumber and other products.</p>		
B.5.4. Amount certified by FSC or SFI or other:	35%	E
Not known.		
<u>Comment:</u> No data is available on paper use or other forestry use in construction, stores, DC’s, etc.		

B.6. Packaging	5%	4.4
B.6.1. Packaging reduction efforts and target:	20%	D

Target's vision: To minimize any impact on the environment and manage costs without compromising shelf appeal.

B.6.2. Sustainable materials integration 20% A

Choxie® packaging was converted to an unbleached paperboard that contains post-consumer recycled content and was redesigned to save 15 percent in packaging materials. Target Café smoothie and parfait cups were changed from previously containing no recycled content to using 20 percent PCW. Polylactic acid, or PLA, is a non-petroleum-based plastic made from plants. Has converted packaging for six bakery items and one deli item to renewable plant-based plastic from petroleum-based plastic, resulting in more than 500,000 pounds of petroleum based plastic removed from Target shelves.

B.6.3. Avoidance of toxic materials 25% B

Target says it has replaced PVC in most packaging with an alternative plastic or packaging redesign, eliminating 4.5 million pounds of PVC annually. Replacing plastic insert cards with corrugated inserts, changing PET packaging to shrink wrap, reducing weight of plastic water bottles and redesigning corrugated shipper designs have saved Target \$, avoiding toxic materials and incorporating better designs.

B.6.4. Supplier screening for sustainable packaging 30% F

No information.

B.6.5. Recycling rate of packaging materials 5% B

Target says Packaging in recyclable or biodegradable containers is found in almost every department. This is also treated as part of waste efforts. Managed a corrugated cardboard bale program, selling cardboard to contracted recyclers.

Comment: No data on what the reduction targets are or on what happens to the packaging materials, how much is recycled, recovered, etc.

B.7. Land use/ Natural Resources 5% 6.0

B.7.1. Normalized Land use:

No data.

B.7.2. Land given back to wilderness: 100% C

Many current sites are built on redeveloping Brownfields or former Superfund Cleanup site. Target re-built the stream embankment along Blacklick Creek, a protected water body running adjacent to our property, during the construction of our T-2450, Reynoldsburg, Ohio store. The property adjacent to the creek was preserved into perpetuity by Target and the site developer with conservation easements. In an effort to preserve the high value wetland on site, T-2372,

South Anchorage, Alaska, was able to preserve approximately 1.75 acres of wetland in the middle of shopping center parking area.

B.8. Other industry specific load: None

	<i>Weight</i>	<i>Rating</i>
A. Environmental score from Products	45%	5.106
A.1 Resource Efficiency of products offered	10%	5.1
<p>Many of the electronics, appliances and lighting products — including compact fluorescents and LEDs are Energy Star-certified by the EPA. Target carries a wide range of bamboo cookware and kitchen utensils, 100 percent organic kitchen towels and dishcloths, plus water filters that purify the same amount of water contained in 300 plastic bottles.</p> <p><u>Comment:</u> The statements made did not say what percent of products and hence unclear.</p>		
A.1.1 Net reduction target	30%	D
Medium target, some electronics only.		
A.1.2. No of Energy star, eco label products offered	35%	C
Some products offered are eco-labeled, though the exact % is not known.		
A.1.3. Reduction efforts	30%	C
See above.		
A.1.4. Partnerships	5%	F
None.		
A.2 Materials used in products	30%	5.96
A.2.1 Avoidance of toxic substances	50%	5.60
A.2.1.1. RoHs compliant	10%	F
No information.		
A.2.1.2. REACH compliance	15%	F
Information not disclosed if compliant or not.		
A.2.1.3. Green Screen tool	40%	D
There is no formal green screen tool but all suppliers are bound by federal law of US.		
A.2.1.4. Toxic chemical usage in products	30%	B
Target says guests will find personal care products that aren't tested on animals and that are free of synthetic ingredients like parabens, phthalates and sodium lauryl sulfates. No		

information if the same extends to other products like reducing phthalates in plastic parts or BPA in baby bottles.

A.2.1.5. GM substances used 5% F

No information available.

A.2.2 Integration of sustainable substances in products 40% 6.8

A.2.2.1 Organic products offered 35% B

Target was certified as an organic produce retailer by the USDA in 2006, and now carry more than 700 organic items, including produce like vegetables, berries, bananas and apples. And are planning to increase the number of organic foods they sell. Owned-brand organic items under the Archer Farms® label include milk, cereal, whole-wheat pasta, pizza, applesauce, frozen fruit, olives, tea, snack chips and more. Domestic: Target carries 250-thread-count sheets made from 100 percent organic cotton, grown without pesticides or synthetic fertilizers, and some made from a 60/40 blend of cotton and rayon from bamboo. Guests can find doormats made of 100 percent recycled rubber, as well as doormats woven from coir, a fiber derived from coconut husks. In pet food, Target carries a variety of products made from recycled materials, as well as all-natural cat litter and organic catnip. It also 5% recycled polyester fleece. Many Infant wear products are made of organic cotton.

A.2.2.2. Substitution of toxics by non toxics 35% B

In Health Care, Target offers guests appendage braces and supports that use a core material made with non-petroleum based materials and a lining made of 67 percent recycled PET bottles. They plan to increase the number of natural health and beauty offerings. They carry a wide range of bamboo cookware and kitchen utensils, 100 percent organic kitchen towels and dishcloths, plus water filters that purify the same amount of water contained in 300 plastic bottles. Recyclable cardboard CD cases are beginning to replace plastic cases. Detergent and home-cleaning product assortments include nontoxic brands such as Method and Seventh Generation, which uses plant-based ingredients. By mid-2008, all Target products with stain management are Per Fluoro Octanoic Acid (PFOA) free.

Comment: No data on PVC, Styrofoam and other toxic substitution.

A.2.2.3. Certified seafood, wood and other raw materials 30% D

Expanded seafood selection to include more Marine Stewardship Council-certified sustainable seafood, fished with environmentally responsible methods.

A.2.3 Animal testing 10% C

Personal care products are free from animal testing. No data on other products.

A.3. Recyclability/upgradability/reusability of products **15%** **B**

In Health Care, Target offers guests appendage braces and supports that use a core material made with non-petroleum based materials and a lining made of 67 percent recycled PET bottles. Guests can find doormats made of 100 percent recycled rubber, as well as doormats woven from coir, a fiber derived from coconut husks. Target says it recycles electronics, including product returns and company-owned equipment, using a third-party vendor. Their recycling vendor uses the 'Glass to Glass' recycling method, meaning that nearly all components are recycled and little to no waste is generated. Recyclable cardboard CD cases are beginning to replace plastic cases. All natural products offered can be safely recycled or disposed of.

A.4. Measures to taken to extend the useful life of products. **5%** **F**

No information.

A.5. Eco-products/ technology offered **10%** **C**

In nearly every merchandise department, one will find products made from recycled materials, nontoxic chemicals or organic ingredients, packaged in recyclable or biodegradable containers. Target has a separate eco product line like JCP offered in their website though there is no data that discloses what % of products offered are eco friendly.

A.6. Environmental services offered

None.

A.7. Green product innovation **30%** **D**

In Health Care, Target offers guests appendage braces and supports that use a core material made with non-petroleum based materials and a lining made of 67 percent recycled PET bottles. Detergent and home-cleaning product assortments include nontoxic brands such as Method and Seventh Generation, which uses plant-based ingredients. Recyclable cardboard CD cases are beginning to replace plastic cases

R. Environmental Compliance and Controversies:	7.8
	Weight Rating
R.1.A brief history of compliance:	5% B
Litigation and Compliance history: Stratospheric Ozone Protection Violation of fine to the order of \$10K paid to EPA in 2006.	
R.2. Recent Compliance for violations/fines in the most recent year:	10% A
None	
R.3.Accidents/ Spills/ Permit denials/ Shut-ins:	
Spills: None	10% A
Accidents: None	5% A
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities. None	
R.5. Other historic liabilities – None.	
R.6. Superfund status, No of Superfund sites: 3	20% A
R.7.Litigations/ Government proceedings:	15% A
R.8. Environmental controversies through products/ services:	35% D
<i>Way Off Target</i> report focuses on three key areas in which Target sells many products made of PVC: children's products and toys, shower curtains and packaging. Target customers may be exposed to highly toxic chemicals from using these products in their homes.	
Target, though offer more non BPA bottles than its peers, there is no information about BPA use in canned food and beverage containers. Congress is currently considering the ban of all BPA use.	
The toys in the bamboo game sets sold in Target in 2007 contained lead paint leading to recall of 5,000 bamboo game sets.	
Target recalled 26,000 packages of multicolored sidewalk chalk that has been found to contain high levels of lead, posing a risk of leading poisoning to young children, in 2003.	
Since 2005, there have been thirty-eights recalls of potentially hazardous Target retailed products, including toys, baby rattles, school supplies, children's games, and electrical appliances.	
R.9. Environmental controversies otherwise: None	

	<i>Weight</i>	<i>Rating</i>
M. Management Score		5.20
M.1. Environmental strategy	15%	9.60
M.1.1 Policy:	15%	A
The company has a policy that covers 100% of employees on sustainability. Target strives to be a responsible steward of the environment.		
M.1.2 Integration with Core business:	25%	A
Target seeks to understand its impact and continuously improve its business practices to achieve the following goals: use resources responsibly; eliminate waste, minimize their carbon footprint, offer a selection of eco-friendly products, incorporate sustainable elements into their stores, and influence vendors and suppliers to embrace sustainable practices.		
M.1.3 Consistency in operations (International/ domestic):	25%	A
Target has stores only in the US.		
M.1.4. Active commitment of senior management	15%	A
Target has a management council team devoted to Sustainability. This team is responsible for the development of company's sustainability policy and strategy and is currently coordinating efforts and priorities across the company. There are several sub-committees of this team, each comprised of experts from across the company to work on specific sustainability issues such as carbon footprint, sustainable facilities, product lifecycle, and transportation. These sub-committees are managed by a sustainability manager. The teams report their progress on a quarterly basis to the management council team who in turn provide updates to senior leadership several times throughout the year.		
M.1.5. Commitment to use of targets and monitoring	10%	C
Targets have been identified in some areas and are monitored though more clarity is required in indicators, timeframe, etc. For instance, there is no target for renewable energy, energy efficiency target for products, etc, primary goals in the company. Overall, most objectives have been identified, though they all require more data to validate their statements.		
M.1.6. Differences between actual and disclosed:	10%	A
All data needs external verification. Though there is no difference between its external reports like CSR, CDP response data.		
M.2. Corporate Governance	15%	4.4
M.2.1 Board Structure CSO:	40%	B
See M.1.4.		

M.2.2. Environmental factor in compensation: None offered.	30%	F
M.2.3 Amount invested in greening initiatives Not disclosed, though Target has initiated a number of environmental efforts from its CSR and other reports.	30%	D
M.3.Environmental Management Systems	15%	4.5
M.3.1. % Number and Qualifications of separate Environmental staff: See M.1.4.	15%	B
M.3.2. ISO 14000 or other certified EMS, international certifications: Lack of information/ no disclosure if they have any concept of EMS.	30%	F
M.3.3. Internal/ external Environmental Performance Indicators: Targets have been identified in most areas and are monitored though more clarity is required in indicators such as timeframe, etc especially in core goals such as GHG, renewable, etc. Water targets do not exist either.	10%	C
M.3.4. Existence and adequacy of data collected, reported, managed: Some data are clearly/adequately collected, reported and managed.	20%	C
M.3.5. LCAs , dfenvt and other environment tools used (TQEM): Target uses Environmental Supply Chain, product LCAs.	25%	C
M.4. Audit (Existence, adequacy and frequency): Target has internal as well as external audits conducted at its factories in 50 countries. Other data such as how many factories have been audited or the frequency of audit in the past year have not been disclosed.	10%	E
M.5. Reporting: Reporting is regular, externally verified for energy and GHG alone. External reporting covers all of its sustainability activities in the form of Corporate Sustainability Reports and reports to Carbon Disclosure Project, apart from which there are regular updates on the company website. Some activities are transparent, yet most of its activities require clearer information like targets, timeframes, etc.	10%	C
M.6. Environmental Training & Development:	7.5%	2

Suppliers	50%	F
No data on supplier training.		
Employee	50%	D
Some areas of environmental responsibility has training for its employees such as after accident training to create companywide awareness, though any preemptive training has not been disclosed.		

M.7.Partnerships:	2.5%	A
SmartWay, National Association for Environmental Management (NAEM), Board Member, Retail Industry Leaders Association Sustainability Initiative, Member, Food Marketing Institute Sustainability Task Force, Member, various EPA partnerships such as Storm water strategies, WasteWise, Energy star.		

M.8 Supplier Screening:	25%	3
M.8.1 Environment screening for suppliers	30%	D
There is no formal preemptive environmental screening for suppliers but all are bound by basic laws in the US.		
M.8.2. Supplier collaborated efforts	15%	F
No information.		
M.8.3 Number of environmentally certified suppliers (ISO 14000)	25%	F
None disclosed.		
M.8.4 Environmental Supply Chain used	30%	C
Responsible purchasing has been initiated in areas such as seafood from certified sources. Environmental Logistics used as seen in GHG reduction efforts. Target is also exploring how they can measure emissions occurring farther away from our operations, like those generated in their supply chain and by the manufacturing vendors. No information on green distribution, production planning, green manufacturing, etc.		

APPENDIX G
IKEA: COMPANY REPORT

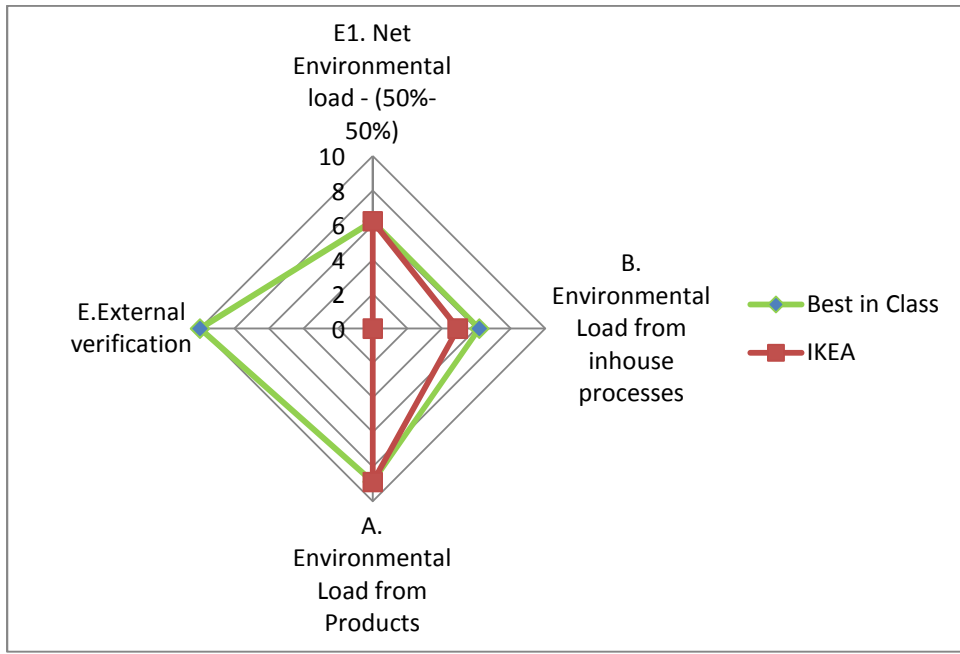


Figure G.1 Net Environmental Load Comparison Spider Chart – IKEA

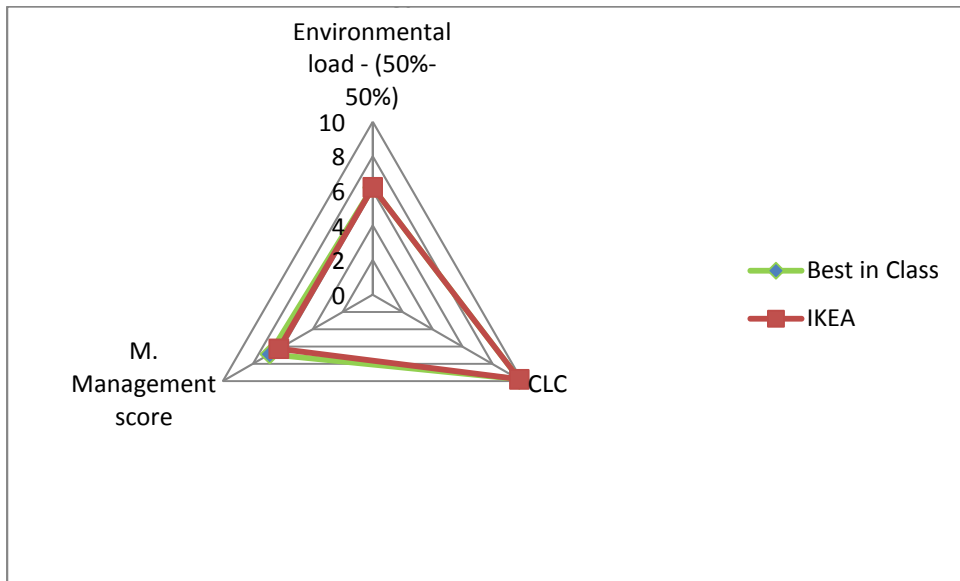


Figure G.2 Primary Variables Comparison Spider Chart - IKEA

IKEA

	<i>Weight</i>	<i>Rating</i>
B. Environmental Load from in house processes	45%	4.92
B.1. Energy Use	30%	3.1
B.1.1. % Renewable used	35%	C
Renewable at stores -36%, DCs- 35%, Swedwood factories- 62%, net resulting in 47%. Currently reduced energy efficiency is 9% for stores, 24% for DCs, 28% for factories, net resulting in 11% all with respect to FY05.		
B.1.2. Target % of Renewable and timeframe	10%	E
Long term target is 100% but with no timeframe.		
B.1.3. Target reduction of energy usage and timeframe	10%	E
Improve energy efficiency by 25% compared to FY05 without a timeframe.		
B.1.4. Energy reduction efforts disclosure	15%	D
Preliminary results survey show that by making changes, 5 to 40 percent improvement in energy efficiency can be achieved. Energy consumption standards for new stores are set to 45 Kwh/cu.m sold, by year five of store opening. Zaventem IKEA store in Belgium identified a potential improvement of energy efficiency of more than 30 percent. Revising lighting standards, using renewable heating equipments, smart commercial lighting in parking areas are some of their efforts. Four IKEA stores located in Belgium, Spain, Germany and the United States have purchased photovoltaic panels to turn sunshine into electricity. The first results from these projects are expected during FY09. Alternative energy sources have been introduced wherever possible including geothermal, biomass, etc.		
B.1.5. Normalized energy use (Energy/ sales \$)	15%	F
Net revenue in 2008 = 30.75 b Energy intensity = Not known		
B.1.6. External verification	15%	F
The company has not said if the data is externally verified.		
<u>Comment:</u> Though the target of 100% renewable energy seems promising, target is unclear about timeframe. The normalized energy usage for the company is not available. Targets do not vary across countries unlike Walmart and are seen to be consistent worldwide.		
B.2. GHG emissions:	40%	6.4
B.2.1 Normalized GHG usage in 08.	35%	
GHG intensity =GHG/ Revenue = 1.286/31.91b = .041821 tons CO2/\$		

Last year = 1.189/ 31.91 = .03726 tons Co2/\$

International B

Domestic A

B.2.2. Target reduction and timeframe 10% D

No specific target reduction goals other than increasing % of people traveling to IKEA by public transport to 15% in 09.

B.2.3. Carbon reduction efforts 30% B

Phase out inefficient incandescent lighting by 2010, resulting in 16% reductions in Carbon emissions. Use of CFLs, LEDs, solar cells and halogen lights promoted. CFLs in some products offer up to 80% energy efficiencies, lasting 10 times longer than traditional bulbs. IKEA has set a target to increase filling rates and achieve 70 percent by FY12. According to calculations based on current conditions, an increase of the filling rate from 63% to 70% can potentially reduce the carbon dioxide emissions from transportation by 6.3 percent. IKEA says flat packages are part of their ambition to increase efficiency in all aspects, including transport. IKEA has defined standards for green company cars. By 2010, all IKEA company cars shall meet the EU carbon dioxide emission targets of 120 grams carbon dioxide per kilometer driven. For the last three years travel costs have increased with around 20 percent per year. In FY08, for the first time travel costs were reduced by 20 percent compared to the previous year. % of people traveling to IKEA stores by public transport has increased from 8 to 9% this year, target being 15% in FY 09.

B.2.4. Partnerships 5% A

WWF partner, Green Power Market Development Group, the Network for Transport and Environment (NTM), Clean Cargo Working Group (CCWG), Refrigerance Naturally, SmartWay.

B.2.5. External verification 15% F

Data not reported to Carbon Disclosure Project. IKEA uses the Green House Gas protocol (GHG) developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) as its reporting standards. Data not known if externally verified.

B.2.6. Risk Assessment team 5% F

No information available.

Comment:- GHG intensity is low among its peers in the US, almost 30% lower than Walmart. Internationally, it is still high compared to its peers, Marks and Spencer's in the UK, which is 25% lower than IKEA or Aeon in Japan. There have been no specific targets for GHG reduction,

a key goal, no mention of risk assessment teams in place. Also, data is not reported to CDP nor known if externally verified or not, a tough bet for credibility.

B.3. Total Waste	20%	4.5
B.3.1. Normalized waste data: Not known.	10%	F
B.3.2. Recycling/ reclaimed/used in energy production rate:	25%	5.6
Operational waste:	10 %	A
The company states it has a recycling rate of 85% from stores, 90% from DCs and 72% from rest of Swedwood.		
Construction waste	10%	F
Food waste	5%	F
B.3.3. Reduction targets and timeframe:	10%	A
Goal in FY09 being 90% in stores, DCs and Swedwood. Recovered and reused products target is 75% from 61% this year.		
B.3.4. Reduction/ recycling/ reuse efforts:	25%	C
CFLs are taken back at stores. In some countries, Christmas trees are taken back, data not known if applicable to the US.		
B.3.5. Efforts to reduce/ treat toxic waste:	15%	F
No information on targets to reduce.		
B.3.6. Partnerships:	5%	F
None disclosed.		
B.3.7. Non biodegradable waste reduction efforts:	10%	A
IKEA is working to phase out the use of plastic bags in those stores which still have these types of bags. After an initiative in 2006, IKEA UK no longer sells plastic bags. In March 2007, IKEA US introduced the campaign 'Bag the plastic bag'. After one year, more than 92 percent of customers said no to plastic bags. Starting in October 2008, IKEA US no longer offers plastic or paper bags, but only reusable bags.		
<u>Comment:</u> No information is available on construction and food waste targets or reduction efforts for toxic waste, an important part of waste generated.		
B.4. Water use:	5%	4.4
B.4.1. Normalized water data:	40%	F
Not available.		

B.4.2. Recycling/ reuse/ reduction target and timeframe: 20% C

Using a new quality standard, which will reduce the textile weight, will lead to a 24 percent reduction of cotton need, and improve water efficiency in the processing by 20 percent for product categories in large volumes.

B.4.3. Recycling / reuse/ reduction efforts: 40% B

The IKEA WWF cotton project in Pakistan has led to 40% decrease in water use. IKEA GreenTech is an investment company, which aims to bring good and affordable environmental products to the many people so that they can reduce their CO2 emissions and water usage while also reducing their energy and water costs. IKEA GreenTech plans to focus on five areas: solar panels, lighting, raw materials, energy efficiency and water saving.

Comment: IKEA requires catalogue suppliers to document their water consumption though IKEA itself has not documented its own water consumption data.

B.5. Paper/Wood use: 5% 7.6

B.5.1. Normalized wood/paper data: 7,223,000 cu.m 25% A

B.5.2. Recycling/ reuse/ reduction target and timeframe: 10% F

Data not available.

B.5.3. Recycling / reuse/ reduction efforts: 30% A

12.4 million pounds of office paper recycled. A preliminary baseline assessment of their wood product supply chain was completed in 2008.

B.5.4. Amount certified by FSC or SFI or other: 35% C

Rainforest Alliance Smart- Wood Program, a third party auditor, complements the IKEA auditing system by conducting a limited number of wood supply chain audits for IKEA.

Currently only 7% of wood sourced are certified. Goal in FY09 is 30%. All of IKEA's and Swedwood's forest leases will be certified during the period 2010-12. IKEA will not reach the set target of 30 percent by the end of 2009 of solid wood from verified responsible managed forests.

B.6. Packaging (Paper/wood used) 5% 4.9

B.6.1. Packaging reduction efforts and target: 20% B

Adapting to EURO standards increases efficiency. Product packaging is adapted to fit exactly onto Euro pallets or other standard IKEA pallets. Only furniture that can be flat packed and adapted to EURO pallet sizes are taken into the product range. Packaging is part of design solution IKEA designers create.

B.6.2. Sustainable materials integration	20%	D
Brown cardboard is their best friend, saving costs and environment friendly. No other data available		
B.6.3. Avoidance of toxic materials	25%	A
In compliance with REACH worldwide.		
B.6.4. Supplier screening for sustainable packaging	30%	F
No information available.		
B.6.5. Recycling rate of packaging materials	5%	A
Not known.		
<u>Comment:</u> Not much data disclosed other than that IKEA says flat packages are part of their ambition to increase efficiency in all aspects, including transport.		

B.7. Land use:	5%	0
B.7.1. Normalized Land use:		
Not known		
B.7.2. Land given back to wilderness:	100%	F
None		
<u>Comment:</u> No data available on the above.		

B.8. Other industry specific load : None

	<i>Weight</i>	<i>Rating</i>
A. Environmental load from Products	45%	8.88
A.1 Resource Efficiency of products offered	10%	5.3
A.1.1 Net reduction target	30%	C
High reduction target some products as their website reveals.		
A.1.2. No of Energy star/ eco label products offered	35%	F
There is no specific data that tells the exact number of green products. However, IKEA says it corporate green solutions right from design in all its products. There are no eco label products offered.		
A.1.3. Reduction efforts	30%	A
IKEA incorporates sustainability in all its products. CFLs in some products offer up to 80% energy efficiencies, lasting 10 times longer than traditional bulbs. Use of halogens, LEDs, solar		

cells and CFLs have been promoted. Since 15% of world's water consumption is in household, the tap RINGSKÄR uses cartridges as a flow control device to save water in the kitchen.

Other sustainable materials have been introduced that saves wood in products.

A.1.4. Partnerships 5% A

Better Cotton Initiative, Building and Wood workers International, Rainforest Alliance, UTZ certified.

A.2 Materials used in products 30% 8.19

A.2.1 Avoidance of toxic substances 50% 9.9

A.2.1.1. RoHs Compliant 10% A

A.2.1.2. REACH compliant 15% A

All electronics are **RoHs** compliant and all products are **REACH** compliant in all markets. (EU RoHs directive on hazardous substances in electrical and electronic components and the REACH legislation on restriction of chemicals.) New internal requirements for documentation have been developed in accordance with REACH and IKEA demands. IKEA also participates in formal and informal networks related to REACH. Exception **phthalates** in cables – phase out ongoing. Timeframe not known.

A.2.1.3. Green Screen tool 40% A

All IKEA suppliers are bound minimum environmental requirements guided by IKEA, which includes being REACH compliant and RoHs compliance.

A.2.1.4. Toxic chemicals reduction efforts in products 30% A

IKEA aims to phase out all **solvent-borne wood coatings** by the end of 2009. During FY08 focus has been to form phase out plans for each supplier, including setting timelines and identifying major challenges, priority being the children's range where almost all wood based products are coated with water-borne coatings.

IKEA has helped selected IKEA textile suppliers to connect them with chemical suppliers in a scheme referred to as "chemical leasing" to reduce use of chemicals in textiles. The chemical supplier places a technical specialist at the textile supplier to oversee the processing and support more efficient chemical control, chemical and water reduction and waste water treatment. In FY08, five suppliers in India

and Bangladesh reduced their use of chemicals significantly as well as water and energy use.

The IKEA catalog was the first major color publication in the world to be printed on Totally Chlorine Free paper. IKEA does not use optical brighteners used in beddings. Also, IKEA stores BPA free polypropylene utensils.

A.1.2.1.5. GM foods stocked / Use of GM	5%	B
Wood sourced from non Genetically Modified (GM) tree plantations. No mention of GM foods stocked.		
A.2.2 Integration of sustainable substances in products	40%	8.1
A.2.2.1 Organic products offered	35%	B
a) UTZ certified coffee in all IKEA stores worldwide.		
b) Goal is 15 percent of all products available in the Swedish Food Market shall be certified organic products.		
c) IKEA says the amount of renewable reached 72% in their products in FY08. Goal being 75% in FY09.		
A.2.2.2.Substitution of non toxics by toxics	35%	A
Is REACH compliant and hence has to comply with the Substitute It Now list (SIN).		
A.2.2.3. Certified raw materials	30%	C
For Wood certification, see paper/wood. IKEA says the number certified paper suppliers has decreased though.		
UTZ certified coffee in all IKEA stores worldwide. 15% or the food products are certified organic. IKEA says it does not offer fish from endangered stocks. However, there is no criteria that explains clearly, on what basis or certification they follow to implement this.		
A.2.3 Animal testing	10%	F
No information is available on this subject for IKEA.		
A.3. Recyclability/take back/recoverability/reusability of products	15%	A
a) The main raw materials used in IKEA products are wood, cotton and glass. Wood and cotton are renewable materials, while glass is recyclable.		
b) CFLs have a little mercury in them and hence IKEA offers to recycle CFLs.		
c) Recovered and reused products target is 75% from 61% this year.		
A.4. Measures to taken to extend the useful life of products	5%	B
Any damage to products to products are attempted to be repaired than discarded. CFLs in some products offer up to 80% energy efficiencies, lasting 10 times longer than traditional bulbs		

A.5. Eco-products/ technology offered**10% A**

No information is available as to what the basis of category is or what the requirements are or what percentage of products are eco friendly. Though IKEA claims its designers, product developers and technicians must consider environmental aspects from the initial design stage throughout the product's life cycle in all its products.

A.6. Environmental services of products offered

IKEA GreenTech is an investment company, which aims to bring good and affordable environmental products to many people so that they can reduce their CO₂ emissions and water usage while also reducing their energy and water costs. IKEA GreenTech plans to focus on five areas: solar panels, lighting, raw materials, energy efficiency and water saving.

A.7. Green product innovation**30% A**

IKEA says Water consumption can be reduced by 85 percent and energy consumption by 58 percent if using a dishwasher from the IKEA range. This is equal to reductions of CO₂ emissions with 150 kg per year.

The tap RINGSKÄR uses cartridges as a flow control device to save water in the kitchen.

CFLs in some products offer up to 80% energy efficiencies, lasting 10 times longer than traditional bulbs.

LACK side table is one of the first IKEA product made from strong and rigid wood-based frames filled with recycled, honeycombed paper. LACK uses less raw material than particleboard, is more lightweight and thus easier to handle both in transport chain and for customers. BESTÅ is made from board-on-styles (BoS), another strong and light material that minimizes the use of resources.

The IKEA patented Loading Ledges are a smart alternative to traditional wooden pallets. Instead of a pallet's rigid platform, ledges are flexible, expanding and contracting to the size of the load. The Loading Ledges are made from polypropylene plastic that is continuously recycled and made into new ledges.

TEPPAS drawer unit is made from 100 percent recycled PET plastic. It is stackable and can be combined with a handy trolley for mobility.

As an alternative material which can help to reduce the need for cotton in IKEA products, Lycocell that is produced from cellulose can be used as an environmentally friendly alternative to cotton, is currently being used in a number of products in the IKEA range. IKEA is

investigating the possibility to use a blend of linen and cotton to further reduce the need for cotton.

IKEA SELF-ASSEMBLY furniture is easy to dismantle This makes it simpler to recycle and reuse materials such as wood, plastic, metal and glass.

Sawmill waste mixed with recycled plastic produces a strong material that minimizes the use of resources. Stackable products mean less transportation and fewer emissions.

IKEA - WWF projects in Pakistan has led to the average use of pesticides reducing by 48 percent, use of fertilizers by 32 percent and water use by 40 percent. At the same time earnings have increased by 87 percent.

Using a new quality standard for products in large volumes, which will reduce the textile weight will lead to a 24 percent reduction of cotton need, and improve water efficiency in the processing by 20 percent.

Comment: IKEA sells the same product worldwide and is consistent in its products and has more green innovations in products compared to Walmart since it incorporated dfEnvt in its products.

R. Environmental Compliance, Litigations and Controversies: (CLC)	9.8
	Weight Rating
R.1.Compliance history:	
7 compliance violations occurred as part of history checked.	5% C
R.2. Recent Compliance for violations/fines in the most recent year:	10% A
R.3.Accidents/ Spills/ Permit denials/ Shut-ins:	
Spills:	10% A
Accidents:	5% A
R.4. Contaminated historic liabilities like Underground Storage Tanks, Manufacturing Gas Plant MGPs waste removal, industry specific liabilities - None.	
R.5. Other historic liabilities –None.	
R.6. Superfund status, No of Superfund sites: None	20% A
R.7.Litigations/ Government proceedings:	15% A
R.8. Environmental controversies through products/ services	35% A
There has not been any significant controversy or recall due to environmental reasons.	
R.9. Environmental controversies otherwise – none.	

M. Management Score		6.69
	<i>Weight</i>	<i>Rating</i>
M.1. Environmental strategy	15%	8.3
M.1.1 Policy:	15%	A
<p>The company has a policy that covers 100% of employees on sustainability. IKEA is a signatory to the United Nation's Global Compact's ten principles in the areas of human rights, labor, environment and anti-corruption, in the course of their operations. Their environmental mission: Efficient use of resources is key to keeping prices low. This also helps in their environmental work. They strive to use as much renewable and recyclable materials as possible and work actively to reduce our impact on the climate. Keeping prices low is a cornerstone of the IKEA business idea, yet their low prices must not be at the expense of people or the environment. That is a prerequisite for doing good business.</p>		
M.1.2 Integration with Core business:	25%	A
<p>All IKEA managers are responsible for including sustainability issues in daily work. All IKEA stores and distribution centers have social and environmental coordinators who work in the areas of training, working conditions, safety, waste management, water and energy conservation. IKEA says its core areas include: Environmental design, consideration of safety, quality and environmental aspects from the initial design stage throughout the product's life cycle.</p>		
M.1.3 Consistency in operations (International/ domestic):	25%	A
<p>All environmental targets are consistent within the US and outside.</p>		
M.1.4. Active commitment of senior management:	15%	B
<p>IKEA has an active commitment from senior management in the form of separate Sustainability Manager and environmental coordinators who work in all necessary areas of sustainability as part of daily work. No information on how often the members meet or about updates to the CEO, etc.</p>		
M.1.5. Commitment to use of targets and monitoring:	10%	C
<p>Efficient use of resources or using the smallest amount of resources to make the best possible products, Sustainable sourcing of raw materials, focusing on wood and cotton, Climate change, development of products with less impact on the climate, transportation of products, 'IKEA Goes Renewable' and co-operation with WWF on customer transportation and energy use at IKEA suppliers are some of the targets. Most data is monitored annually and reported, though some key data such as amount of energy used, GHG reduction target and waste generated are missing.</p>		

M.1.6. Differences between actual and disclosed:	10%	F
All data needs external verification. Also, IKEA, as a private company does not report to CDP and hence no comparison of data could be made to detect differences. IKEA could not make its goal of 30% FSC certification at the end of 09, a key commitment.		
M.2. Corporate Governance	15%	4.8
M.2.1 Board Structure CSO:	40%	C
Manager of sustainability overseeing sustainability coordinators in all stores and DCs.		
M.2.2. Environmental factor in compensation:	30%	F
No information available on this.		
M.2.3.Green investment in energy	30%	B
\$73 m over the next 5 years in GreenTech apart from other greening investments.		
M.3.Environmental Management Systems	15%	5.9
M.3.1. % Number and Qualifications of separate Environmental staff:	15%	A
All IKEA managers are responsible for including sustainability issues in daily work. All IKEA stores and distribution centers have social and environmental coordinators who work in core areas identified as environmental targets. The IKEA managers report to the Sustainability Manager who coordinates them. It is not known other than the Sustainability Manager, if there are any separate environmental staff since IKEA believes in integrating environmental requirements as part of all job requirements from design through delivery to customer.		
M.3.2. ISO 14000 or other certified EMS, international certifications:	30%	F
Lack of information/ no disclosure if they have any concept of EMS.		
M.3.3. Internal/ external Environmental Performance Indicators:	10%	B
Targets have been identified in some areas and are monitored annually. Some key targets such as GHG, energy usage are missing. A section called separate metrics reports all necessary KPIs in its CSR.		
M.3.4. Existence and adequacy of data collected, reported, managed:	20%	B
Most data are collected, reported and managed adequately and clearly.		
M.3.5. LCAs , dfenvt and other environment tools used:	25%	B
IKEA uses the e-Wheel to understand and evaluate the environmental impact of products. The e-Wheel has several check-points, divided into five phases: materials, manufacturing, distribution use and end of life. Designers, product developers and technicians must consider		

M.8.1 Environment screening for suppliers

30% B

IKEA says it identifies its carbon footprint throughout the whole value chain; including the extraction of raw materials at source, the processing at suppliers and sub-contractors, customers transportation to IKEA stores, and customers' use of our products in their homes. IKEA has established the IKEA way of Conduct or IWAY as follows: Environmental standards IKEA and its suppliers shall continuously reduce the environmental impacts of their operations. Suppliers must agree to:

- work to reduce energy consumption,
- work to reduce waste and emissions to air, ground and water,
- handle, store and dispose of hazardous waste in an environmentally safe manner,
- contribute to the recycling and reuse of materials and used products.

IKEA requires suppliers to order certified products tests by third party laboratories and makes products compliant to the strictest regulations in the world. REACH requirements are included in the IKEA material specifications to suppliers and require the supplier (or sub-supplier) to make a declaration that no SVHC is present in the products.

Comment: Though there is no formal supplier screening, the supplier requirements and audits seem to be the screening technique. This is not preemptive system like Walmart, where there is a pro-active technique to screen suppliers based on their environmental history. Even in the audits, only 7% of Chinese home furnishing suppliers, half of transport providers, 13% of food suppliers currently are IWAY approved, though the target is for 100% without a timeframe.

M.8.2. Supplier collaborated environmental efforts/ programs:

15% A

With WWF, IKEA piloted a project that aims to promote and create efficient production practices at IKEA suppliers, with a focus on energy efficiency and the use of renewable energy. IKEA has helped selected IKEA textile suppliers to connect them with chemical suppliers in a scheme referred to as "chemical leasing". This is a method previously used in the car industry in order to reduce the use of chemicals. The chemical supplier places a technical specialist at the textile supplier to oversee the processing and support more efficient chemical control, chemical and water reduction and waste water treatment. In FY08, five suppliers in India and Bangladesh reduced their use of chemicals significantly as well as water and energy use. Several suppliers even increased their capacity during the same period.

Together with WWF, a pilot project has been developed and is running with ten suppliers in Poland, Sweden and China. This project aims to promote and create efficient production practices at IKEA suppliers, with a focus on energy efficiency and the use of renewable energy.

M.8.3. % Number of environmentally certified suppliers 25% F
None disclosed.

M.8.4. Environmental Supply Chain used: 30% B

IKEA has defined standards for green company cars. By 2010 all IKEA company cars shall meet the EU carbon dioxide emission targets of 120 grams carbon dioxide per kilometer driven. In FY08, for the first time travel costs were reduced by 20 percent compared to the previous year. No disclosure on environmental production planning and control measures or green distribution techniques.

All transport service providers must measure their carbon dioxide emissions and set a three year target to reduce these emissions. They must also fill in and annually update an Environmental Performance Survey. In addition, transport service providers must use trucks that are no more than 10 years old.

Responsible purchasing has been initiated for various raw materials through certifications. However, the amount certified is currently only 7% in wood, 100% in coffee, unknown for glass and cotton.

All suppliers are bound by REACH and other strictest regulations in the world.

Recovered or reused products % is very high with goal 75% in FY09. However, no information exists as to how the products are taken back/ recovered or reused. Also, damaged products are called back for repair instead of marking them as waste.

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BIOGRAPHICAL INFORMATION

Arunapparakasini Sankaranarayanan received her Bachelor of Engineering degree in Mechanical Engineering from Birla Institute of Technology and Science, India, in 1996, Master of Science in Logistics from the University of Texas at Arlington in 2005 and Doctor of Philosophy in Industrial and Manufacturing Systems Engineering from the University of Texas at Arlington in 2010.

Arunapparakasini has worked in product engineering fields at multinational companies including Visteon Automotive, UK and the US, with clients including Jaguar Cars, UK, Ford Motors, India and Mahindra and Mahindra, India.

Her main research interests are in sustainability, green supply chain dynamics and their emerging technologies, other than mainstream logistics. Her graduate research projects included working with Caterpillar Logistics for operational and process recommendations, comparison of supply chains in India and the US and security analysis of internet commerce. She also worked as a Graduate Research Assistant during her Master's degree at the University of Texas, Arlington.

Arunapparakasini hopes to work in environmental sustainability area to help companies improve their environmental performance consciously and create products responsibly for a better environment in the future.