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# QUALITATIVE GAP ANALYSIS OF TELECOMMUNICATION INDUSTRY'S CORPORATE SOCIAL RESPONSIBILITY OVER ECOLOGICAL DIMENSION

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**Abstract** *In the current quest for sustainable development, it is imperative for industries to assess their externalities and to address them. Corporate Social Responsibility (CSR) has existed in several definitions and dimensions but increasingly has been accepted as a business practice which is economically, socially and environmentally beneficial complies with rules & regulations, and maximizes the stakeholders' benefits, all at the same time. CSR primarily has to be determined on the basis of externalities caused by the business as usual and as efforts to address these externalities along with other objectives that are aligned with the Sustainable Developments Goals or as per the government policies. However, it is possible that all externalities are not clearly evident or visible and get neglected. The paper aims at the analysis of Telecom Industries externalities on the parameter of environmental responsibilities and efforts by the industry to address these concerns. The paper tries to assess telecom organizations' CSR initiatives by analyzing their CSR Reports and Annual reports. The results show that as far as environment is concerned, energy emission reduction has been a top priority of the industry but biodiversity losses due to emissions of radiations don't find much attention.*

**Keywords:** *Externalities, CSR, Environment, Telecom Industry, CSR Reporting*

## INTRODUCTION

Telecommunication is one of the primary drivers of modern development and has been playing an important role with breathtaking innovations almost every day. It is almost impossible to imagine life without cell phones, the internet, computers etc. and further these technologies have been primarily viewed as environmentally friendly. The basic assumption of environment friendliness is based upon the dematerialization due to wireless communication as now the use of papers, travels etc. doesn't take place due to the flow of information in terms of electromagnetic radiations. But the environmental implications of telecommunications have been reported to be more complex and contradictory than is often assumed (Marvin, 1997). With ever increasing demand of information at a higher pace, the telecommunication industry is proving to be a gold mine. The industry has been penetrating deeper and deeper with every day as human population and its need for information grows exponentially. As a matter of fact, telecommunication or digital technologies (99.9% in digital format in 2007) have been responsible for storing most of people's technological memory (94% digital in 2007). (Hilbert & López, 2011). The everyday businesses of any industry will create visible or invisible externalities and thus it becomes imperative to address these externalities. This paper tries to assess the environmental externalities created by the Telecom Industry and if through Corporate Social Responsibility; these externalities have been addressed based on the qualitative data analysis of the sustainability reports of few telecom organizations and secondary data from other research papers. The paper focuses on the threats of electromagnetic radiation to biodiversity and humans from wireless communication and telecommunication and assesses the current CSR practices of the industry leaders to internalize these threats and impacts.

The paper aims to establish a holistic and accepted definition of Corporate Social Responsibility (CSR) using the currently available literature on CSR and also explains the close relationship between environmental responsibilities and CSR

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of an organization. After establishing the context of CSR in terms of environment dimensions, the paper explores the impact of telecommunication industries on the environment as an externality of its everyday business operations. The objective is to explore the externalities of the telecom industry which knowingly or unknowingly, are invisible. The current regulations on telecommunication industries have been discussed afterwards so as to understand the known domain of impacts that are expected out of the everyday business process of Telecom Industry and how they are being regulated by the responsible authorities. The sustainability reports of four telecom organizations were studied with an objective of establishing the current environmental concerns and impacts due to everyday operations, and how well the CSR efforts of these organizations address or try to address these particular impacts. Apart from reports few existing papers highlighting the CSR of Telecom Industry in particular countries were also done. The analysis of reports is done by using the "Atlas ti" package for qualitative analysis. Finally, the key results and findings of the analysis along with the concluding remarks from the authors have also been discussed.

## ENVIRONMENT & CSR

Corporate Social Responsibility has existed in various forms to cover the ethical, legal and moral responsibilities. The evolution has transformed from *"The social responsibility of business is to increase its profit"* (Friedman, 1962) to *"A company's sense of responsibility towards the community and environment (both ecological and social) in which it operates"*[1]. This continuum has been observed at different stages in different industries in different countries.

For example, India that is believed to have four phases of CSR and a paradigm shift from voluntary participation to law mandated under the Companies Act, 2013 has been observed. Hence it becomes important to define CSR in a way which encompasses the holistic and willful understanding of the CSR.

## DEFINITION OF CSR

The complex and hazy perception of CSR by corporates demands a well-accepted definition of CSR; there have been several studies on the definition of CSR and hence in this paper, we will try to build upon those definitions. Alexander Dahlsrud in his paper *"How Corporate Social Responsibility is Defined: An Analysis of 37 Definitions"* analyses as many as 37 definitions and derives at the conclusion which comprises of Five most important dimensions for defining CSR. The result of his study is shown below.

1 http://www.businessdictionary.com/definition/corporate-social-responsibility.html

His analysis shows the relative strength of important dimensions in defining CSR.

**Table 1: CSR Dimensions (Adapted from (Dahlsrud, 2008))**

| Dimensions | Reference to | Example Phrases |
|---|---|---|
| Environment | The natural environment | A cleaner environment, environmental stewardship, environmental concerns. |
| Social | The relationship between business and society | Contribute to better society, integrate social concerns, and consider full scope of their impact on community. |
| Economic | CSR in terms of Business Operations, Socio-economic & financial aspects | Contribute to economic development, preserving the profitability, |
| Stakeholder | Stakeholders or stakeholder groups | Interaction with stakeholders |
| Voluntariness | Actions not prescribed by law | Based on ethical values, beyond legal obligations and voluntary. |

**Table 2: Dimension Distribution (Adapted from (Dahlsrud, 2008))**

| Dimensions | Dimension Score | Ratio (%) |
|---|---|---|
| Environment | 818 | 59 |
| Social | 1213 | 88 |
| Economic | 1187 | 86 |
| Stakeholder | 1213 | 88 |
| Voluntariness | 1104 | 80 |

The results clearly show the underrated presence of Environment in CSR. However, it still establishes the inevitability of environment as a dimension. Also it must be noted that while defining the CSR most of the early definitions of CSR didn't include environment (Carroll, 1999).

## EXTERNALITIES OF TELECOMMUNICATION

Telecommunication Industry has been instrumental in driving the information revolution in today's knowledge-based economies, but it is important to determine the underlying cost of this revolution. Central Pollution Control Board of India (CPCB) issued an awareness note on Mobile

tower radiation and its impact on Environment[2]. From the note of CPCB few conclusions are drawn, such as all forms of life on earth are exposed to radiations. The largest source of radiation is Sun and all living beings are exposed to it. Many other common sources are radio, transistor, television, microwave oven, mobile handset; all Mobile Towers have also been listed by CPCB as a source. Radio Frequency (RF) energy has been defined as a non-ionizing radiation similar to visible light, infrared radiation, and other forms of electromagnetic radiation. The gravity of concerns regarding the effect of EMR is exemplified by the efforts of Ministry of Environment & Forests (now Environment, Forests & Climate Change), Government of India which constituted an 'Expert Committee to study the possible impacts of Communication Towers on Wildlife including Birds and Bees'. The report indicates that Electromagnetic Radiation (EMR) interferes with the biological systems apart from its impacts on human beings.

The above note highlights few points which could be subjected to scientific prudence. Overall numerous biological effects do occur after short-term exposures to low-intensity Radio Frequency Radiation (RFR) but potential hazardous health effects from such exposures on humans are still not well established despite increasing evidence (Levitt, 2010). However, in the same paper, it has been argued that with new environmental concept taking form - that of ''air as habitat'' (Manville III, 2007) for species such as birds, bats, and insects, in the same way, as water is considered the habitat for marine life; new perspective for such studies is required. Until now, air has been considered something ''used'' but not necessarily ''lived in'' or being critical for the survival of species. However, when the air is considered as a habitat, RFR is among the potential pollutants with an ability to adversely affect other species. It is a new area of inquiry deserving an immediate research.

The habitat view of air and pollutant view of radiations with their impact on wildlife and humans have also been given by Balmori. (Balmori, 2009). According to him EMR can cause damage to nervous system by altering electroencephalogram; there could be changes in neural response or changes in the blood-brain barrier. It could also interfere with pineal gland and hormonal imbalances, resulting in disruption of circadian rhythms. EMR could also change blood pressure and heart rate. The impacts could also be in terms of impairment of health and immunity towards pathogens, weakness, exhaustion, deterioration of plumage, and growth issues. In case of chickens, it could cause issues in building the nest or impair fertility, quantity of eggs, embryonic development and survival etc. In long term, the impact could be genetic, problems in locomotion, partial albinism, and melanism etc. (Balmori, 2009).

[2] https://www.cpcb.nic.in/Note_Mobile_Tower_Radiation_UPCD_Div.pdf

The existing literature confirms that environmental concerns associated with telecom industry goes beyond mere $CO_2$ emissions or energy consumptions but emphasizes on its indirect impact on human and wildlife health. Thus there is a need for a proper mechanism to address these issues. In next section, the policy implications and its failure in terms of mitigating these externalities have been discussed which makes it all the more important for telecom companies to utilize their CSR toward environmental health concerns.

## POLICY REGULATIONS

In the Indian case, Pollution control board explains its limitations when it comes to telecom industries. These are:

- Under The Air (Prevention and Control of Pollution) Act, 1981' air pollutant ' means 'any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentrations as may be or tend to be injurious to human beings or other living creatures or plants or property or environment (Note: This clearly shows that Radiation is not covered under the act and is not considered as a pollutant).
- Under Environment Protection Act, 1986 'environment' includes water, air and land and the interrelationship that exists among and between water, air, and land, and human beings, other living creatures, plants, micro-organism, and property;
- As per section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and/or under section 21/22 Of the Air (Prevention & Control of Pollution) Act, 'No person shall, without the previous consent of the State Board, establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an extension or addition thereto'.
- The Noise Pollution (Regulation & Control) Rules, 2000 'Whereas increasing ambient noise levels in public places from various sources inter-alia, industrial activity, construction activity, (fire crackers, sound producing instruments), generator sets, loud speakers, public address systems, music systems, vehicular horns and other mechanical devices have deleterious effect on human health and psychological well-being of the people, it is considered necessary to regulate & control of noise producing & generating sources with the objective of maintaining the ambient air quality standards in respect of NOISE'.
- In India, Mobile Tower Radiation testing and monitoring are regulated by Telecom Enforcement Resource & Monitoring (TERM) cell of Department of Telecommunications (Ministry of Communications & Information Technology). Similarly, the mobile tower radiation control is governed by telecom

regulatory authorities in other countries like Sri Lanka, U S, U K, China etc.

- As per legal provisions quoted above, radiation from Mobile Towers & Phones are covered under:
  - Indian Wireless Telegraph Act, 1933 (Act No XVII).
  - The Indian Telegraph Act, 1885.o The Telecom Regulatory Authority of India Act, 1997.

However, none of the Acts covers the regulation of health impacts of radiation on living beings as per (CPCB). The lack of regulations in this regard puts emphasis on industry to assess its externalities in the form of electromagnetic radiation encroaching the air which is a habitat of birds, bees etc. and also the effect on human beings due to long term exposure as discussed in previous sections.

## GAP ANALYSIS

To analyze the efforts of telecommunication industry to address its externalities specifically the impact of electromagnetic radiation through its CSR initiatives; gap analysis is carried out by taking organization's sustainability reports. For a wider perspective of CSR initiatives by Telecom industries secondary analysis was also carried out from already available literature.

## ORGANIZATIONS STUDIED

To cover the overall industry practices the organizations with wider reach in terms of subscribers and volumes were chosen. The objective was also to choose organizations and literature from diverse economies whether developed, developing or underdeveloped as technological innovations have been traditionally flowing from developed countries to less developed countries. All four organizations thus chosen have been the industry leaders (e.g. AT&T), have the largest volume (e.g. Verizon, Vodafone) or have scale of operations and in less developed countries (e.g. Airtel operating in Asia and Africa).

- **AT&T:** AT&T is as old as the telecom industry itself. In 1876, Alexander Graham Bell invented the telephone which also became the foundation of the company and it eventually became AT&T – a brand that is now synonymous with innovation in communications (AT&T, AT&T Company Information, n.d.). AT&T is world's second largest provider of mobile telephone services and the largest provider of fixed telephone services (Leichtman Research Group, 2012). AT&T registered a net income of US$13.3 billion in the fourth quarter of 2015 (AT&T, AT&T Newsroom, 2015).
- **Verizon Communication:** For more than 100 years, Verizon has been at the center of the communications revolution. Today, Verizon is a global technology company delivering the promise of the digital world (Verizon, History and Timeline, 2016). It is a broadband telecommunications company and the largest U.S. wireless communications service provider as on September 2014 (FierceWireless, 2014).
- **Airtel:** Bharti Airtel Limited is a leading global telecommunications company with operations in 20 countries across Asia and Africa. It is headquartered in New Delhi, India. The company ranks amongst the top 4 mobile service providers globally in terms of subscribers (Airtel, About bharti airtel, 2016).
- **Vodafone:** Vodafone Group is a British multinational telecommunications company, with its headquarters in London. Among mobile operator groups globally, Vodafone ranked fifth by revenue and second (behind China Mobile) in the number of connections (435.9 million) as of 2014 (Intelligence, 2016).

The basic fundamental idea behind choosing these organizations is their impact that they have made in terms of their reach to people i.e. subscribers, revenues, and the type of economies they operate; so that we can have an overall perspective of the industry's efforts to mitigate its externalities.

**Table 3: Organizations Selected**

| Organization | Economy Type | Report |
|---|---|---|
| AT&T | Developed | (AT&T, sustainability-reporting, n.d.) |
| Verizon | Developed | (Verizon, files, 2014) |
| Vodafone | Developed & Developing | (Vodafone, 2014) |
| Airtel | Developing & Underdeveloped | (Airtel, files, 2016) |

In order to make the study comprehensive the data from existing research available in case of Bangladesh (Underdeveloped) (Sarker, 2014), Lithuania (Newly Developed) (Kavaliauskė & Stancikas, 2013) and Malaysia (Developing) (Mohamed M.B, 2007) were also studied.

## METHODOLOGY

Data gathering for text analysis was done by downloading available sustainability reports from the respective websites of the selected organizations.

All these reports were then loaded into Atlas ti package. Followed by which all reports were studied by authors and variable which were created in the Atlas ti were assigned wherever the contribution to the particular variable was observed. The variables created have been discussed in the Data Analysis section along with the rationality of selecting

those variables. The results of these data were analyzed using frequency counts instead of exploratory analysis due to size of data obtained and reports studied.

Apart from the reports of the selected organizations, other studies from different countries were also studied to represent a theoretical trend towards view of CSR from the telecom industry.

## DATA ANALYSIS

Data analysis on sustainability reports was carried out by using Atlas ti. The variables chosen were in line with GRI indicators and as a matter of fact, Airtel's CSR report had a GRI Indicator index page disclosing its commitment to the indicators. The variables chosen were grouped under three families which are as follows:

- Environment
  - Biodiversity
  - Energy Consumption & Emissions
  - Overall Environment
- Corporate Governance
  - Ethics
  - Governance
  - Stakeholder Engagement
- Social Indicators
  - Education
  - Health
  - Social Development
  - Sustainability
  - Women Empowerment

Given the short volume of data, it made more sense to do the frequency count for exploratory purposes.

**Table 4: Frequency Distribution of Variables from Reports**

| Indicators | Indicator Score | Indicator Ratio (in %) |
|---|---|---|
| **Environment** | **37** | **29.6** |
| *Biodiversity* | 2 | 1.6 |
| *Energy Consumption and Emissions* | 16 | 12.8 |
| *Overall Environment* | 19 | 15.2 |
| **Corporate Governance** | **34** | **27.2** |
| *Ethics* | 7 | 5.6 |
| *Governance* | 10 | 8 |
| *Stakeholder Engagement* | 17 | 13.6 |
| **Social Indicators** | **54** | **43.2** |
| *Education* | 10 | 8 |
| *Health* | 8 | 6.4 |
| *Human Rights* | 3 | 2.4 |
| *Social Development* | 15 | 12 |
| *Sustainability* | 16 | 12.8 |
| *Women Empowerment* | 2 | 1.6 |
| Total | 125 | 100 |

The table enlists the frequency count of all indicators for all reports cumulatively. The indictors in bold i.e. Environment, Corporate Governance and Social Indicators are overall family indicators while indicators in italics are the members within the broad family indicators. This is the result from all four sustainability reports from organizations which were studied.

The findings from this data have been discussed in next section using graphical representation to provide an insight of how CSR activities of these organizations have been formulated on the parameters of GRI indicators mentioned above.

## FINDINGS

From above observations we found that Indicator Families are distributed as below:

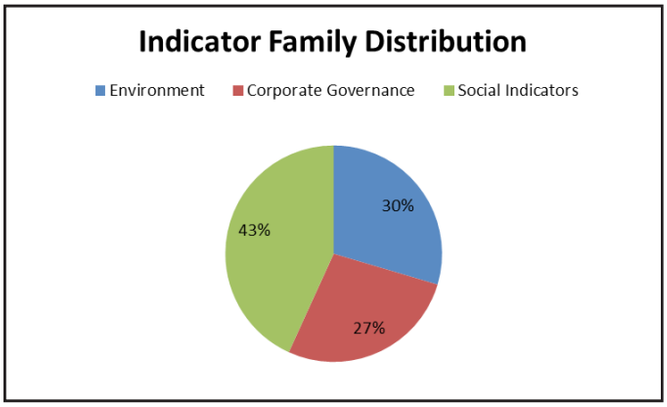


**Fig. 1: Family Indicator Distribution**

Clearly, the environment concerns aren't the priorities of the Telecom Organizations. However, due to international regulation of Carbon emissions, the organizations have to comply which may reflect a raised concern. On further drilling down within the Environment we would have:

Also the *"Overall Environment Indicator"* mostly, is a reflection of regulation compliances which organizations are supposed to follow. And hence it shows large contribution in both the charts. Moreover, it is important to understand the impacts on biodiversity and thus need of CSR efforts to mitigate those impacts. Also from the papers studied, in Lithuania when it comes to Telecom and Financial sectors that provide non-tangible products and services and, thus

do not significantly harm the environment in any way, it is not necessary to be involved in socially and environmentally responsible initiatives. Financial and labor costs may not outweigh the possible benefits since consumers are usually not aware of these CSR efforts (Kavaliauskė & Stancikas, 2013), whereas in case of Bangladesh a study demonstrated that the overall practices of CSR activities of corporate bodies in general and Telecom industries in Bangladesh, in particular, are not satisfactory in the context of real CSR consensus and business ethics. It is considered as a stepping stone for corporate bodies to achieve their goals. CSR activities are so far implemented for promoting a business without actual spirits of social responsibility and benevolent purposes (Sarker, 2014). For Malaysia, it was found that Telecom organizations showed satisfactory involvement in five main categories of CSR viz. Environmental Concerns, Welfare/Charity, Community Involvement, Product/Services Improvements and Natural Disaster Awareness (Mohamed M.B, 2007). However, in the case of Malaysia, it is largely due to the rules and regulations set up by the authorities and administration.

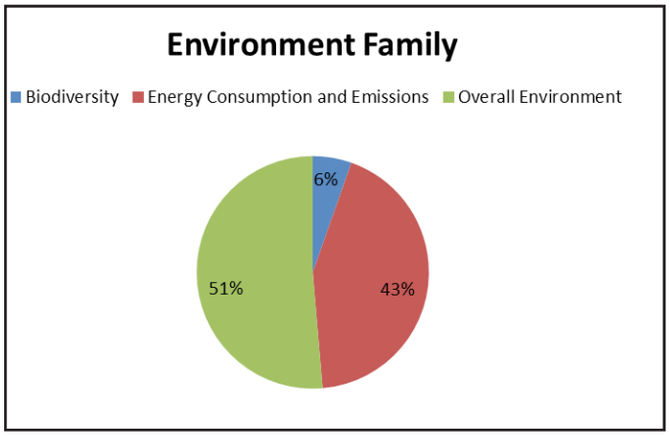


**Fig. 2: Environment Indicator Distribution**

From existing literature review and findings from data analysis, it was eventually established that the most of the CSR efforts from telecom industries have been aimed at compliance of regulations and thus the onus of addressing issues like biodiversity and electromagnetic radiation pollution where the compliances and regulations are still evolving lies on the industry leaders. It is imperative for the industry to take a proactive stand on the issue of biodiversity threats posed by electromagnetic radiation to ensure efforts in the direction of mitigating their impact that could lead to sustainable business practices.

## CONCLUSION

Overall, although the direct impacts on human health, wildlife, and aerial habitat loss could be a matter of scientific debate but the threat to living beings due to telecommunication could be real. Now since the policy in this regard is not very sound and may take a lot of time and political maturity (CPCB). It is imperative for the telecom industry to redirect its efforts and funds toward research and development of means which could minimize the impact of electromagnetic radiation on living beings whether humans or animals.

Moreover, most of the rules & regulations diffuse from developed nations to underdeveloped or developing nations and similar has been the case with technology advancement; however, in case of telecom industry the growth has been explosive which is evident from the rate of increase in number of mobile phones and smart phones. That is why in such scenarios where policy and regulatory institutions may take time to realize the negative impacts of *as usual* business practices of the industry, for sustainable growth and future; telecom industry should focus on assessing and accepting these impacts and then subsequently addressing them through CSR to create a better shared value system.

The lack of external regulations presents an opportunity to the telecom industry strategists to integrate a corporate self-regulation in their business practices which is the classic definition of CSR.

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