SUSTAINABILITY AS A BUSINESS PARADIGM

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ABSTRACT

In recent years, investors and organizations have become increasingly aware of the importance of sustainability practices. While there has been much development in sustainability indices and evaluation method of companies, the need for standardization and globalization of sustainability measuring indices remains. Also, there have been unsettled arguments about exactly why businesses are adopting sustainability practices and if businesses really benefit from pursuing sustainability values. Hence, it is our goal to first understand the fundamentals of prevailing sustainability measuring indices and come to a preliminary conclusion as to what is the underlying mechanism that leads companies to pursue sustainability practices despite additional cost.

Primary research into the market as well as extensive secondary literature search were done across well-known journals, news articles, and company & analyst reports to select standardized and globalized sustainability indices across three primary areas of Environmental, Economic, and Social. The selected indices were examined on their description, basis, practicality, and implications to validate the legitimacy. We further validated them by analyzing them alongside actual questionnaires of Dow Jones Sustainability Index. Recent sustainability reports of three global companies—BMW, Infosys, and L&T—were analyzed to investigate how those indices are used in practice and how companies evaluate themselves. Following the two critical analyses, further market financial market research and literature search were performed to answer the objective question.

As a result, 3 major quantitative Environmental indices (Environmental Performance, Environmental Reporting, and Industry Specific Criteria), 4 major Economic indices (Code of Conduct, Corruption/Bribery, Corporate Governance, and Risk & Crisis Management), and 5 major Social indices (Corporate Citizenship/Philanthropy, Labor Practice Indicators, Human Capital Development, Social Reporting, and Talent Attraction & Retention) were identified, investigated, and validated as legitimate indices. The qualitative and quantitative analyses of three companies—BMW, Infosys, L&T—confirmed that these companies employ all of the indices examined. Overall, these positive assessments were validated by aligning them with various green and sustainability awards each company earned in the recent past.

One particular common theme in company reports was that their net incomes were in a high growth trajectory from the previous years—19% growth for L&T, 20% growth for BMW, 17% for L&T, providing a hypothesis that there may be correlation between good sustainability practice and financial performance. Supporting the hypothesis, financial market analysis and expert reports pointed out that the share price of companies listed in the Dow Jones Sustainability Index and the FTSE4Good Indexes have outperformed other companies. Furthermore, companies who belong to the World Business Council for Sustainable Development have outperformed their respective national stock exchanges by 15 to 25% [16].

Based on the findings from the analyses and arguments presented in this paper, we conclude that one possible reason why businesses are adopting sustainability values and marketing them is to grow its financial performance and build a favorable brand image which, in turn, creates a sustainable reinforcing cycle to its financial performance.

CONTENT

1. INTRODUCTION

In recent years, investors and organizations have become increasingly aware of the many ways that environmental issues affect their businesses, presenting to them both challenges and opportunities. These environmental issues generate business risks that have to be carefully managed. Now regulations aimed at protecting human health and the environment constantly have been evolving and there is great certain degree of uncertainty and reluctance in corporate organizations as adopting these regulations significantly affect the organizations' market performance and their budget. Consumer reactions, customer awareness and other environmentally motivated litigation create serious non-regulatory risks that may reduce a company's market value or undermine its balance sheet.

At the same time, rich rewards have started to surface to incentivize the organizations able to transform environmental concerns into market opportunities or competitive advantage. Some organizations have recognized new demands for "green" products and established new market niches with growing customer base. Whereas, some organizations find that their reputations have enhanced and their earnings have increased by adopting cleaner production techniques or facilities. Corporate organizations have even made a changing regulatory framework into a source of competitive advantage by pre-empting environmental regulations and voluntarily going beyond compliance on their own terms, knowing that it can provide them a competitive edge in terms of market reputation.

In many different ways, the environment is directly affecting the usual bottom line, financial profit, and often with very different consequences for companies even within the same sector. All these risks and opportunities carry directly over into the capital markets and that also affects the dynamic of the stock prices. Even as capital markets come to recognize the importance of environmental matters for financial performance, environmental issues remain outside the mainstream of financial analysis and valuation that provide the foundations for investment decisions and corporate strategy. For the most part, fundamental tools of financial analysis and investment decision-making are not being applied to environmental issues, impeding the ability of investors to make sound choices when the environment poses financial risk or opportunity. This is largely because of the lack of a feasible methodology for translating environmental performance into financial terms. In particular, no approach has adequately translated environmental risks into the dollars-and-cents terms with which investors and businesses are used to working. Instead, environmental issues are often reduced to checklists, qualitative screens, or compliance-based decisions.

At present, there are many global guide lines and set of indices to lead the change towards a sustainable future. Yet the need for standardization and globalization of sustainability measuring indices remains. Hence it is our goal to understand the fundamentals of prevailing sustainability measuring indices and undertake a quantitative analysis of their present prototypes by looking at five corporate organizations and indices employed in their operations, and also to project a possible course of future developments in this rapidly expanding domain of sustainability regulations and reporting

2. RESEARCH GOALS

- To critically analyze the sustainability measuring metrics available and to look at their incorporation into current global business practices.

- To look at specific corporate organization and study their response to sustainability measuring metrics.

- To analyze the factors that lead the global corporate organizations to adopt available sustainability measuring metrics into their business strategy, despite the well know belief that the incorporation of such metrics usually raise cost and hardly translates into monetary returns.

3. BACKGROUND REVIEW

Over the recent decade, the issue of sustainability has been one of the big areas where many businesses and stakeholders paid close attention to. In order to meet the need to properly and effectively measure the level of sustainability of various businesses across industries and sizes, several large agencies developed indices and methodologies to provide general frameworks of analysis and quantification process. As of late 2011, the five of the major index vehicles are Dow Jones Indexes/SAM, MSCI, FTSE/EIRIs, Nasdaq/CRD Analytics, and Global Reporting Initiatives [1].

In addition to these standardized index systems, many scholars have studied definition of sustainability along with the effective categorization and large domains of indices on a more general scale. For example, Sikdar from the US Environmental Protection Agency extensively studied types of global sustainability concerns—breaking it down into Type I, II, and III—and divided sustainability into three aspects of pollution avoidance, economic value-added, and societal good [2]. And he further analyzed the three domains of metrics that had been developed by Azapagic and Perdan [3] and placed them within the three aspects. What is interesting is that this figure not only categorizes the three independent domains of economic, sociological, and environmental, but also examines cross sections and label them eco-efficiency, socio-economic, and socio-ecological as appropriately [4].

To meet individualized and particular needs of different industries, such general approach was specialized into more specific metrics still within the general domains of economic, environmental, and social. One of the most recent and representative works was done by the Institute of Chemical Engineers that developed a highly quantified metrics specifically for the process industries [4].

In this dynamic wave of sustainability index development, two questions emerge as to how are indices actually used in practice when companies evaluate themselves in their sustainability reports and why do companies care so much about sustainability index despite additional cost? Thousands of companies produce sustainability reports almost annual, but there have not been, to our knowledge, more in-depth analysis of those reports themselves with knowledge of other standard indices such as Dow Jones Sustainability Index.

4. SCOPE / DESCRIPTION OF RESEARCH

The research will mainly undertake primary research into the financial market and company reports, secondary literature search into journals, news articles, analyst reports, and books. As the number of sustainable indices and target companies is extensive to be all identified within the limited amount of time and resources, research effort is focused on identifying 3~5 target indices in each category and analyzing 3 global companies with recent sustainability reports.

5. METHOD OF RESEARCH

- To choose the metrics to focus on across the three pillars of Sustainability from an array of existing sustainability measuring metrics.
- In depth analysis of the chosen metrics for their basis, practical use, violation and possible future development.
- To choose five corporate organization which have embraced the sustainability fostering standards and critically analyze their compliance with those standards.
- In order to address the research question, "why businesses around the world are adopting sustainability measuring metrics despite knowing the fact that their incorporation incur substantial cost and they usually do not provide equivalent returns." analyze the aftereffects of integrating these metrics into business policy, in case of all five chosen corporate organizations and their annual development.

6. RESEARCH

6A. Critical Survey of quantitative and qualitative indices for measuring sustainability in Business. Their basis, practical use, violations and possible advancement.

The need for sustainability measuring metrics

Due to already existing and increasing global concerns about sustainability, serious attempts have been made by the corporate organizations and national governments around the world. In the simplest form possible the sustainability can defined as, development that meets the needs of the present without compromising the ability of future generations to meet their own needs [1]. Since future cannot be predicted precisely, it's hardly possible to judge what resources future generations would need for their growth and prosperity. This rises the need of globally applicable quantifiable standards and treaties which can check the current growth pattern and can ensure mindful utilization of resources. Quantification of sustainability is a vital first step in human attempt to attain it [2]. The difficulty in defining, and indeed satisfying activities that meet the above sustainability definition, at least in the short term, brought rise to less demanding "practical" definitions, such as that formulated by industry/commerce: a sustainable product or process is one that constrains resource consumption and waste generation to an acceptable level, makes a positive contribution to the satisfaction of human needs, and provides enduring economic value to the business enterprise [2]. Addressing the need for sustainability measuring indices, various quantification standards have been developed by international organizations. For this part of study we have employed *Dow Jones Sustainability World Index* (DJSI World) which was established to track the performance of the world's largest companies that lead the field in terms of corporate sustainability.

Corporate Sustainability is an approach to creating long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social trends and challenges [3]. Sustainability trends such as resource scarcity, climate change or an aging population continuously reshape a company's competitive environment. Also it is believed that companies that can adapt to such challenges through innovation, quality and productivity enhance their ability to generate long-term shareholder value. For this reason, Dow Jones developed the annual Corporate Sustainability Assessment in order to identify companies that are better equipped to recognize and respond to emerging sustainability opportunities and challenges presented by global and industry trends. [3]

The Indicators employed under Dow Jones Corporate Sustainability Assessment across three pillars of Sustainability

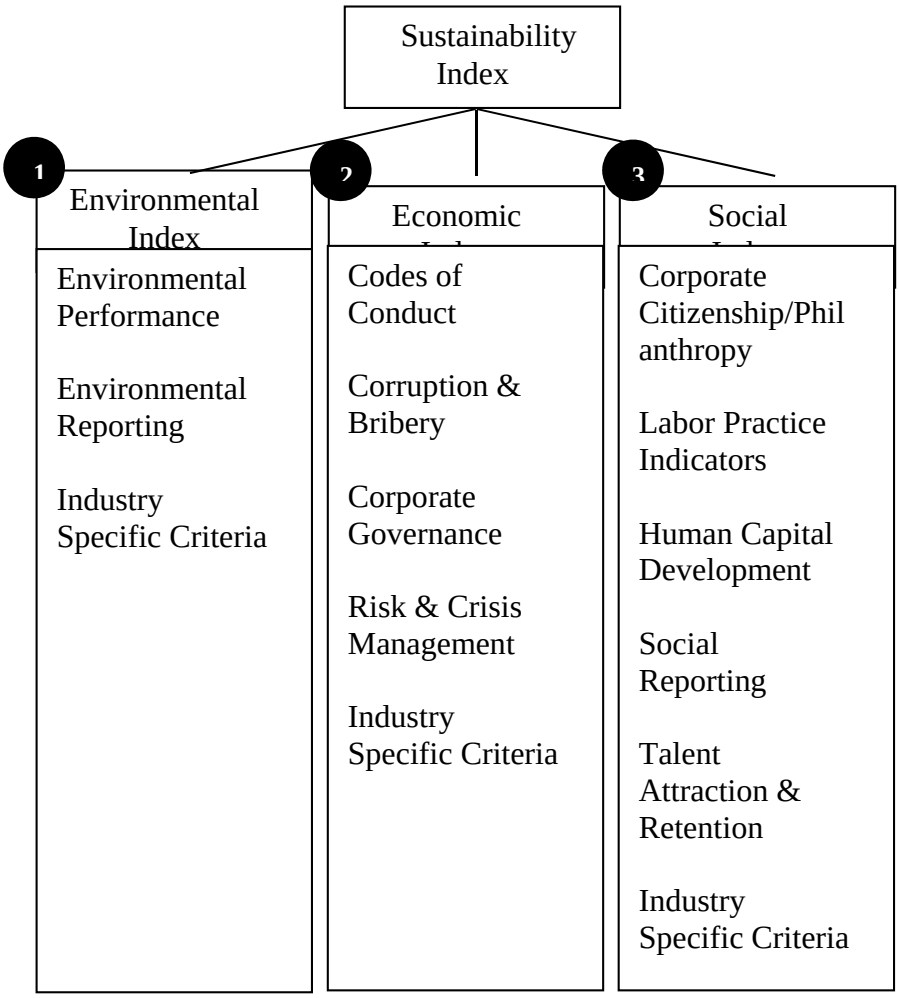

Fig. 01 [1] Self Prepared

Environmental Indices, their Basis and Practical use

- Environmental reporting

Quality of environmental reporting – This section evaluates the content, context and coverage of the environmental reporting included in other reports or on company's website (e.g. CSR report or annual report) [4]

Materiality – This section evaluates company's public reporting on the processes and tools used to identify and prioritize critical environmental issues within the sustainability strategy, including a consideration of impact on the company's business performance. [4]

- Environmental Policy/Management systems

Corporate environmental policy – it evaluates whether company's environmental policy convers
1. Environmental impact of company's own operations
2. Environmental impact/ risk of company's products and services
3. Regular communication to executive management and/or board of directors.
4. Suppliers, service providers and other key business partners. [4]

Environment Management System: certification/Audit/Verification – it evaluates how company's environment management system is verified/audited/certified. [4]

Environment Management System: Coverage of certification – it indicates the percentage of sites in terms of revenues generated from business operations under management control verified/audited/certified according to these systems.

Environmental Management – This section includes a performance score on the Corporate Sustainability Monitoring with the objective to verify the company's involvement and management of crisis situations that can have a damaging effect on reputation. The evaluation will be filled in by the responsible analyst of your industry.

- Operational Eco-Efficiency

Direct greenhouse gas emissions – It looks at company's total direct greenhouse gas emissions or the part of your company's operations for which company has a reliable and auditable data acquisition and aggregation system for greenhouse gas emission calculation. [4]

Indirect greenhouse gas emission – it evaluates company's indirect greenhouse gas emissions from energy purchased and consumed (i.e. without energy trading) for the part of your company's operations for which company has a reliable and auditable data acquisition and aggregation system. [4]

Energy Consumption – It considers company's total annual energy consumption, covering all the forms of energy the company uses.

Water – it considers company's total water use for the part of company's operations for which company has a reliable and auditable data acquisition and aggregation system [4]

Waste Generation – it considers company's total waste generated (not reused or recycled) for the part of company's operations for which company has reliable and auditable data acquisition and aggregation system. [4]

Economic Indices, their Basis and Practical use

Code of Conduct

According to the Princeton University's WorldNet, a code of conduct is a set of conventional principles and recommendations that an individual or organization is expected to follow [1]. Specific codes of conduct are often adopted by businesses to perform efficiently and ethically and build certain brand images to their stakeholders. For example, a code of conduct of Accenture, a global consulting company, includes "Foster the highest ethical standards amongst Accenture personnel…Be effective in preventing, detecting and appropriately reporting and addressing any allegation of misconduct…Comply with government procurement laws and regulations" [2].

This index is globally used by Dow Jones Sustainability Index for 10% of the 2500 largest companies in the Dow Jones Global Total Stock Market Index. It is a critical index in that it shows what values companies require from their employees in their strategic direction and operational processes to achieve the economic sustainability [5].

This index investigates various aspects of companies' code of conduct and its effort to enforce compliance to the code. A code of conduct is a set of rules or recommendations that outline responsibilities and mandates for an individual or organization. Specifically, it assesses whether companies have particular codes of conduct in such areas as corruption and bribery, discrimination, confidentiality of information, antitrust/anticompetitive practices, money-laundering and/or insider trading, security of staff, business partners, customers, environment, health, safety, or whistle-blowing [sample].

This index also investigates how companies enforce their employees' level of compliance with codes of conducts in various business and functional units. Particularly, this index assess responsibility definition, dedicated help/compliance staff in place, employee performance evaluation system integrated with compliance with codes of conduct, disciplinary actions in case of breach, certified compliance system is certified/audited/verified by third party [3].

The qualitative analysis is quantified by assigning scores for each question given to companies to answer and submit. In Dow Jones Sustainability Index, each criterion has assigned possible scores that are multiplied by question weight and category [economic] weight to be computed into the final sustainability score along with other factors – score = p*qw*cw, where p = # points received, qw = question weight, cw = economic criterion weight. All variables are assigned varying weights depending on specific questions, industry the target company belongs, and criterion area [4].

Corruption/Bribery

Investors and other stakeholders are increasingly watching how companies handle corporate social responsibility [CSR], of which anti-corruption efforts are an important element. This index is widely used by FTSE4GOOD Index Series and Dow Jones sustainability Index for 10% of the 2500 largest companies in the Dow Jones Global Total Market Index, indicating that countering corruption had become an important part of the corporate sustainability development [6].

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This index investigates company's management of policies and enforcement towards acts of corruption and bribery. Specific considerations include company's operational definition and scope of corruption/bribery [bribes in any form, direct/indirect political contributions, charitable contributions, sponsorship, etc.] and frequency of public report of its own violation of bribery policy [3].

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Corporate Governance

Corporate governance index focuses on how companies operates and governs its strategic decisions, organization structure, responsibilities, operations, etc. In addition to the code of conduct, this index is critical in indicating how companies set their standards, ethics, and objectives driven by certain vision often including sustainability development.

This index is standardized and globally applied. It especially is widely used by BM&FBOVESPA and Dow Jones sustainability Index for 10% of the 2500 largest companies in the Dow Jones Global Total Market Index, indicating that countering corporate governance is a reliable indicator in assessing companies' level of sustainability commitment [5], [7].

At large, this index investigates the structure of Board, role and number of executives and directors, responsibilities and committees, transparency and accountability, checks and balances in terms of gender diversity and Board effectiveness, audit conflicts of interest, disclosure of compensation, etc. [3].

The qualitative analysis is quantified by assigning scores for each question given to companies to answer and submit. In Dow Jones Sustainability Index, each area is assigned certain maximum points, and the sub-score is calculated as follows - index score = p*qw*cw, where p = # points received, qw = question weight, cw = economic criterion weight. All variables are assigned varying weights depending on specific questions, industry the target company belongs, and criterion area [4].

Risk & Crisis Management

Plans or programs instated to avoid potential threats and cope with actual threats before, during, after certain threats are critical in the dynamic world of business. Potential risk and crisis could be categorized into seven different types: Natural disaster, Technological crises, Confrontation, Malevolence, Organizational Misdeeds, Workplace Violence, Rumours, Terrorist attacks/man-made disasters [8].

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This index investigates organization of the management team, responsibilities, analysis methodology of risks/sensitivity analysis/stress testing, risk response strategy, etc. [3].

The qualitative analysis is quantified by assigning scores for each question given to companies to answer and submit. In Dow Jones Sustainability Index, each area is assigned certain maximum points, and the sub-score is calculated as follows - index score = p*qw*cw, where p = # points received, qw = question weight, cw = economic criterion weight. All variables are assigned varying weights depending on specific questions, industry the target company belongs, and criterion area [4].

Social Indices, their Basis and Practical use

Corporate Citizenship/Philanthropy

The term Corporate Citizenship has emerged in 1980's as a practical management word dealing with the social role of U.S. business. Its notion was introduced to the concept of corporate social responsibility, which explicates that a corporation is responsible for, in addition to its economic, legal, and ethical responsibility, the philanthropic contribution to various societal groups. The recent definition of the Corporate Citizenship has become the "social

role of the corporation in administering citizenship rights, including social, civil, and political rights, for individuals." They could be the corporate's traditional stakeholders, such as shareholders, employees, and customers, or any constituencies in the society having no direct relationship with the company. [1]

One example of a corporation currently abiding to Corporate Citizenship is ExxonMobil, which states, "We pledge to be a good corporate citizen in all the places we operate worldwide. We will maintain the highest ethical standards, comply with all applicable laws and regulations, and respect local and national cultures. We are dedicated to running safe and environmentally responsible operations." [2]

The Corporate Citizenship index is standardized and used by Dow Jones Sustainability Index for world to assess top companies satisfying the necessary categories. The categories include a group-wide strategy that guides the corporate citizenship activities, and the weight for each type of philanthropic activities including charitable donations, community investments, and commercial initiatives. It also evaluates the total monetary input for different type of contributions, such as cash contributions, time contributed by volunteering employees, in-kind product or services donations, and management overheads. Lastly, it investigates the group-wide system implemented to measure the benefits of corporate contributions, and as to whether the objective of corporate citizenship is met. [3]

The procedure for the quantitative assessment of company's Corporate Citizenship begins by calculating points for each category described above based on the questionnaire submitted by the company. In Dow Jones Sustainability Index, each economic, environmental and social sustainability criteria is quantified by aggregating all the scores received for relating indices within the criterion. To do so, the number of points received for each question is multiplied by the question weight within questionnaire and multiplied again by the criterion weight within the criterion. Therefore the index score = p*qw*cw, where p = # of points received, qw = question weight, cw = criterion weight, which varies depending on specific questions and the industry of the target company. [4]

Labor Practice Indicators

The Labor Practice Indicators and Human Rights index measures the degree of employee rights and protection while achieving both economic and social goals of the company. It specifically focuses on the communication between the corporation and its diverse workforce encompassing different gender and minority, and protecting their human rights. [5]

The Labor Practice indicators and Human Rights index is used globally as Dow Jones Sustainability Index for world. The index examines four specific questions in order to quantify the labor practice and human rights relative information eventually determining the social sustainability. It investigates the type performance indicators employed to measure labor relations related issues such as female workforce ratio, average female and male salary, or number of layoffs, etc., within the company, and the systems implemented in the company to receive and handle employee grievances and complaints. It also investigates whether the company has publicly committed to support the Universal Declarations of Human Rights and the UN Framework and Guiding Principles on Business and Human Rights in course of its business as well as whether the company is capable of managing through crisis situation that can damage its reputation. [3]

The quantitative assessment of the Labor Practice Indicators and Human Right index starts by assigning points for the questionnaire given above for companies to answer and submit. Then, the number of points received for each question is multiplied by the question weight within questionnaire and multiplied again by the criterion weight within the criterion. Therefore the index score = p*qw*cw, where p = # of points received, qw = question weight, cw = criterion weight, which varies depending on specific questions and the industry of the target company. [4]

Human Capital Development

The Human Capital Development index is globally used as Dow Jones Sustainability Index for world. The index examines three specific questions in order to quantify the company's human resource strategy leading into social sustainability development within the company. The index investigates company's human resource skill mapping and

developing process for different employee categories, the execution of such skill mapping and developing strategy, and lastly, reinforcement of organizational learning and knowledge management. [3]

The quantitative assessment of the Human Capital Development index starts by assigning points for the questionnaire that companies submit. Then, the number of points received for each question is multiplied by the question weight within questionnaire and multiplied again by the criterion weight within the criterion. Therefore the index score = p*qw*cw, where p = # of points received, qw = question weight, cw = criterion weight, which varies depending on specific questions and the industry of the target company. [4]

Social Reporting

Corporate Social Reporting is the external communication of the company's activities regarding corporate social responsibility. It is generally perceived that social reporting is heavily influenced by the public pressure and increased media attention. Moreover, the external social disclosure can be maneuvered to shape the public's perception of the company's legitimacy, image, or identity. [6] Thus, it is important to have an authentic guidance as to assess the quality of social reporting.

The Social Reporting index is used globally in Dow Jones Sustainability Index for world. The index investigates the content and context of corporate's self-publication, sustainability report or annual report and the materiality of the report. This is sensitive enough section that a separate analyst evaluates the coverage, assurance, qualitative and quantitative data of the social reporting. [3]

The quantitative assessment of the Social Reporting index starts by assigning points for the questionnaire that companies submit. Then, the number of points received for each question is multiplied by the question weight within questionnaire and multiplied again by the criterion weight within the criterion. Therefore the index score = p*qw*cw, where p = # of points received, qw = question weight, cw = criterion weight, which varies depending on specific questions and the industry of the target company. [4]

Talent Attraction & Retention

As corporate social responsibility gained growing public concern, the relationship between CSR and subsequent reputation of the company, and employee attraction and retention was suggested starting in 2000. It was observed that if the corporate has a positive reputation from fulfilling its social responsibility, it also has higher ability to attract talented employees. [7] Attracting and retaining employees with ethical values is extremely sustainable in social dimension of the corporate.

The Talent Attraction and Retention index is globally used in Dow Jones Sustainability Index for world. Several questions are evaluated to assess corporate strategy to manage employee attraction and retention. Primarily, the index investigates the performance appraisal process for different employee category, and the percentage of both corporate and individual performance related compensation for different employee category. It also examines the corporate indicators in place for performance related compensation. Moreover, it looks at the type of individual performance appraisal, type of payout for compensation, employee turnover rate, and trend of employee satisfaction. [3]

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6B. A critical look at five corporate organizations for their compliance with the Standardized global sustainability metrics.

CASE 01 **LARSEN & TOUBRO (L&T)**

Larsen & Toubro Limited, or L&T, is an Indian multinational conglomerate corporation headquartered in Mumbai, Maharashtra, India. The company has business interests in technology, engineering, construction and manufacturing goods. It operates in three segments: Engineering & Construction Segment, Electrical & Electronics segment, Machinery & Industrial Products, and others. L&T is India's largest engineering and Construction Company with a dominant presence in India's infrastructure, power, hydrocarbon, machinery and railway related projects. In recent years, L&T has expanded its global presence and international projects contributed 9% of its overall order book for the 2010–11 period. Considered to be the "bellwether of India's capital goods sector", L&T was recognized as the *Company of the Year* in 2010. L&T has featured four times in *Forbes Fab 50* list of the best public companies in the Asia-Pacific region. [1]

1. Compliance with Environmental Metrics

The environment is everybody's responsibility - as much industry's as that of the somewhat more vocal environmentalists or activists. The 'go green' proposition has shifted from a 'none of my business' to 'one of my business' strategy. At L&T too, the environment is an all-pervasive concern across every product, every process and every decision. In keeping with the reasoning of 'what gets measured gets improved', L&T tracks its progress by adhering to some of the global environmental indices.

Energy Consumption

Due to the ever increasing scope of the report, the diverse nature of businesses and the significant growth in output, L&T currently uses the parameter of energy consumption per employee to monitor our energy trends. [2]

Direct Energy

Absolute direct energy consumption increased from 3,603,369 GJ in 2009-10 to 4,892,362 GJ in 2010-11 due to the inclusion of Hydrocarbon pipe line project business and additional project sites from construction business. The specific direct energy consumption per employee continued to decline and showed a reduction of 4.3% this year as compared to the previous year. [2]

Indirect Energy

The share of renewable energy in our mix of indirect energy consumption comprised 114,389 GJ. The specific indirect energy consumption per employee decreased by 5% as compared to the previous year. [2]

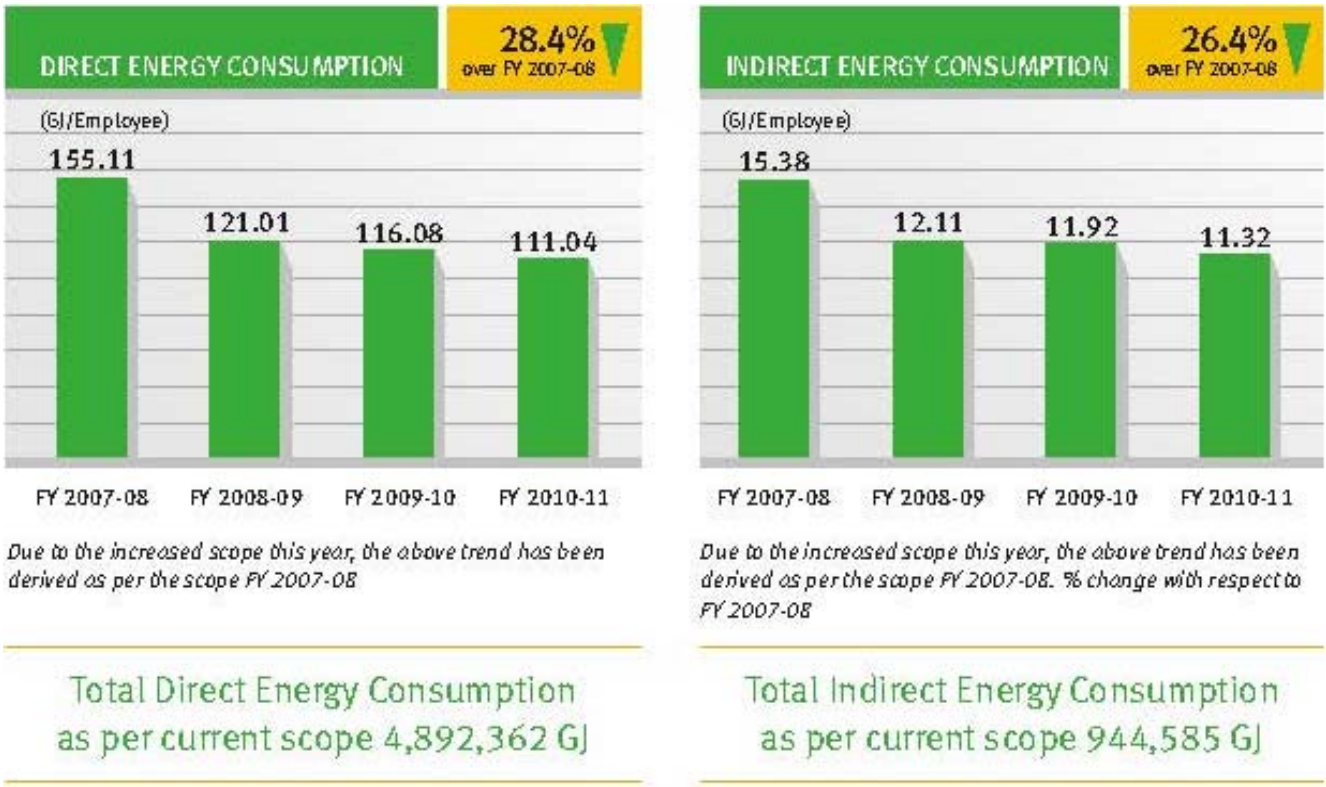


Fig.2 [2]

Renewable Energy

Reconciling the imperatives of growth with looming uncertainties regarding energy is a dilemma that we need to address. L&T believes that renewable energy represents a part of the solution. And therefore, they have been strategically trying to improve share of renewables in their energy mix. This year the share of renewable energy grew to 12% in our energy mix, a 50% increase from the 8% share last year. [2]

Energy Conservation

L&T is implementing a series of energy-conserving practices across. These include re-engineering our processes, adopting alternative technologies, enhancing awareness about energy conservation among employees and monitoring our energy spends. To ensure that each one at L&T stays true to this spirit, an energy policy is in place. L&T has formed energy conservation cells at various manufacturing locations to identify energy conservation processes. [2]

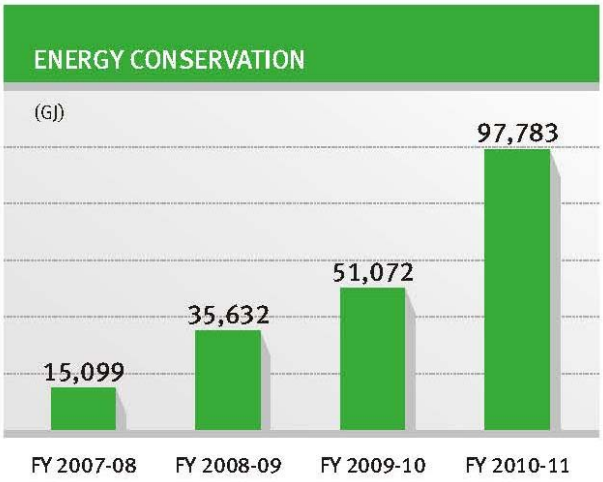


Fig.3 [2]

ENERGY CONSERVATION INITIATIVES

Initiatives/Interventions	Total Energy Conserved during FY 2010-11 (GJ)
Process redesign	11,222
Optimisation/operational control & efficiency	2,456.8
Conversion and retrofitting of equipment	25,108.75
Change to CFL (Compact Fluorescent Lamp)	1,056.7
Change in personnel behaviour	1,386.92
Switch off lights when not in use/remove excess lights	5,479.7
Total	**46,711**

Fig.4 [2]

Efficient Lighting

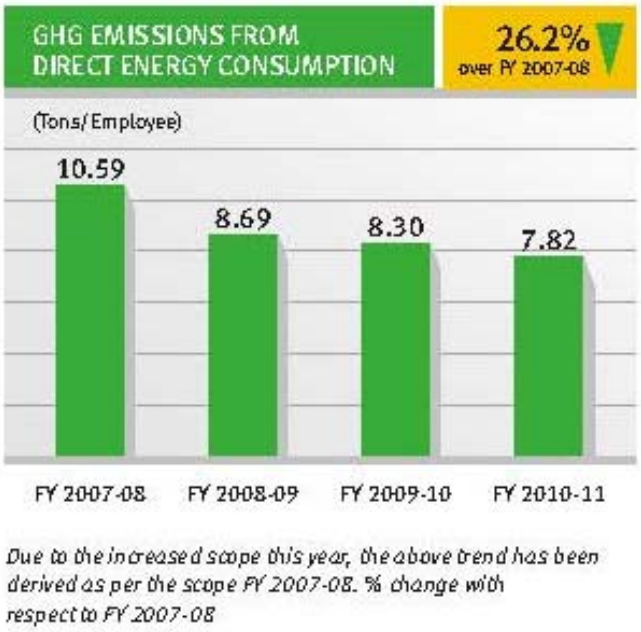
Experts say 'A Watt saved is three Watts earned'. To save and earn, L&T's Construction business switched on the sun for street lighting at its HQ in Manapakkam, Chennai. 30 conventional 150 watt street lights were replaced with solar street lights. Each street light is equipped with 32 Watt LED lamps equivalent to 150 Watt conventional bulbs. Their life span was 20 times more than that of conventional bulbs. A 45 watt Photovoltaic panel and a battery will provide electricity to power the bulb for three days. Approximately 19,710 units of electricity is saved every year reduction of 15,965 kg of CO_2 emissions every year and results in equivalent to the annual carbon dioxide absorbed by 3 acres of a green forest.[2]

A Greener Premise

Green practices begin at home - in the green building on our campuses. L&T leverages its engineering expertise, construction capability and a rich experience of developing 10.2 million sq. ft. of certified green buildings to create sustainable work spaces that not just utilize fewer natural resources, but also generate less waste and provide a safer and healthier environment for our employees. [2]

Emissions

Environmental objectives are integrated into products at the design stage and into the way L&T conceives their manufacturing and maintenance process. From deploying CNG vehicles for employee commute to efficient utilization of thermal energy for heat treatment; L&T's businesses remain alert to the opportunity to reduce emissions. Due to substantial growth this year, the absolute count of emissions increased by an average 9.2 % with direct emissions amounting to 284,601 tons and indirect GHG emissions accounting to 67,943 tons. The per employee emission continued its downward trend. [2]



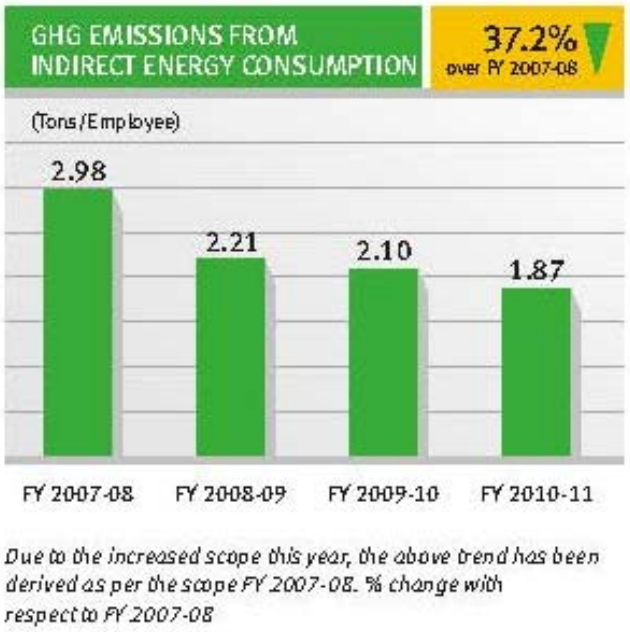


Fig.5 [2]

Ozone depleting substances NOx and Sox emissions

L&T continually monitors and manages the ODS and NOx, SOx emissions at their sites. This year, the use of Ozone Depleting Substances increased as a result of maintenance activities that occur once in three/four years. The emission of NOx, Sox and particulate matter witnessed a reduction to 26.5 tons from 28.99 tons in FY 2009-10. [2]

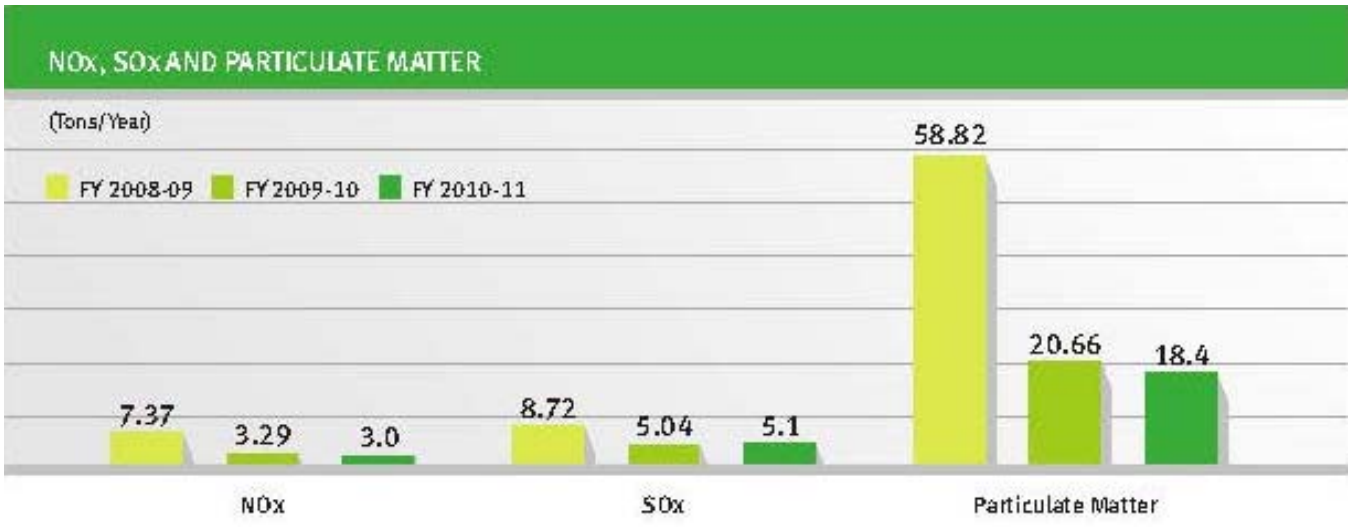


Fig.6 [2]

Water Savings

Zero-discharge and reducing per capita water consumption by 10% by 2012 form part of L&T's corporate targets. This year saw the initiation of an organization wide water foot printing exercise. 15 locations posted a zero waste water discharge and dependency on ground water was completely curbed at the Faridabad campus. Multiple technological interventions continued to be initiated, some of which include

- Drip irrigation and rainwater harvesting at Heavy Engineering
- Design and execution of complete Brackish Water Reverse Osmosis (BWRO) facility for an in-house project
- Sludge and effluent treatment plants in Hydrocarbon & Power Projects
- Lab scale pilot plant studies for determining characteristics and treatability aspects of water & wastewater

On a comparative report scope, L&T's water consumption declined by 2.47% and our wastewater discharge (industrial and domestic) has come down by 3.07%.[2]

SOURCE-WISE WATER CONSUMPTION (m^3/year)

	FY 2008-09	FY 2009-10	FY 2010-11
River / lake	1,846,737	1,791,335	1,656,009
Ground water	205,075	198,923	129,561
Rain water	1,900	6,900	6,900
Municipal supply	433,902	420,885	542,642
Other*	27,978	27,139	49,569
Total Water Consumption	**2,515,592**	**2,445,181**	**2,384,681**

*Other source of water: Water Supplied through tankers

Fig.7 [2]

Recycling

Owing to the nature of our products, all L&T's products are engineered to order (ETO) and made in line with stringent international design and manufacturing codes as per the requirements of the customer. The input materials need to meet specified conditions and are tested for physical, chemical and other properties before they are certified for use. Recycled input material is therefore difficult to use for most of L&T's businesses. Even though L&T has been recycling steel, zinc and aggregates and they have recycled 366742 MT of aggregates since 2008. [2]

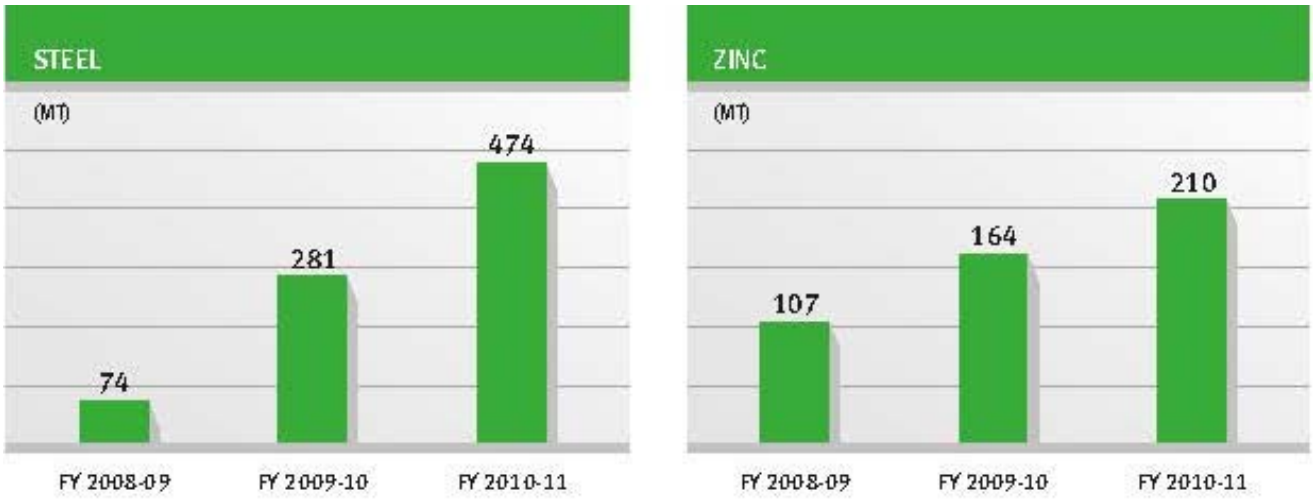


Fig.8 [2]

Waste Disposed	(Tons/year)
Hazardous Waste*	5,753
Non-Hazardous Waste	94,935

**Hazardous waste includes ETP sludge, waste oil, saw dust & cotton waste mixed with oil.*

Fig.9 [2]

Waste Disposal

Industrial waste is another of those issues where industry and society appear to take up antagonistic positions. L&T is helping to resolve differences through efficient waste management strategies and effective spill control measures. Their aim is to reduce waste across our premises at manufacturing facilities, project sites and office buildings. In 2010-11, 44 projects were registered for Value Stream Mapping - a drive that has helped remove Muda (waste) in the context of movements, inventory and reduction in lead times. Additionally, a slew of initiatives were incorporated to reclaim waste.

L&T does not import, export, transport or treat any hazardous waste covered under the Basel Convention. Waste generated in various production processes like used oil, nonferrous metals etc. are sold to the MoEF/CPCB registered recyclers/re-refiners/ re-processors only, are transported as per the statutory requirements. The scrap generated at project sites is disposed of in consultation with the client. For responsible e-waste management, L&T has collaborated with certified vendors for recycling of PCs, laptops and servers. They also undertake regular checks -independent and internal, to ensure compliance with relevant pollution control regulations. Every month, an average of 4,500kg food waste is being converted into manure. [2]

2. Compliance with Economic Metrics

Corporate Governance

The L&T's governance structure is divided into four collaborative groups at a large scale: Strategic Supervision, Strategy & Operational Management, Executive Management, and Operational Management. Description of individual groups are shown below [2]:

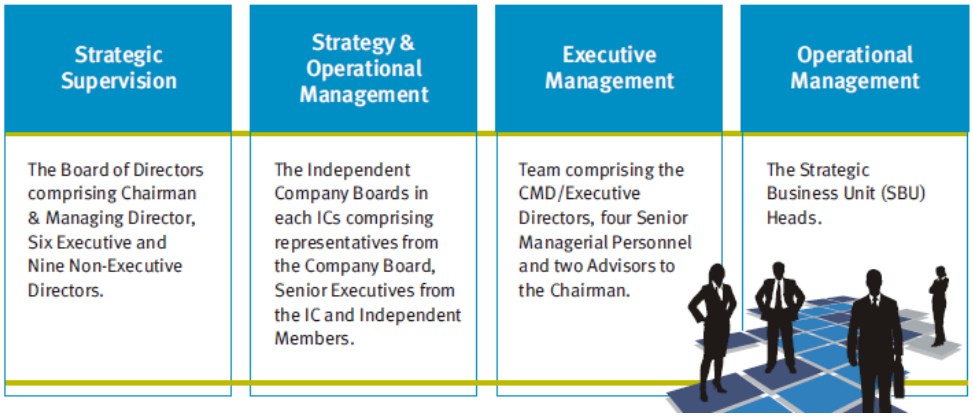


Fig.10. L&T Governance Structure

Sustainability Structure

L&T takes a top-down approach with Sustainability Executive Board, IC Head, Sustainability Council, and Sustainability Team to optimize its efforts to develop sustainability in its operations and strategic direction as shown below [2]:

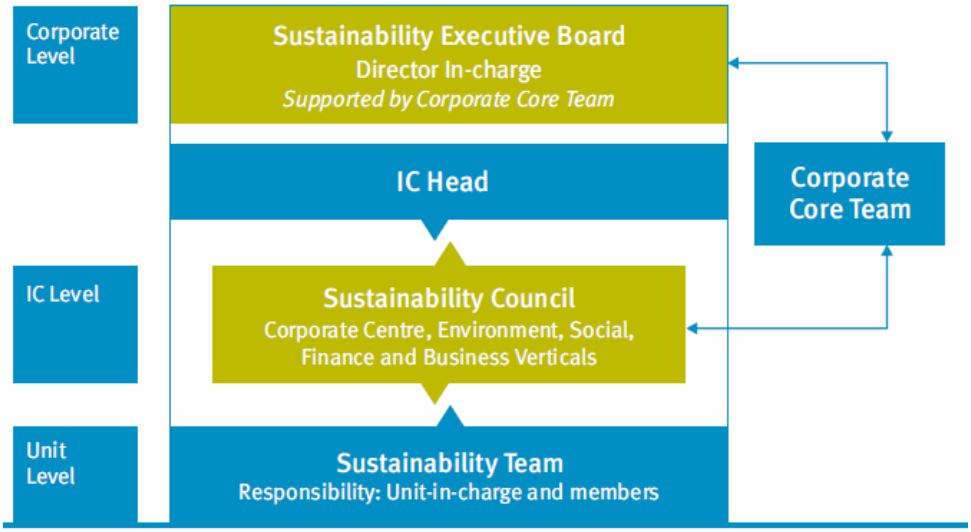


Fig.11. L&T Sustainability Structure

Code of Conduct

L&T principles and values are inscribed into a Code of Conduct for all of its Board members, Senior Management, and staff. The Code complies with the provisions of the Clause 49 of the Listing Agreement with Stock Exchanges, covering such areas as Guidelines on corporate communication, Securities dealing code, Protection of women's rights in the workplace, Corporate IT policies, Security manual and procedures, and Whistleblower policy [2].

Additionally, corruption and anti-competitive behavior reporting system is established along with guidelines for financial transactions and non-financial documents. No incident of corruption was reported during the year 2010-2011 in all of L&T's business units [2].

Compliance

L&T enforces a strong compliance system with a multitude of statutory obligations to ensure all laws, regulations, codes, and values are observed and complied with their original purposes. In its sustainability efforts, L&T follows the Global Reporting Initiatives (GI) framework to report its sustainability performances [2]

Key Performance Indicators

In FY 2010-11, L&T has seen a very strong economic growth with 15% growth in order inflows, 19% revenue growth, and 15% increased recurring PAT. With optimal sourcing, smart contracting, and cost efficient execution of orders resulted in significant order inflow increase and economic value generated as shown below [2]:

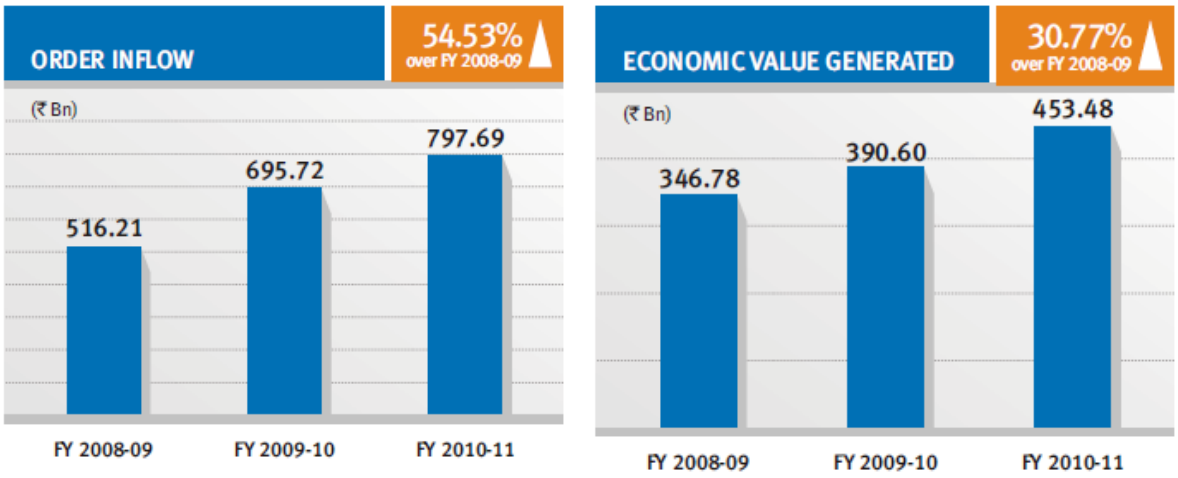


Fig.12 Order Inflow and Economic Value Generated

Indirect Economic Impacts

L&T's growth has been leading the growth of its local communities. In FY 2010-11, L&T sourced about 80% of its vendor and supply requirement from its local suppliers and encouraged its customers to purchase from local vendors as well [2].

Green Product Portfolio

With the deep commitment to the sustainable environment, the percentage of green products of its total sales is 9.72% with 42.65 Million Euro. While this alone is a significant step, L&T has established 20 Billion Euro worth of equipment at Hazira to assist international power plants in making sustainable operations possible and the result is shown below [2]:

- Reduction in fuel cost
- Reduction in coal consumption up to 5%
- Resultant reduction in CO_2 emissions
- Minimise dependency on uncertain supply and volatile pricing of hydrocarbon inputs
- Water savings of approx. 5 - 7%
- Land savings of approx. 20%
- Savings in spare part consumption of 20 - 30% over the life cycle

Fig.13. L&T's Green Leadership in Power Plants

In addition, L&T has recently invested in 5MW solar PV power plant with the projected value addition of 638 Million Euro and 7.8 Million Units of estimated annual green power generation [2].

3. Compliance with Social Metrics

L&T values its workforce as the single most vital resource, and empowers employees to cherish organization as well as individual excellence. It provides a work environment that encourages innovation, respects individual dignity, promotes safety and good health, synergizes responsibility with authority, recognizes and rewards good performance, and provides consistent revenues for accelerated growth. Moreover, L&T implements multi-dimensional practices of CSR that incorporates ethical business, positive response to emerging societal priorities and expectations, acting ahead of regulatory compliances, balancing the interests of shareholders and society, and being a good corporate citizen. It shares a symbiotic relationship with the wider community, where it helps build a robust, inclusive and prosperous society, and gains trust and respect from the community.

Training

L&T provides a wide variety of training programs to promote talent competencies of its employees. They include technical, functional, behavioral and managerial programs, as well as safety trainings. Periodic appraisals, performance reviews and one-on-on counseling enable it to focus on each individual, while video-conferencing and e-learning makes it easier for employees to communicate at distance. The figure below depicts the average training hours for each employee category at L&T, which have increased in general.

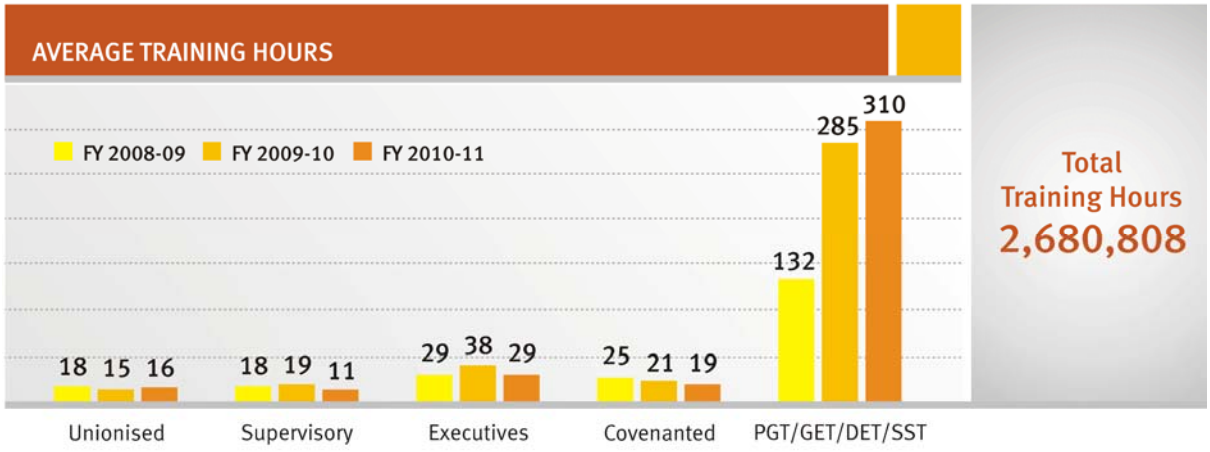


Fig.14. Average Training Hours at L&T [2]

Talent Acquisition and Retention

L&T has four-step strategy of talent attraction, development, retention and transition in order to acquire and sustain talent necessary for today's competitive market. It recruits largely fresh graduates with brightest mind and provides various benefits, periodic review of the compensation package, and interestingly challenging work environment to retain the present workforce. As a result, L&T has longer employee turnover compared to one of its competitors as shown below.

Employee Turnover

L&T	Male	Female
Less than 30	1,484	207
Between 30 to 50	964	33
More than 50	139	3
Total	**2,587**	**243**

INFOTECH	Male	Female
Less than 30	1,687	852
Between 30 to 50	775	154
More than 50	10	0
Total	**2,472**	**1,006**

Fig.15 Employee Turnover at L&T vs. InfoTech [2]

Employee Benefits

- Collective Bargaining: all employees have right to exercise freedom of association and are covered under collective bargaining.
- Minimum Wages to Workmen: L&T strictly abides to the regulatory standards for wage payment.
- Organization's defined benefit plan obligations: provides various benefits, such as life insurance, health care, maternity leave, disability coverage, retirement provision, medical benefits and pension, to full-time employees.

Safety Performance

L&T emphasizes the importance of occupational health and safety with 'Environment, Health & Safety Management System,' which covers from workplace safety training programs and detailed safety manuals to employee insurance schemes and safety policies and recognition & reward program for safety performance. Especially, L&T monitors day-to-day activities at the project sites to prevent possible accidents and safety committees at every manufacturing site conduct programs for workers and contractors.

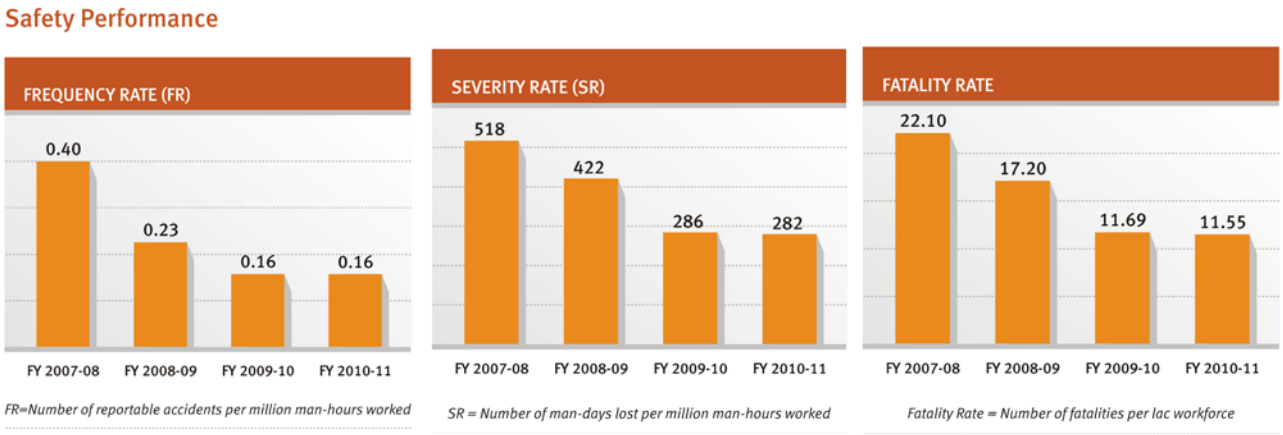


Fig.16 Frequency, Severity, and Fatality Rate at L&T [2]

Diversity and Equal Opportunity

L&T provides an environment for diversity and equal opportunities, where all employees regardless of their gender, ethnicity, nationality and age, are evaluated equally based only on their performance, experience and potential. It believes diverse workforce will lead to strength and basis for company's success.

Human Rights

L&T strictly forbids child labor or forced labor while it complies with the legal requirements and contractual agreement regarding labor. It also conforms to social 'Code of Conduct' that ensures good practices of human rights.

Education

L&T fosters education in different neighborhoods, supporting 77 schools and building 54 community learning centers in total, as well as developing unique learning methodologies that can best benefit the students. It renovates the infrastructure of schools, builds computer labs and libraries in schools and develops learning assistance for children in underprivileged communities, for example, helping them to win the state scholarship.

Skill Building

L&T empowers citizens to become self-reliant by developing their individual vocational skills.

- Construction Skills Training Institute (CSTI): trains local youths to give them opportunities and increase employability for construction industry.
- Vocational Training for Women: provides employment skills training to socially disadvantaged women.

Mother and Child Health

L&T assists effective medical treatment and healthcare facilities to every mother and child in the wider communities it operates.

- Health Camps: implements health and eye camps held to check up health status, specialized camps, and immunization camps.
- HIV/AIDS programs: raise awareness with education programs and voluntary counseling and testing centers.

The figure below shows the number of beneficiaries from each of the social performance area described above.

Thrust Areas	No. of Beneficiaries
Education	88,972
Mother and child health	307,155
Skill Building	16,728*
Total	412,855

Fig.17Number of Beneficiaries from L&T Social Performance

Case 02 **BMW**

Known widely as one of the global premium motor vehicle manufacturers, BMW was founded in Munich, Germany in 1916 as 'Bayerische Flugzeugwerke AG'. In 1917, the group became the Bayerishe Motoren Werke GmbH – Bavarian Motor Works. Perhaps less known fact about this company might be that BMW initially focused on the development and production of aircraft engines during World War 1 and produced its first motorcycle in 1923. BMW began its path to the famed motor vehicle manufacturer when it acquired the Eisenach vehicle factory in 1928 and expanded its sales and operation throughout the world [4].

1. Compliance with Environmental Metrics

Can any carmaker run a completely "clean" operation? BMW is well on the way to doing so. With their "Clean Production" programme and integrated environmental management, they are continually reducing their use of natural resources and the environmental impact of all production processes within the BMW Group worldwide. By 2012, their use of resources will have dropped by 30 % compared with 2006 – and they will have moved a good deal closer to fulfilling our ultimate goal of zero-emissions vehicle production. The target of a 5 % reduction was achieved for four out of five key performance indicators. In the case of energy consumption, the 4.8 % drop was not quite on target, due to lower production volumes in the first few months of 2010 and renovation of some production facilities.

In order to achieve their goals, the BMW Group is pursuing a policy of consistent, Group-wide environmental management. As well as integrating environmental considerations into all our major investment decisions, they are implementing a clearly focused best-practice approach within the company and observing and monitoring all the relevant indicators. Environmental management is an integral part of sustainability management. Sustainability management is made up of the Sustainability Board, the Sustainability Circle and the departments. The Sustainability and Environmental Protection department is the steering committee of the environmental protection network, which is headed up by the Group Representative for Sustainability and Environmental Protection. Individual operators are defined for each location and are responsible for mastering environmental impact.

Environmental management systems are in place in all of our production facilities worldwide as well as in our central planning departments, with ISO 14001 certification throughout. Our German and Austrian sites have undergone additional external audits and meet European Eco-Management and Audit Scheme (EMAS) standards. [3]

Between 2006 and the end of 2012, BMW's goal for each vehicle they produced was to achieve a 30% decrease in energy and water consumption, solvent and CO2 emissions, and levels of waste and process wastewater (environmental key figures). Every one of their facilities has committed to meet these ambitious goals, which will also raise efficiency by an average of 5% per year. Tools and measures that the BMW Group uses to help dealers reduce their environmental impact includethe following:

– Energy advice on facility management (aiming for Green Building) and technology for the dealer organizations.
– Templates (in German and English) on the EHS manual and tools to introduce and certify the EHS management system
– An international sustainability training concept which includes an "Environmental Training" module is being developed for January 2012
– Facility disposal via new/joint disposal service providers (e.g. in Germany, Switzerland, Czech Republic, United Kingdom, Italy). [3]

BMW's Group-wide environmental protection activities involve a major effort on the part of the BMW Group as well as its employees. But already the figures show that our hard work is paying off. In spite of a steep rise in output in 2010, the BMW Group was able to reduce its energy consumption for the year by approximately 380 GWh. Further reductions for other key indicators, such as water consumption, process wastewater and waste reduction, enabled cost savings of some euro 0.7 million. In 2010, quantities of waste for disposal, solvents emissions and water used per vehicle produced

dropped significantly compared with the previous year. Overall, our environmental efficiency index shows that our efforts to use resources more efficiently have resulted in figures within our agreed target range.

Energy Consumption and Emissions

BMW is working continuously to significantly reduce emissions and energy consumption per vehicle produced – even though their output is rising. Our vision is to cover all our energy needs from regenerative sources in the future. The BMW Group is using systematic energy management to reduce energy consumption per vehicle produced by 30 % by the year 2012 compared with levels in 2006.

As part of BMW's Group-wide energy project, which has been underway since the middle of 2006, they have set themselves the following goals:

– The systematic reduction of energy consumption per vehicle produced

– Efficient use of energy and energy regeneration wherever possible (for example through combined heat and power (CHP) and rotating heat exchangers)

– Increased use of regenerative energies every kilowatt-hour of electricity and every cubic metre of natural gas they can save by improving production processes pays off – many times over. With energy costs set to continue spiraling, every bit they save adds value for their company. And given the CO2 emissions entailed in conventional energy production, every kilowatt-hour they save is also helping to save their atmosphere from the effects of this greenhouse gas. As well as working to source more energy from regenerative sources, their goal is to reduce the amount of energy they use per vehicle produced. They have a vision of completely CO2-free vehicle production. And at the same time, they are making every effort to reduce noise pollution and VOC emissions. [3]

Material Use and Waste Management

Years ago, waste was considered something that needed to be disposed of. Nowadays, we know that what looks like refuse actually harbors a multitude of resources that we should be using intelligently. The BMW Group is looking to reduce its solvent emissions and waste for disposal by 5 % per vehicle produced. [3]

Zero Waste

Materials use and waste management are two areas in which BMW has been applying best-practice solutions that we have gradually rolled out across our production network. In particular, they are focusing their efforts on those sites that are close to turning our vision of zero waste for disposal per vehicle produced into a reality. Their facility in Munich, for example, produces just 30 g per vehicle produced. Leipzig still produces 70 g as it now uses paint shop residues (or paint slurry) to produce solvents and solid heating material rather than disposing of them. As a fossil fuel replacement, these heating materials can be used in the cement industry. This step forward is just one of the results of Leipzig's new tender for waste disposal services, which placed a strong focus on criteria for sustainability. Since awarding the waste disposal services contract to a new partner, the Leipzig plant has been benefiting from shorter waste transportation routes. Moreover, with smaller quantities of waste meaning lower transport requirements, their CO2 emissions are down as well. The 5% overall reduction in residual waste in 2010 that they describe above also stems from two additional projects: unlike years ago, the BMW Group no longer waxes its vehicles before dispatching them for long transportation. Instead of the wax, which had to be removed and disposed of before the vehicle could be handed over to a customer, the BMW Group now protects its vehicles by transporting them in enclosed freight cars or covering them with protective foil. At their plant in Munich, only 5%of vehicles are foil-wrapped, and any protective foil we use can subsequently be reused, unlike the wax they previously employed. Another valuable reference process has been established in Berlin, where their motorcycles are painted electrostatically. [3]

Water and Waste Water

Water is an extremely limited resource. Some 40 % of the world's population live in countries where it is in short supply. As a result, careful use of this natural resource is set to become ever more important in the future. The BMW Group is aiming to institute almost wastewater-free production processes – by closing cycles and avoiding using water wherever possible.

In a first step, BMW launched a survey to find out which parts of the company use the most water. With the paint shop as the main consumer, they have already established several strategic approaches towards greater resource efficiency.

They have also set up a study to ascertain the feasibility of virtually wastewater-free paint shop operations. This will form part of our reference system and is gradually being assessed for implementation. As a matter of principle, they are pursuing a strategy of removing only as much water from natural cycles as can be replaced by natural means. In addition, they want their wastewater to contain only as many substances as can be broken down naturally. For all of their plants, they have introduced their own, BMW specific wastewater norms, which exceed local regulations in many cases. [3]

Saving Water by Closing Cycles

With water usage totaling 3.4 million m3, BMW's consumption figures were 7.2% lower in 2010 than they had been before the global financial crisis in 2008 – even though output was up. They were able to reduce water consumption per vehicle produced by 9.8% and bring process wastewater levels down by 6.5%. All of this has been made possible by a whole series of measures implemented at various sites across the BMW production network.

– In Regensburg, They have been working continuously to improve their existing systems and introduce alternatives for treating and recycling water used in the paint shop. Their goal is to achieve the zero wastewater paint shop. Moreover, thanks to biological water treatment, 90% of water used in the Regensburg car wash can also be reused.

– They have incorporated a closed cooling cycle in the cooling system of the hardening furnace in our wastewater- free production system at our plant in Steyr.

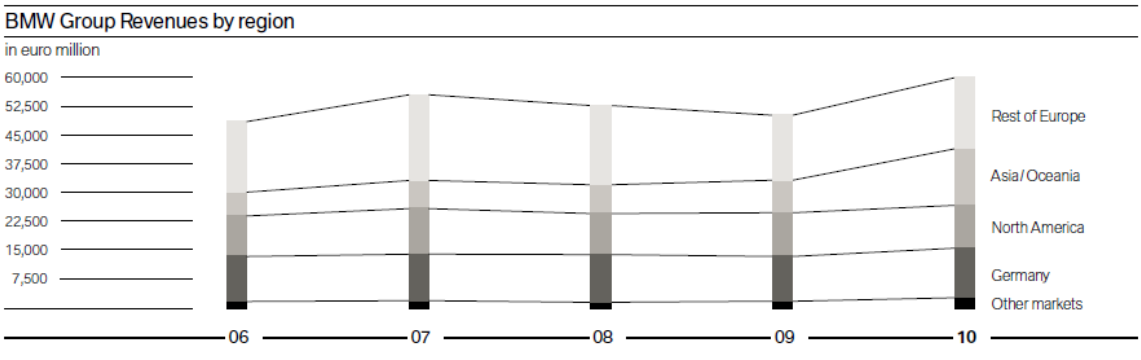
– At their plant in Munich, sprinklers and construction sites are supplied with industrial water. Longer periods of inactivity in rinsing baths mean water consumption is down by some 300 m3 per year. Improved cascade overflows in pretreatment reduced freshwater requirements as well as the amount of wastewater produced.

– Thanks to treatment systems incorporating the so called snow cleaning process, our plant in Landshut no longer needs fresh water to cleanse plastic exterior components. Instead, impurities are removed using CO2 snow. The CO2 is sourced from fertilizer production, where it is generated as a by-product. In addition, Landshut's light metal foundry applies separating agents as concentrates rather than in watery solutions, which also saves large quantities of water and wastewater. [3]

2. Compliance with Economic Metrics

Key Performance Indicators

In 2010, BMW's global revenue reached 60 Billion Euro (~$77 Billion) from operations in Europe, Asia, Oceania, North America, Germany, and rest of the world. The profit before tax is 4.836 Billion Euro (~$6.1678 Billion) and the return on capital employed is 19.6% - increase from 3.3% in the previous year. In terms of Sustainability Indices, it is an industry leader in Dow Jones Sustainability Index and DAX 30 Index and listed in FTSE4Good and FTSE4Good Environmental Index [3].



	06	07	08	09	10
Rest of Europe	18,440	22,395	20,693	16,989	**18,581**
Asia/Oceania	6,200	7,353	7,523	8,495	**14,776**
North America	11,779	12,161	12,461	11,724	**12,966**
Germany	10,601	11,918	10,739	11,436	**11,207**
Other markets	1,979	2,191	1,781	2,037	**2,947**
Total	**48,999**	**56,018**	**53,197**	**50,681**	**60,477**

Fig.18 BMW Group Revenues by region

Corporate Governance

BMW governs and implements its sustainability development in three tiers of organizations: Sustainability Board, Sustainability Circle, and Specialist Divisions. The Sustainability Board comprises the entire Board of Management with its Chairman as the Chairman of the Board of Management leading strategic alignment. The Sustainability Circle comprises heads of department from all divisions with the BMW Group Sustainability and Environment Representative as the Chairman leading preliminary work to support decision-making. The Specialist divisions implement measures and processes to achieve BMW Group goals [3]. With these systematic approach to the sustainability development involving the entire management as well as specific implementation specialists, BMW is striving for its commitment to the sustainability development.

Risk & Crisis Management

BMW Group operates its own Sustainability and Environmental Protection Representatives to investigate risks from environmental issues and resource consumption. Its Risk Management team especially focus its attention to political/social/economic risks, industry-specific risks, climate risks, supply chain risks, natural resources risks, and personnel risks [3].

Corporate Governance & Compliance

With the responsible and lawful conduct as one of its fundamental values, the BMW Group operates its business in accordance with principles of responsible corporate governance for long-term value creation. In order to enforce its codes and values, the Board of Management created a Compliance Committee in 2007 to establish a worldwide Compliance Organization, which was completed in 2009. With the Committee as the steering leadership and Legal Compliance Code as a guiding principle, the Compliance Organization comprises the entire set of measures to ensure that the Group and its staff act in a lawful manner.

Net Value Added

The BMW Group's Net Value Added increased by 42.7% in 2010 to 14.9 Billion Euro (~$19.03 Billion) as shown below.

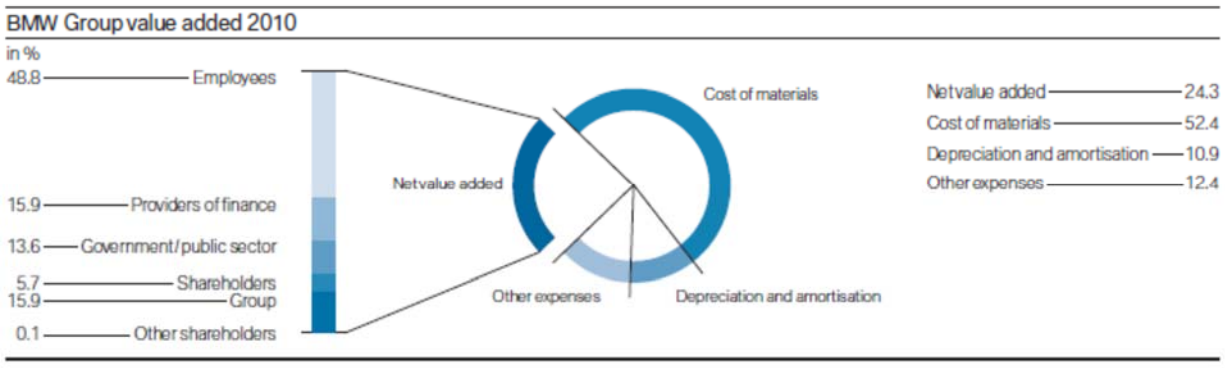


Fig.19 BMW Group value added 2010 [3]

Tax Expense

With the Group's increasing profit, its tax expenses rose to 1,430 Million Euro in 2010 from 338 Million Euro in 2009 as shown below [3].

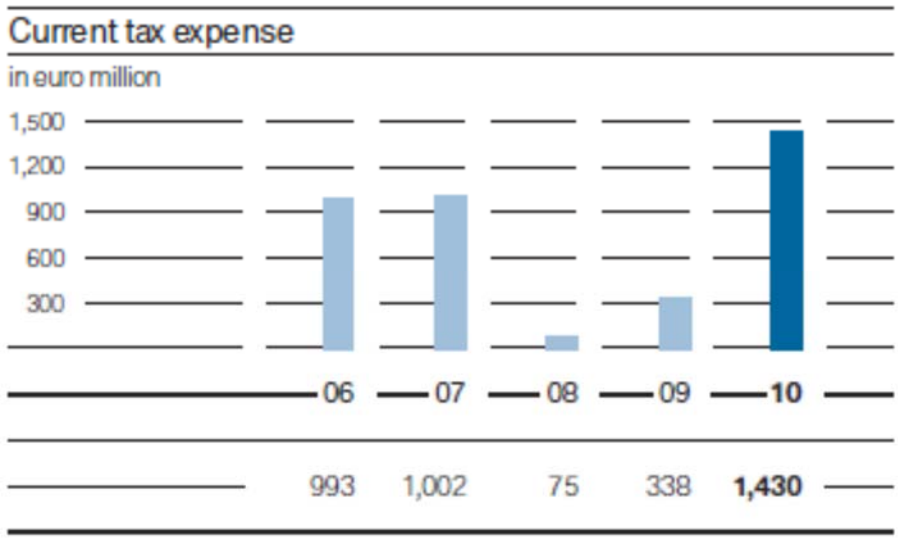


Fig.20 Current Tax Expense

3. Compliance with Social Metrics

The BMW Group is the most attractive employer in the automotive industry because it supports its employees with job security and with various benefits and services. It is also committed to helping society, in resolving community relations, intercultural understanding, as well as promoting education, health and road safety.

Employee Remuneration

BMW rewards its employees of excellent dedication and performance with fair remuneration that is attractive, competitive and transparent, since an efficient workforce in today's tough competition is valuable. It assesses each employee's annual performance and gives remuneration depending on the performance-related premiums, ranging from 10% to 60%. It also offers various kinds of social benefits, such as higher than average pension, additional comprehensive health insurance, and health insurance for families and parents. [3].

Attracting and Training Employees

BMW invested 179 euro million in education and training particularly focusing on competency building in electric vehicles in 2010 to attract and develop the competencies and talents of employees, as well as to strengthen its own strategic competency and talent management. It also offers various life-long learning and leadership training programs in order to foster right people with right talent in the right places. [3].

Diversity and Equal Opportunities

To understand the existing market of diverse customers across 140 countries, the BMW Group needs to employ staff from diverse range of backgrounds, which will become a strategic base for competitive, efficient and effective business. The Diversity Management program ensures equal rights and opportunities for all employees, regardless of their gender, nationalities, age or beliefs. Being a technology-based company, BMW especially promotes female employees and managers, by providing technical vocational subjects to female students and commercial-technical training for women employees. The share of women in total workforce was 15.2% in 2010. [3].

Health Management

The BMW Group's Health Management program has set a goal of making its employees the healthiest and most efficient in industry by 2020. To achieve this goal, it guarantees work-life balance among employees, provides safe workplaces with accident prevention, and encourages its staff to stay healthy by benefitting from company health

insurance scheme and various training programs. The average days of further training for an employee was 2.4 days in 2010 and the accident frequency in 2010 was 3.6 per one million hours worked. [3].

Job Security

The BMW Group believes that the company's ability to survive and succeed, even during the global financial crisis of 2008 and 2009, is due to the trusting relations between its shareholders, management and employees. Thus, it is working hard to provide job security and the employee attrition rate was very low at 2.74% in 2010, a decrease from 4.59% in 2009.

Road Safety

Being an automobile company, BMW Social Policy department is compelled to ensure safety of all road users. It works together with professionals and road safety experts to research and develop safety levels around the world. It implemented School Route Maps and made 39 million schools routes safer for young children. It also increases safety consciousness on roads among young road users by print and radio commercials, school campaigns and public awareness day at BMW dealerships. [3].

Education

The BMW Group invests into future workforce through its education initiatives, focusing particularly on technical, scientific and social skills. The BMW Group Junior Campus presents 5 to 13 years old children with the issues of sustainable production or alternative drive systems. The BMW Museum in Munich offers workshops and interesting exhibition, including the issue of mobility, for its young visitors. Also, the BMW Group supports students studying in the field of science in 28 international schools, spending 65% of its donation in education and Science.

Promoting Good Health

The BMW Group is committed to improving preventive measures and illnesses, especially HIV/AIDS in South Africa, which has been its major production facilities since 1975. BMW Human Resources department works against HIV/AIDS in South Africa through providing local health services, building temporary camps for schoolchildren to learn more about HIV/AIDS and offering workplace program that provides advice, medical help and preventive medicine for staff and their families. [3].

Case 03 **Infosys**

Infosys Limited, formerly Infosys Technologies Limited, is an Indian multinational provider of business consulting, technology, engineering, and outsourcing services. It is headquartered in Bangalore, Karnataka. [6]

1. Compliance with Environmental Metrics

The journey: Translation into impact while infosys complies with all the environmental laws and regulations of the countries where they have their operations, their resource intensity efforts are driven by aggressive targets beyond the compliance benchmarks. There have been no instances of monetary or non-monetary sanctions for non-compliance during fiscal 2012. When they began our journey, their aim was to take leadership and redefine the benchmarks in corporate environmental sustainability. They recognized that we had the opportunity to bring transformative change by a process of prototyping, piloting the implementation, learning from experiment, evolution and continuous improvement over time.

Electricity Savings

Infosys has saved over 290 million units of electricity in four years through a focused effort on efficiency strategies, from retrofits to new integrated design approaches. In simple terms, this means that their electricity savings were equivalent to what is required to power 120,000 urban homes for a year (assuming 200 units per household per month). The following chart shows the significant difference between what our electricity consumption would have been and the actual electricity consumption as a result of their efficiency efforts. [7]

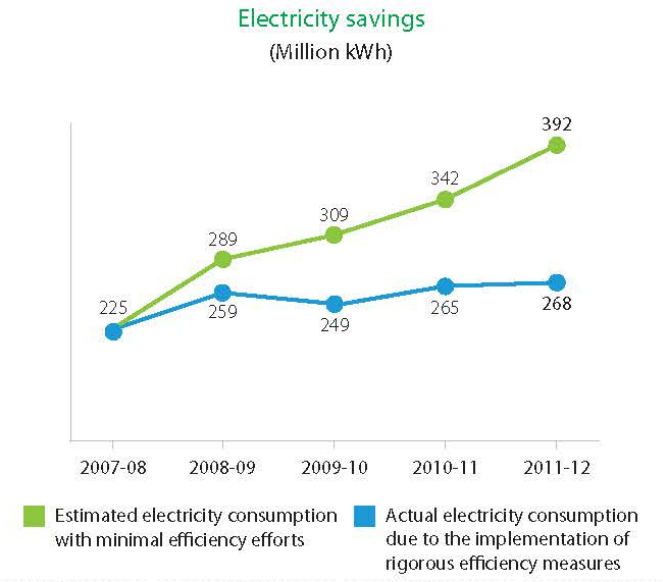


Fig.20 [7]

Water Savings

Their water efficiency efforts helped them save around 1.36 billion liters of fresh water in the last four years, which can meet the annual drinking water needs of nearly 1.2 million people. The following graph shows the comparison between the potential water consumption without our focused efficiency measures and the actual consumption as a result of our efficiency efforts. [7]

Fig.21 [7]

Emission Reduction

The reduction in carbon emissions in the last four years was to the tune of 293,454 metric tons of C02e. This is equivalent to the amount of carbon captured by about 200,000 trees over 30 years. The actual emissions compared to the potential emissions without our measures to reduce carbon emissions is as follows: [7]

Biodiversity

Infosys is committed to improving the biodiversity in and around their campuses, and promoting species diversity (fauna and flora).Our campuses are located at sites approved by the local governments and regulatory bodies. Their operations do not have a significant impact on biodiversity conserves at any of their campuses. Their Environmental Management System comprises a biodiversity strategy that includes site impact analysis and evaluation of risk exposure to biodiversity to ensure minimal impact on the environment around them. [7] They work towards ensuring the integrity of natural habitats, the stability of the environment and resources at all the campuses that we own. Planting native species of trees is one such step to ensure the conservation of flora and fauna of the region. They have planted about 46,000 trees during fiscal 2012. They have conducted a baseline tree diversity analysis and we now have about 226,000 trees across

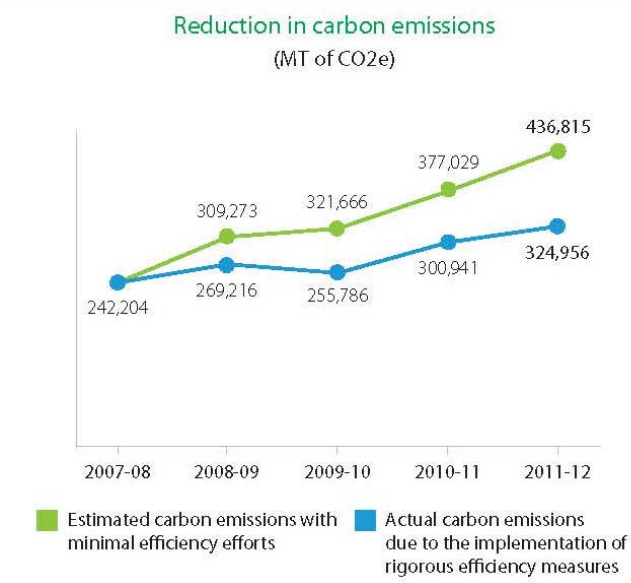


Fig.22 [7]

our campuses with varying number of tree species on each campus. They are going to plant representative samples of endangered flora. This year, they were able to plant endangered tree species from the Western Ghats in our Mangalore campus. The following graphic shows the annual increment in the number of trees across our campuses over the last five years are as follows.

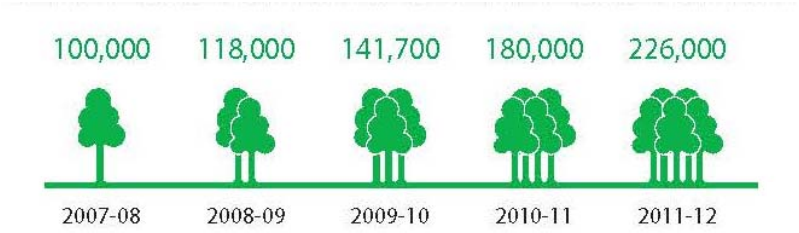


Fig.23 [7]

Paper

Infosys has implemented configuration changes like PIN-based secure printing, duplex printing and sleep mode to reduce paper usage and power consumption by printers. They are monitoring our paper usage for further reduction. In fiscal 2012, the quantity of paper procured was 193,826 kgs taking into account the newly added employees, new buildings and campuses. [7]

Waste Management

Infosys has adopted a focused approach towards waste management. The nature of their operations do not result in the release of any significant spills into the natural environment. Their business involves mainly products, consultancy and services in the information technology domain, and therefore they do not use any natural or recycled raw materials for packaging goods and services. They encourage vendors to reuse the packaging material used in supply of goods to us. Waste is segregated at source and disposed to government authorized recyclers, in adherence to applicable legislations. The details of hazardous and non-hazardous waste disposed in fiscal 2012 are as follows: [7]

Hazardous waste categories	Unit	Quantity
E-waste	MT	129
Used oil	KL	36
Oil-soaked cotton waste	kg	273
UPS batteries	No.	49,334
DG batteries	No.	889
DG filters	No.	852
Paint cans	No.	782
Chemical cans	No.	7,081
Biomedical waste	kg	14,515

Non-hazardous waste categories	Unit	Quantity
Food	kg	2,154,043
Paper	kg	1,106,932
Metal	kg	389,675

Fig.24 [7]

2. Compliance with Economic Metrics

Key Performance Indicators

The gross revenue has been steadily increasing over the past three years since 2009 and reached $6,994 Million in FY 2011-12. Net profit is at $1,716 Million with 694 clients, brand value of $7,979 Million, EVA of $604 Million, and Market Capitalization of $32,349 Million. Major indicators and additional ratios are shown below [7]:

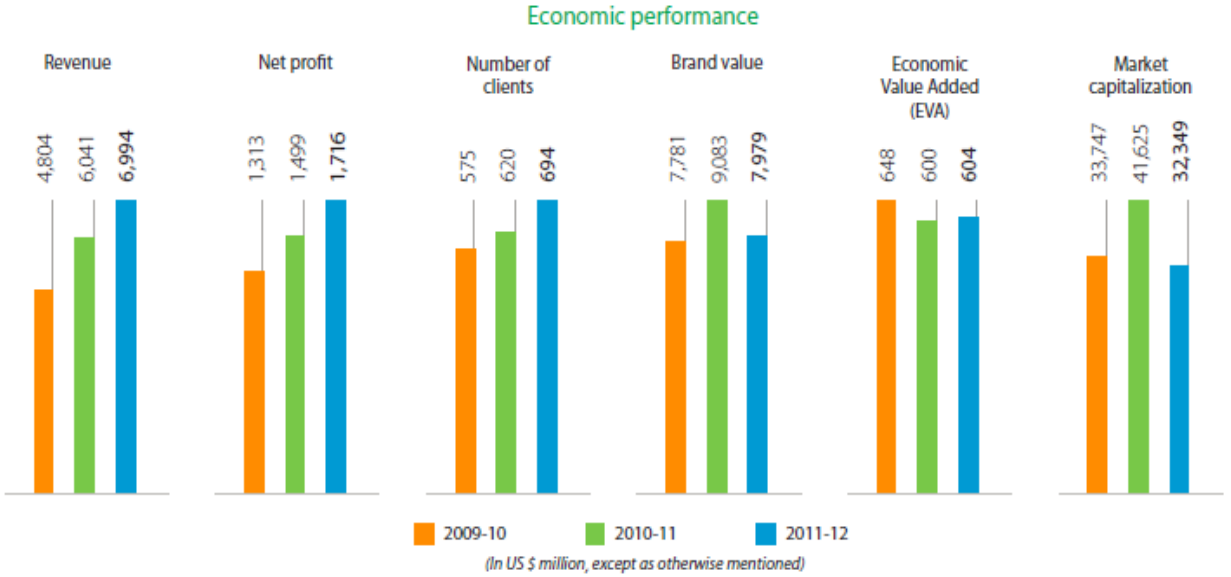


Fig. 25 Infosys Major Economic Performance 2009-2012 [7]

Economic ratios	2011-12	2010-11	2009-10
Year on year revenue growth	16%	26%	3%
Personnel cost / total revenue	55%	54%	53%
Operating profit / total revenue	29%	29%	30%
Return on average capital invested	61%	63%	55%
ROCE (PBIT / average capital employed) (LTM)	38%	36%	37%
Basic EPS growth	15%	14%	2%
Capital output ratio	1	1	1
Price / earning at the end of the year	20	27	26
Book value	12	11	9
Tax / PBT	29%	27%	21%
Value-added to total revenue	92%	91%	88%
Revenue / invested capital	3	3	2
Technology investment / total revenue	2%	2%	2%

In US $ million, except per share data

Particulars	2011-12	2010-11	2009-10
Profit before tax	2,410	2,046	1,669
Less: Additional depreciation on duty waived for certain assets	11	11	15
Reduction in other income	17	12	10
Adjusted profit before tax	2,382	2,023	1,644
Less: Income tax on the above on full basis	810	694	582
Restated profit after tax	1,572	1,329	1,062
Restated basic EPS (USD)	2.75	2.33	1.86
Basic number of shares (No.)	571,365,494	571,180,050	570,475,923
EPS	3.00	2.62	1.86

Fig. 26 Infosys Economic Performance Ratios and Tax 2009-2012 [7]

Corporate Governance

Infosys has an effective governance framework comprised of four key dimensions as shown below: a strong leadership and an independent board, transparency, fairness and accountability, enterprise risk management, and enhancing the ethical judgment of employees. The figure below describes the good governance at Infosys [B5]:

Fig.27 Infosys Corporate Governance System [7]

Infosys also values transparency, fairness, and accountability, adopting the dictum 'when in doubt, disclose.' It was the first company in India to receive the highest Corporate Governance Rating (CGR) by ICRA [B5].

Code of Conduct

Infosys has a very strong Code of Conduct and Ethics that "promotes honest and ethical conduct, and a safe and secure workplace free from discrimination." The Code also includes provisions about anti-corruption/bribery, protection of information and privacy, responsibilities towards its suppliers/customers, rights of employees, whistleblower policy, etc. Observing its Code, there were no incidents of corruption reported in FY 2012. Every new employee is expected to accept the Code of Conduct and uphold Infosys values upon induction [7].

Risk & Crisis Management

Infosys takes a strong position when dealing with Enterprise Risk Management, encompassing identification, assessment, monitor, and mitigation of various risks to minimize adverse impact of risks on key business objectives/sustainability values and enable itself to overcome the risk/crisis by leveraging market opportunities. Especially, the risk management takes 'Predictable, Sustainable, Profitable, and De-risked' (PSPD) model with its core values and ethics as major guiding principles [7].

3. Compliance with Social Metrics

Infosys believes that it has an equal responsibility to all of its stakeholders including investors, clients, employees, partners, government and communities by a Social contract.

Compliance and Commitments

Infosys follows its corporate governance guidance by complying with all the laws and regulations of the countries in which it operates.

Health, Safety and Environment

Infosys has implemented Health, Safety and Environmental Management System (HSEMS) to ensure health and safety of employees and environmental protection across all operating activities of the company. The safety committee minimizes occupational risks and accidents, and systematically reports and investigates incidents. Also, training on health, safety and environment is provided to all employees, staff and contract workers. The mechanism that records the incident, frequency and severity rates of Infosys is shown below, where we can see that the rates are gradually decreasing over the course of three years.

Particulars	2011-12	2010-11	2009-10
Incidents (including near miss and lost days)	630	717	639
Frequency rate = (No. of incidents x 10^6) / Total person hours worked	2.36	3.25	3.52
Severity rate =Total number of man days lost x 10^6 / Total person hours worked	5.73	4.21	10.15
Incident rate per 1,000 employees = (No. of incidents x 1,000) / Total No. of employees	5.52	7.46	8.02

Fig.28 Incident, Frequency and Severity Rates of Infosys [7]

Talent Strategy

Infosys values intellectual property as biggest assets and has launched 'Talent Strategy 2015' to systematically engage in important talent themes, such as enabling choices, building talent, energizing leadership, etc. Cross-functional teams implement action plans regarding each of the themes to ensure a global workforce that leads to success of its clients as well as attraction and retention of top talent. The current employee distribution across global locations and gender is shown below.

Region	As on March 31, 2012			As on March 31, 2011			As on March 31, 2010		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
India	89,915	47,351	137,266	80,320	40,558	120,878	71,039	35,073	106,112
APAC	2,932	2,346	5,278	2,322	1,650	3,972	1,650	1,320	2,970
Americas	3,425	1,124	4,549	2,810	876	3,686	2,194	642	2,836
Europe	1,570	1,331	2,901	1,152	1,132	2,284	907	971	1,878
Total	97,842	52,152	149,994	86,604	44,216	130,820	75,790	38,006	113,796

Fig.29 Employee Distribution across Location and Gender [7]

Education for Talent Sustainability

Infosys operates several outreach programs to empower the future workforce with improved education. The programs include the following:

- Campus Connect: a forum to share corporate practices with talented pool of future engineering graduates
- Project Genesis: a bridge project to fill the skill gap between industry requirements and non-engineering graduate education
- Spark: a day-long program to raise the interest of students across the country about the industry

Talent Enablement

There is a continuous learning opportunities at Infosys based on employee roles, domain and individual needs. Infosys Education & Research advances talent development through various programs including the Foundation

Program (a training program focusing on competency development) and Continuous Education programs (an education program spanning areas of technology, business, process and behavioral areas).

Talent Engagement

Infosys emphasizes communication as a key factor for employee engagement at all levels. One of the major communication channels is the employee forum, where employee grievances are heard and communicated for making a positive transition and re-organization. The following table shows the number of employee concerns and grievances raised and resolved.

Employee concerns and grievances	No. of issues raised
Workplace harassment [1]	15
Workplace concerns [2]	173
Other issues [3]	41
Total issues reported	229
No. of issues rejected	28
No. of issues resolved	201

Fig.30 Employee Concerns and Grievances at Infosys [7]

Social Responsibilities

- Infosys Foundation: supports the underprivileged, remote regions of the society in the sectors of healthcare, education, culture, and rural development. Specifically, it strongly pursues better education and better access to those educations for Indian children, building school libraries, donating computers, and training teachers in rural colleges.
- STEM program: the Infosys USA Foundation provides a program that train and mentor underserved community students in New York in Science, Technology, Engineering and Math.
- Vandematharam Foundation: improves the performance of poor students in Bangalore with small learning supporting teams. It also works hard to make healthcare accessible to those students. On the other hand, the foundation has been working to preserve traditional culture of the society, including traditional folk art, dance, and crafts.
- Infosys Science Foundation: supports growth and development of economy of India by encouraging research and research-oriented mindsets with a reward of the Infosys Prize.

7. DISCUSSION OF RESULTS

Assessment L&T

One of the world leaders in heavy engineering and construction technology, L&T remains a leader in terms of its environmental performance. The company addresses the existing international and national standards for sustainability comprehensively. Apart from its compliance to GRI, it has devised in house sustainability indices specific to its primary products and processes, which apart from improving its environmental performance, provides L&T an edge against its contemporaries.

L&T is moving forward with its commitment to sustainability. It also complies well with the GRI indices to comprehensively and effectively lead and evaluate its efforts. While it has strong establishment and evaluation of globalized and standardized indices, it shows weak evaluation of risk and crisis management, which is one of the critical global indices that should be given critical attention so that L&T can effectively and sustainability-consciously cope with unexpected events in a systematic manner.

Assessment BMW

Being a world leader in luxury car manufacturing, BMW moderately addresses environmental issues through its actions and policies. By complying with GRI standards, it pursues some of the environmental issues. However, much remained to be put into consideration. Being a heavy engineering company, there is significant scope of improve its technological products and service by critically analyzing materiality of its processes, also by having a comprehensive environmental management framework, BMW can tremendously improve its environmental performance and sustainability striving strategies.

While BMW Sustainability report has a very strong corporate governance structure and leadership organization it its evaluation, it does not provide much information about specifics of its Code of Conduct, which is one of the major indices in evaluating economic sustainability. Code of Conduct is highly crucial in that it provides values and principles BMW adheres to in its strategic direction and operations. Even though this violation does not significantly lowers the BMW's quality since strong governance evaluation does give references to its Code of Conduct, a more thorough analysis into the code is necessary. In terms of financials, it has shown a strong growth since the previous year and a much higher tax expense as well with good net value added.

Assessment Infosys

Infosys sincerely addresses the pressing environmental issues by adopting globally accepted environmental indicators. Also, they have been actively trying to improve their environmental performance though self-evaluation, research and compliance with national and international sustainability standards. However, some of the important issue remains to be included in their sustainability plan. In the case of Infosys, the scope of including environmental indices such as; materiality, NoX and SOX emission reduction, control of indirect emissions, and in house environmental management policy remains, which could significantly improve its environmental performance.

Infosys has shown a very strong financial performance and develops extensive evaluations into key standardized economic indices such as Financials, Corporate governance, Code of Conduct, Corruption/Bribery, and Risk & Crisis Management as described in Part II. This evaluation process well complies with the Global Reporting Initiatives framework and comparable to Dow Jones Sustainable Index components.

The positive assessment of sustainability reports of all three companies could be validated by green awards earned by each company as indicated in the result. Throughout the analysis there could have been some errors due to the fact that parts of the evaluation process was subjective, not all of the indices were considered due to the limited time and resources as compared to the sheer number of indices, and quantification process that the companies did were slightly different from the indices we identified.

8. CONCLUSION

Through the extensive literature search and web research, two major results are elicited in this paper: Sustainability Index analysis and sustainability case studies of 3 global companies that adopt sustainability values and evaluation methods to ultimately answer the objective question of why businesses are adopting sustainability criteria or perform a critical survey of quantitative indices for measuring sustainability in business.

With the focus on the Dow Jones Sustainability Index listing, the indices were organized into three large pillars of Environmental, Economic, and Social indices. Environmental category is composed of 3 major indices of Environmental Performance, Environmental Reporting, and Industry Specific Criteria with 11 sub-indices; Economic category is composed of 5 major indices of Financial Performance, Code of Conduct, Corruption/Bribery, Corporate Governance, and Risk & Crisis Management with 10~15 sub-indices; Social category is composed of 5 major indices of Corporate Citizenship/Philanthropy, Labor Practice Indicators, Human Capital Development, Social Reporting, and Talent Attraction & Retention with 10~15 sub-indices. Deep examination into each index in this paper reveals critical basis, standardized usefulness of the indices in evaluating the level of sustainability of companies, and transformation of such qualitative intangibles into quantifiable scores by assigning points and weights to indices.

The qualitative and quantitative analyses of three companies—BMW, Infosys, L&T—confirm that these companies employ most all of the indices examined in this paper and goes beyond to adopt other standards to comprehensively and effectively evaluate themselves and disclose the results to the public and appropriate agencies. Overall, these positive attitudes about the incorporation of sustainability values and use of sustainability index begs the question of why are these companies—and many others—following this trend despite additional costs.

In the 1970s and 1980s, the full disclosure of environmental goals and sustainability activities was pressured by the public, and companies were actually ill-prepared to respond to the growing number of green issue questions by numerous stakeholders. Interestingly, the paradigm began to shift in 1990s as voluntary environmental reporting initiatives were undertaken by more influential companies aiming to tap into the new emerging markets for environmental products and services [15].

But why do companies unrelated to environmental products and services pursue sustainability? This question can be empirically answered if one looks at what companies almost always revolve around: profit. At firsthand, even though they were all from completely different industries, the single most apparent theme was that their net incomes were in a high growth trajectory from the previous years—19% growth for L&T, 20% growth for BMW, 17% for L&T. Also, the authors of the Triple Bottom Line points out to the market evidence that the share price of companies listed in the Dow Jones Sustainability Index and the FTSE4Good Indexes—two global index systems introduced in this paper—have clearly outperformed other companies that are not at the top notch on those indices. Furthermore, companies who belong to the World Business Council for Sustainable Development have outperformed their respective national stock exchanges by 15 to 25% [16]. John Prestbo, the Editor and Executive Director of Dow Jones Indexes firmly touches the core of this phenomenon by stating, "sustainability becomes a proxy for enlightened and disciplined management—which just happens to be the most important factor that investors do and should consider" [17].

In hindsight, one could argue that it could be that companies with a strong financial performance simply have more resources to devote to sustainability, leading to a quandary of whether sustainability investment comes first or strong financial performance that allows sustainability investment and creates a reinforcing cycle comes first [18]. What the findings above do show, however, is that it is possible to take a proactive position on social and environmental issues while still delivering robust financial growth. The UBS Investment Bank backs up this point from an investor's viewpoint, stating "Environmental performance indicators appear to be a good indicator of strong operational performance. Strong environmental indicators in the presence of below-average profitability may signal an investment opportunity in our view" [17]. Based on the findings from the analyses and arguments presented in this paper, one possible reason why businesses are adopting sustainability values and marketing them is to grow its

financial performance and build a favorable brand image which, in turn, creates a sustainable reinforcing cycle to its financial performance.

Further research could take on investigating more major indices besides ones covered in the paper and delve into more complicated quantification process to examine the legitimacy of those indices in a deeper level. Also, correlation and regression analysis of sustainability performance to other index performances to create more tangible and quantified evidence to further the discussion of why businesses are adopting sustainability values may be another recommended area of further research.

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