

Corporate Environmental Responsibility: A Case from India

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Abstract

With growing consciousness around the sustainability and environment being a major subject at every big and powerful table in the world, it is only natural that corporations will also be dragged into this tornado. With the negative image that surrounds every major corporation in relation to social issues, it is important that corporations maintain a good environmental record for a healthier interaction with its customers and a better image.

With India making CSR compulsory by law it is important to be seen how much of the environmental facet is addressed within the concept of CSR as well as outside it. Some corporations that can be ostentatiously held responsible for exploitation (such as oil, energy and all other mining related sectors) are monitored with a hawk's eye. However, what about those corporations which subtly use the dwindling resources such as water or pollute the air? This case study aims to bring across the case of Dr. Reddy's Laboratories which has imbibed environment as a part of its day to day activity and aims to give back to the environment as equilaterally as it takes from it. DRL's case has the potential to encourage genuine attempts at corporate environmentalism.

KEYWORDS: Environment, Sustainability, Sustainable Development, CSR.

1. Introduction

Environmental management is one of the most important facets of the larger aim of constructing socially responsible practices by the corporates. With the increasing strain on environment and the people deriving their livelihoods from it, corporates have either been compelled or have voluntarily joined the cause to rectify the wrongs. The role of companies is crucial in the environmental cause as companies play a crucial role in economic development while simultaneously being responsible for the over-exploitation of natural resources. On the other hand, companies are the key players who need to redesign their strategies, operations and attitudes towards the natural environment to sustain the well-being of the world ecosystem (Kudlak 2014). Environmental management is motivated by governmental regulations, corporate goals, public expectations, environmental and material resources and the potential risk for liability (Flynn 2014). However, if internalized as a mission and strategy environmental management has the potential to be a payoff in the long run. Reinhardt (1999) explains that "they (managers) should make environmental investments for the same reasons they make other investments; because they expect them to deliver positive returns or to reduce

risks” (pp. 150). He further notes the five factors that a company could benefit from having an environmentally proactive approach which are: differentiating products, managing your competitors, saving costs, managing environmental risk, and redefining markets (150-156). Many recent researches have pointed out to an even positive relationship between a firm’s environmental consciousness and its competitiveness taking into consideration environmental variables like environmental ratings based on compliance, waste reduction, penalties for violations of environmental regulations and proactive environmental strategy on one hand performance variables like return on assets, profit margins, organizational benefits and cost advantage on the other (Bhat 1998); (Russo and Fouts 1997); (Christmann 2000).

Apart from direct financial benefits, corporates have also joined the environment conscious bandwagon to make this very environmentalism a unique selling point of their respective firms. Esprit, a global apparel major, in the 1990s started a collection called *Ecollection* in which the cotton used for the garments were made from organically grown cotton. It discarded the rather conventional way of using cotton which is usually grown with pesticides, herbicides and fertilizer (Mirvis 1994). Furthermore, many corporates have opened up to the notion of environmental audits as part of a larger aim of corporate sustainability. The overall aim of environmental auditing is to provide an ongoing status check which will enable environmental improvement within the organization to continue and, in so doing, will help to safeguard the environment and minimize the risks to human health (Welford 1994). corporates, which employ a large number of persons, both directly and indirectly, are bound to contribute to the larger aim of sustainable development. Therefore a firm’s environmental strategy, i.e. a firm’s selection of the width and depth of the width and depth of environmental friendly practices and activities, can be focused on five key decision areas which are product, manufacturing process, organization and system, supply chain and recovery and external relationship (Lee and Rhee 2007).

To examine various facets of corporate environmentalism, this paper looks at the environmental practices of Dr. Reddy’s Laboratories(henceforth referred to as DRL), a pharmaceutical company based in Hyderabad, India. DRL has made significant strides in the domestic and international markets to be one of the recognized names in the pharmaceutical sector. It has also internalized environment as a key pillar in its nine-pillared strategy meant for achieving an ethical purpose and a broad aim of corporate sustainability with the other eight being: Safety, People, Quality, Community, Engineering Excellence, Productivity and Continuous Improvement. The environment friendly practices of DRL will be analyzed through the rubrics discussed by Lee and Rhee (2007).

2. Methodology

The methodology for this case study consists of interviews and collecting data primarily from the plant. We visited the FTO-3 (Formulation Technical Operations -3) plant located in Hyderabad to conduct an interview with a senior executive from the Health Safety & Environment (HSE) department of DRL. The interview lasted for approximately 90 minutes. To gain more knowledge of the functioning of the plant, on which other plants are modeled, we also interacted with other staff who worked in the

mechanisms set for environmental initiatives. This interaction lasted for about two hours and enabled us to get a holistic view of the functioning and their positive impacts.

The interviews were further complemented by communications via e-mail through which we received primary data regarding the environmental initiatives. We also got a significant amount of data regarding such initiatives on their website from DRL's Sustainability Report. The questioning focused on a descriptive and qualitative approach regarding the mission, initiatives, hurdles and strategy in the context of environment. Post the completion of this report, it was sent for discussions and corrections to the informants.

Furthermore, in order to identify the literature appropriate for a conceptual understanding of the topic and for the paper, the search engine in the EBSCO and EMERALD databases were employed with the usage of the following key words: "environmental management", "corporate environmentalism", "CER", "environmental management systems". The same was also used to identify the studies that concretize our arguments for better environmental management.

3. CER/Corporate Environmentalism- Centrality in a firm

With the immense growth in the field of industrialization, environmentalism has been implemented in the structures of organizations. Moreover, it can be seen as a competitive ingress in the market place. This corporate strategy has gained a central position in the management functions as the firms are focusing on minimization of environmental degradation. In a way, it also provides public acceptability and credibility to the firms. Although the implementation of Environment Management Systems is desirable, only a few organizations have achieved success in adopting the green corporate strategy. The failure is because of the fact that most of the firms lack a well-organized approach to recording, monitoring and measuring the factors that result in a pernicious effect on the production and resourcing sectors. (McCloskey and Maddock 1994).

Whenever an environmental damage occurs and incrementally becomes public, it hampers the organization's credibility and public image. In such a case, a firm can behave in two ways. The first behavior can be a firm's negative actions which lead to long term adverse effects on the organization. The second way is to react in a positive way. In the first behavior, the shortcomings of the firm get publicly exposed which again, has bad impacts on their financial goals and status. Thus, to avoid this firms have identified the need for handling corporate responsibility and they catch up with some sound environmental practices. As a result more and more firms have shown their commitment to environment friendly practices.

Apart from the factors mentioned above, there are some other as well that have played a crucial role in positioning environmentalism at a central role in the firms. One of most important factor is *product concept*. Environmentalism as a practice has transformed into being concepts for production in many firms. For instance, The Body Shop has successfully incorporated environmental issues and has clearly sent a message into the market. They have demonstrated that by efficiently reacting to matters such as waste minimization, energy efficiency, and recyclability, competitive advantage can be gained in the market. The corporate images are being converted into "green." (MacKenzie

1991). The preference of consuming products that is of a good quality, comprehensive and environmentally sound business practice has increased over the years. Other than this, organizations adopting such practices have benefited from falling costs. The practice of recycling and waste management has decreased their cost of production and hence has maximized their profits.

Another strong factor behind centrality of corporate environmentalism is *market forces*. As the business leaders in the market have recognized the importance of implementing environmental protection to their corporate strategy, many new companies are trying to step into the competition by emphasizing on integration of environmental management and corporate strategy. As many instances point to the fact that environmental performance and economic performance are interlinked, the firms are now investing in environmental measures so that it, in turn, becomes profitable for the corporations. *Stakeholder pressure* is another force that drives firms towards adoption of environmentalism. Stakeholders encourage the firms to adopt environmental management systems as they consider these factors to be closely linked with performance of the firm at the market level. In turn, the stakeholders demand integrity, standards, respect, transparency, and accountability in CER (Sindhi and Kumar 2012).

Therefore, environmentalism has become the new face of the modern firms. It has shaped their structure and firms are benefited after integrating environmental protection with corporate strategy. Organizations which are adopting such strategies accept corporate responsibility for the effects on environmental from their firm processes. In order to mitigate these effects, they take steps towards protecting the environment from the harmful impacts of their firms. While concentrating on such practices, the organizations also focus on improving the quality of the products as well. Therefore, in the long run, consumers get to know about the environmental practices improving the public image.

4. Reducing the Ecological Footprint- How firms implement CER/ environmentalism world over

In past few decades there has been a change in the working pattern of industries. The concept of “greening of industry” is taking control over profit driven industries as well as in governmental policies. Many firms follow or are likely to follow the environmentally sound policies because of legal regulations but very few firms implement CER as proactive practice. It has been proved that if a firm is actively working on proactive environmental strategies then it may lead to new developed and competitively valuable organizational capabilities(Sharma and Vredenburg 1998). For the implementation of CER it is important to have an independent panel specifically in the area of environmental practices. In corporations the role of manager is very crucial for the implementation of any ecological initiative. Managers monitor the performance of entire sustainable operations and bring the changes in plan with respect to requirement (Wagner and Beverly 2011). One of the fundamental principles for implementing the CER in a firm includes the meeting and conversation of employees, community leaders and creating a feedback routine for their environmental initiatives. With the feedback routine, firm discusses about their progress report and takes opinions from employees regarding the implementation of initiative. It is very important to identify and understand the key

stakeholders of the industry. Therefore industries study their stakeholders before preparing an effective environmental marketing strategy.

Attaining ecological sustainability is becoming major goal for industries. For ecological sustainability and implementation of CER, companies are adopting several new practices:

- Many major industries around the globe have changed their source of energy from combustible to renewable energy. Now instead of using coal, oil and gas as energy source industries are trying to generate energy from solar power, water and by harvesting wind energy.
- Another step that has been taken by industries for reducing ecological footprints includes elimination of waste from the process of production and then treating the waste with proper mechanism.
- Companies are also adopting the technique of bio mimicry. With the help of available technology the companies tries to copy the natural processes that can help in the process of production.
- Companies are also restoring and conserving the biodiversity. The work place are constructed in a way that ecosystem will be less affected by it.
- Encouraging eco-friendly economy, promoting commerce and technology in the prevailing biological systems.

For attaining environmental sustainability, firm brings changes in its key sectors i.e. procurement, product stewardship and logistics (Wagner and Beverly 2011). With procurement, companies adopt and implement the code of conduct that is incorporated in their supply contracts. In product stewardship, business opportunity and producers are in a well induced relationship so that they can easily adopt innovative product policies for reducing the environmental impact during production. Finally logistics plays a crucial part in the implementation of environmental strategy as it involves transportation, storage and distribution of products to the market. In a Swedish fast food chain “Max”, the owner buys raw materials from only those farmers who strictly follow the government guidelines in animal rearing. Before buying the raw materials for the food chain, they enquire about the origin and the process of production regarding raw materials. If they violate any criteria related to environment sustainability, they cancel the orders. They also use green cars for the purpose of transportation. For the assessment of the “greenness” and its effectiveness, organizations are adopting *Green Maturity model* (Hamid Moini 2014). This model guides and formulates adequate green strategy for firms that are suitable for them.

For the implementation of environmental strategy, consideration of four themes is very crucial for any industry. First one is ethical responsibility, a sense of personal responsibility towards environment is very important for starting any environmental initiative. Second theme is renewal; it involves less production of waste and use of minimal resource. Third is interconnectivity, for any industry access of resources is very important. These resources are also linked with social as well as biological aspects. It is important to understand the interconnectivity of these relationships in local, global and biological aspects and analyze the impact of them. Last theme for the implementation of

a strategy is local well-being. A firm needs to follow all these themes for their initiative towards environment (Fenwick 2007).

For instance “Awards International”, a Vancouver, Canada based trophy manufacturing company is implementing CER (Fenwick 2007). For ecological sustainability this company has been using recycled materials like glass for producing trophies. It also reduced the water consumption in the process of production by 75 percent. For energy conservation this firm is working on a firing plant that can capture and reuse all the heat energy. For greening of firm they started planting trees around the campus and in corridors. They have also adopted the plan of green roof, planting grass on the roof of the firm that will work as natural insulator as well as it will be used by the employees and community members as public space.

5. Economic Benefits of Corporate Environmentalism

For any corporate organization it is not an easy decision to invest in the protection of environment, especially in developing countries where environmental norms are not very stringent and violations are not reported. Any sustainable development initiative requires a considerable amount of investment. But why should a company invest in environmentalism? Do they benefit financially from these initiatives? A lot of research has been done in corporate environment protection initiatives and its impact on the financial performance of the company. A large part of this research states that that spending on environment friendly initiatives is investment and it pays off in long run (Shrivastav, 1995; Porter and van der Linde, 1995), although there are also those who differ.

5.1. Improved corporate image and Community Relations.

Today in era of sustainable development consumers are aware of the environmental problems. People have started caring about the environment. So when a company or a producers claim that they are doing something substantial towards protection of environment or sustainability per se, people tend to associate themselves with that company by buying that product and it has been also observed that people are ready to pay an extra amount when they see that they are also a part of a bigger agenda like climate change. The best example is the fair trade products which are sold at a higher rate.

Further, companies nowadays are drawing on environmentalists to help repair their reputations (Beder, 2002). Nike, which has been in past been accused of violating human rights as it paid nearly minimum wages to its employees. As part of its reputation building program, it associated itself with Greenpeace Australia and it also committed itself towards not selling paper products and wood from the ‘old wood’ forests (Beder, 2002). Subsequently they Nike also agreed to not to use Poly Vinyl Chloride in any of its products and Nike’s initiatives were recognized by Greenpeace Australia at Sydney Olympics in 1998. Nike’s association with Greenpeace earned them a reputation of company committed towards the sustainability. People started to recognize it as a company which was doing ‘something’ towards the protection of environment which bumped the sales of the company.

5.2. Tax deductions

In order to boost sustainable development the 'northern' countries started incentivizing the attempts by corporates towards the environmental friendly initiatives. In United States of America, the companies get corporate tax credit¹ for their environmental friendly initiatives to produce renewable energy. These benefits vary from state to state.

'Developing' countries have also joined the race. Countries like India gives tax benefits to companies producing renewable energy. Delhi government gives benefits for constructing green buildings, like enhanced floor area coverage (FAR) and a property tax rebate. Incentivizing such attempts by corporates encourages them to move towards corporate sustainability.

5.3. Cost – Cutting

Another aspect which affects the corporates when they switch to sustainable development is reduced power-bills. The use of energy efficient equipment and renewable energy cut the money spent on energy bills considerably. Although the initial investment is really high but it pays in the long run.

5.4. Access to new markets

There are certain markets which are very specific about the environment norms being followed for manufacturing of particular product, especially the European Union and the Nordic countries. Adopting sustainable practices give them access to these markets which in turn helps them to increase their profits.

Further, in near future the environment norms are going to be stricter to cut down carbon emissions. The companies which have already invested towards the sustainable development will have an upper hand over other corporates who don't have considerable investment in sustainability.

6. Case Study on Corporate Environmentalism: Dr. Reddy's Laboratories' Path to Environmental Sustainability

DRL has had a very proactive approach as far as Health, Safety and Environment (HSE) is considered. They have tied up with DuPont Sustainable Solutions for matters relating to Health and Safety. DuPont, being a pioneer in this field from as early as 1870s, has passed on significant expertise to Dr. Reddy's on this front. As far as environment is considered, DRL has identified three key areas for improvement which are water, air and soil. Apart from the three parameters, they have also integrated environmentalism into their production process. To keep up the proactively on this front there are significant checks in DRL which include audits and reviews (both internal and external) and other internal evaluations. This system of evaluations and checks in DRL also contribute to the larger aim of corporate sustainability as enshrined in the nine pillared approach of DRL mentioned above. Apart from the positive impact on environment, DRL seems to be gaining significantly in terms of financial matters. Especially at their plants at Nalgonda

¹ For more information on tax benefits in United States of America for renewable energy initiatives by corporates - <http://www.dsireusa.org/>

and Srikakulam in Telangana and Andhra Pradesh respectively, they have made significant financial gains due to their environmental initiatives. These positive results prove the correlation existing between corporate environmentalism or a proactive environmental approach and competitiveness. In the forthcoming sections, the environmentalism of DRL is described in detail in what can be the blueprint for other firms, especially in the pharmaceutical sector, to emulate.

6.1. Efficient Water Management

While 70% of the water requirement is met by groundwater, a significant 30% of the requirement is met through recycling of water. DRL's water policy is based on three pillars of water management which are Reduce, Recycle and Replenish. All the DRL plants are certified Zero Liquid Discharge (ZLD) plants i.e. no water goes to waste out of their plants. There are two kinds of waste water that is discharged from the plant sites which are industrial waste water and sewage waste water. While industrial waste water is discharged from process functions like tablet manufacturing and is sent to the Effluent Treatment Plant (ETP) to treat it for further use, sewage waste water is generated from toilets and kitchen and is sent to the Sewage Treatment Plant (STP). The Waste Water Recycling Facility was constructed at a built-up cost of Rs. 19.40 crore. The stages of ETP include Primary treatment (include Equalization, Neutralization, Flocculation for the removal of suspended solids), Secondary treatment (Effective and Eco friendly aeration to reduce Chemical Oxygen Demand and Biological Oxygen Demand), and Tertiary treatment. Tertiary treatment includes the water passing through Ultra filtration System (Removal of Suspended Solids). After that the water goes through the process of Reverse Osmosis (RO) which is then passed through Multiple Effect Evaporator followed by the Agitated Thin Film Dryer. The water that comes out from the ETP is reused again for process functions. The complete ETP process is described in detail below.

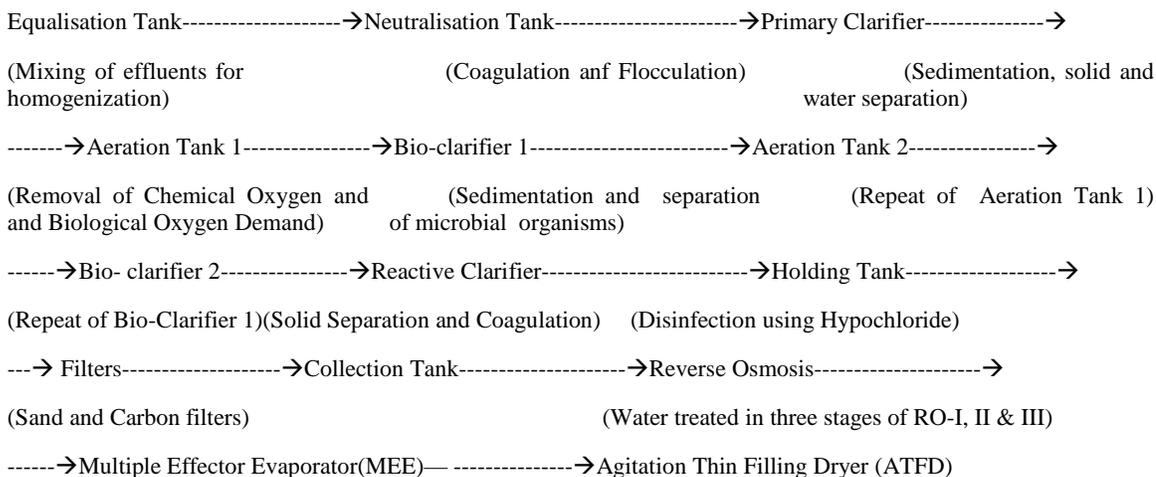


Figure 1: A complete description of the process of water treatment in ETP.

In the Sewage Treatment Plant (STP), the water passes through three stages before being finally ready for use in activities such as gardening. The first process is Primary Treatment (includes Equalization, Neutralization, and Flocculation for the removal of suspended solids); then it passes through Secondary Treatment (to reduce Chemical Oxygen Demand) and finally the Tertiary Treatment (where Sand filter & Carbon Filter

are applied to make the water fit for reusing). All the treatment plants i.e. the ETP/STP, UF-RO plant and MEE-ATFD are integrated under a common control system called SCADA for better co-ordination. The STP which was recently commissioned has been effective in water conservation by reducing the consumption of fresh water as has been depicted below.

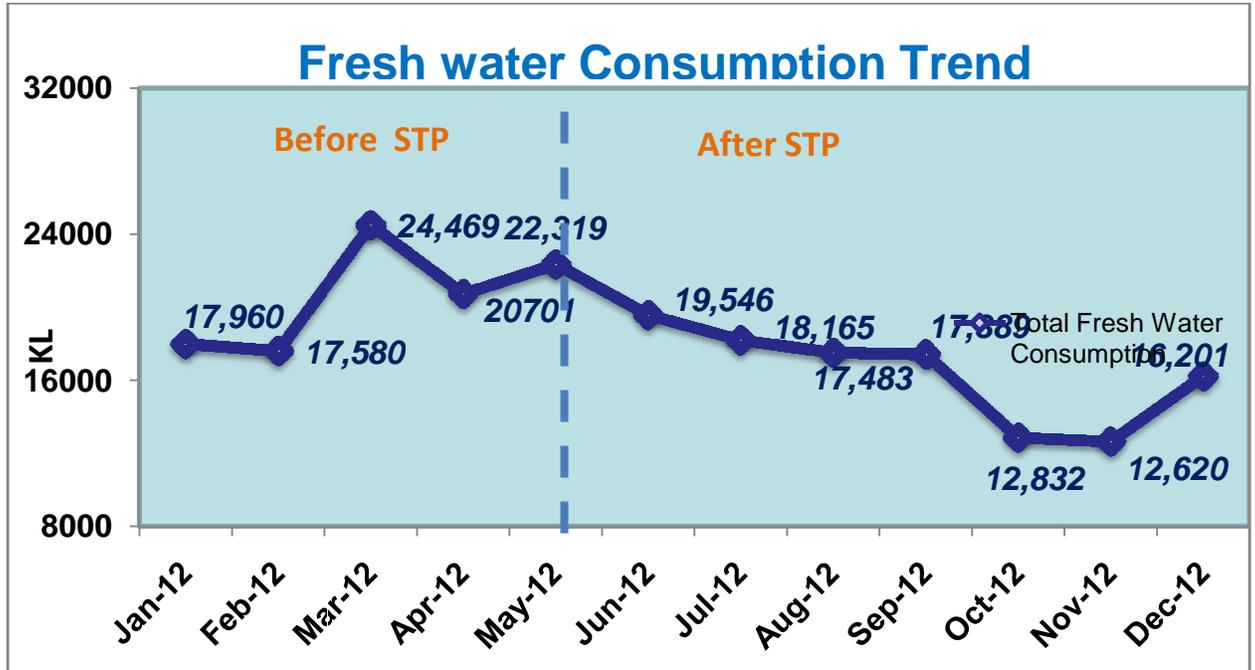


Figure 2: Fresh water consumption of DRL pre and post the setting up of Sewage Treatment Plant

***The alphabets depict the chronological order of the months of the year 2012.**

It is clearly observable from the table above that fresh water consumption has reduced drastically after the commissioning of the STP in May 2012. This is also due to the fact that DRL has significantly increased its water recycling capabilities over the years. DRL has seen a nearly two-fold increase in its recycling capabilities over the period 2009-10 to 2012-13 (Figure 3).

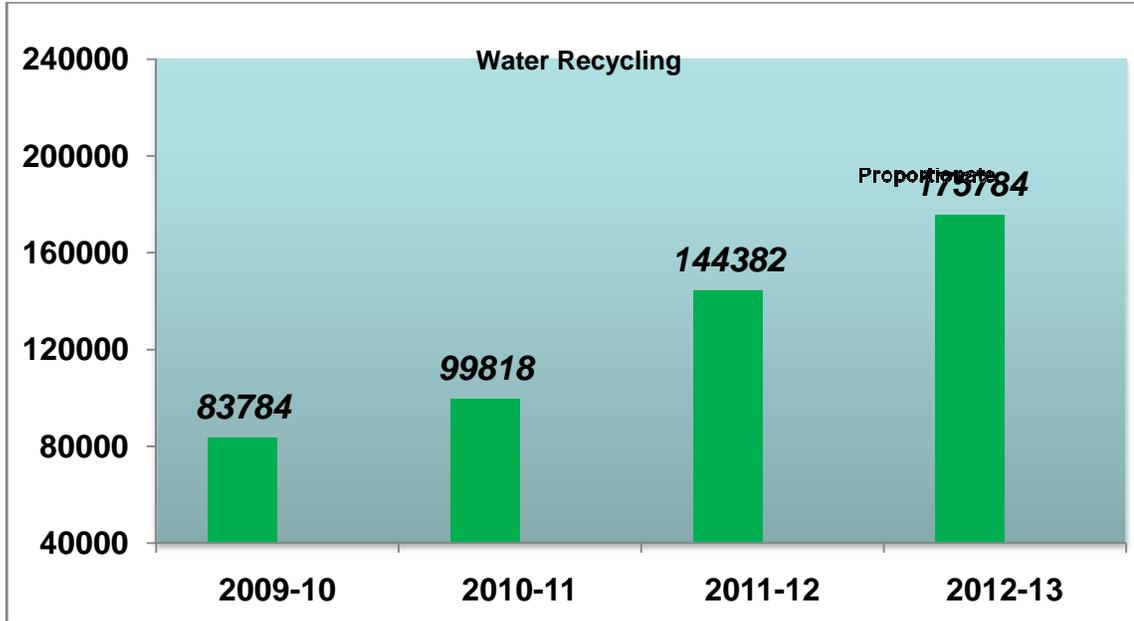


Figure 3: Trends in recycling of water of DRL

***all figures in kiloliters.**

Water conservation has also been imbibed into the production process at DRL. The fresh water consumption per unit sale has reduced significantly. The Figure 4 will make the fact lucid.

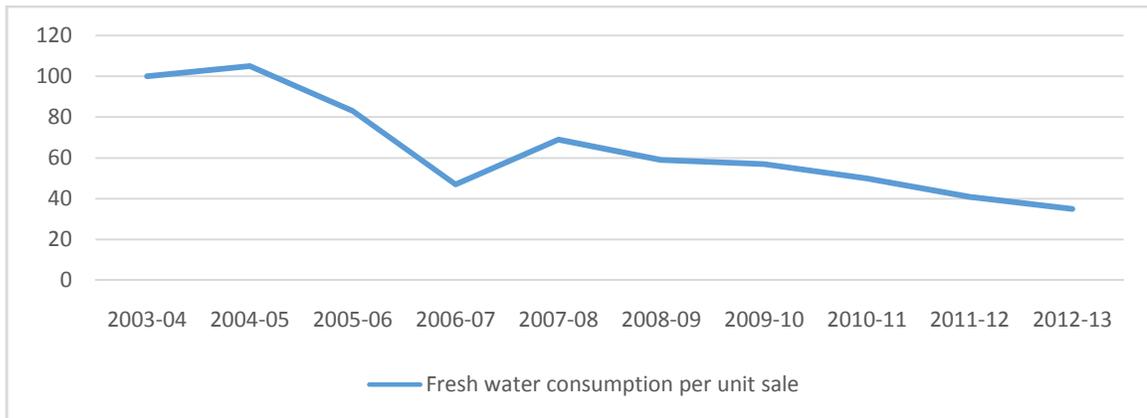


Figure 4: Fresh water consumption per unit sale

***taking FY 2003-04 as base year = 100.**

Furthermore, after facing multiple problems and issues like rise in demand of water, depletion of ground water level and increase in salt concentration (TDS), DRL opened up a rain water harvesting facility in its premises in Hyderabad at a cost of Rs. 1 crore in 2011. After the implementation of this project, the Total Dissolved Salts content in the bore wells have significantly reduced. The TDS of the bore well was 2493 milligram per

liter in February 2011 and has come down significantly to 1853 milligram per liter in December 2012.

6.2. Energy

Work is the ethical, efficient and effective application of energy to productive ends. Management is the organization and direction of work. Best management practices is the search for the most ethical, efficient and effective means for directing energy to productive ends. A best management practice is the search for the ‘best’ method for accomplishing goals. In today’s era due to the increasing awareness on environmental issues and the magnitude of costs related, it has become imperative for companies to integrate environmental efforts into their business strategy. Moreover “there is a growing awareness among organizations on conservation and optimum utilization of natural resources to gain competitive advantage” (Hart, 1995).

Today many Corporate Entities are cognizant of their responsibility to embrace sustainable business practices, which have recently gained traction. This progression to socially minded business practices would create a natural link to environmental justice. Similar is the case of DRL which is in a constant endeavor to embed environmental sustainability right at the development strategy. For this the organization has collaborated with DuPont and has started a program called “*Parivartan*” (meaning change in Hindi). The aim of the program is to mainstream safety paradigm across the organization.

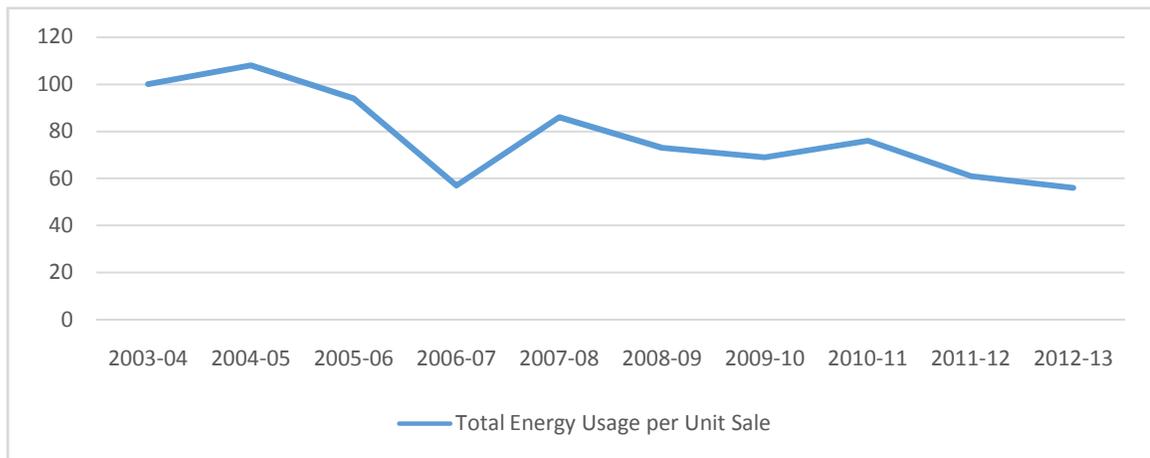


Figure 5: Total Energy Usage per unit sale.

***taking FY 2003-04 as base year= 100**

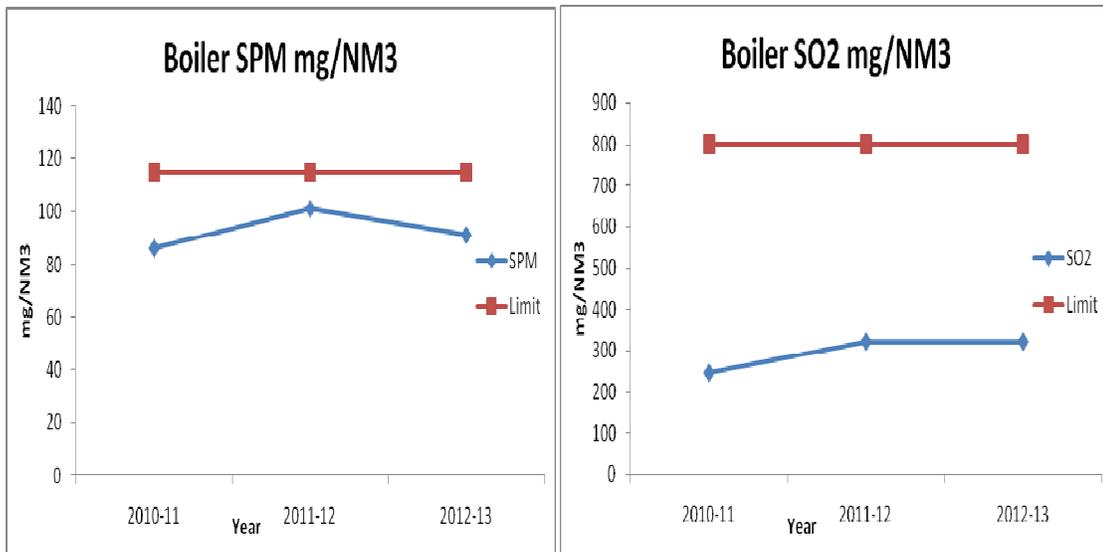
DRL is mainly focusing on alternative energy sources which refer to the renewable energy sources which are constantly being replenished instead of accumulated stocks of fossil fuels that become exhausted over a period of time. Their new plants are designed to be more energy efficient, while the existing ones are being upgraded to produce more for every watt consumed. According to their Summary Report of 2012, a total of 92 energy conservation measures were initiated resulting in savings of 2.3 million kWh of electricity and Rs 22.3 million in fuel savings. 4kW solar power plants have been installed in their Ameerpet Corporate Office in Hyderabad. Electricity generated from

solar energy has become more widespread in recent years with advances in photovoltaic technology.

They are also working with DuPont who design semiconductor solar cells that are also called photovoltaic as mentioned above. Not only this but for the consumption of power they have started using sensors in the electrical lamps just like the timer based street lights in Hyderabad. Street lights can be managed in two ways manual and timer based approach. In manual based approach, there should be one person to continuously switch on and off the lights. But the limitation of this approach is that if the concerned person is absent then the lights will be on for the whole day leading to wastage of electricity. But in the case sensor method the lights are connected to a circuit and they are put in timer mode. The timer automatically changes depending on the type of seasons and weather. During winter and rainy seasons lights need to be turned on early probably by six o'clock in the evening and for summer the timing is half past six in the evening. Even the new corporate office of DRL is a LEED certified gold rated Green Building. The Leadership in Energy and Environmental Design (LEED) standards are criteria for environmentally sustainable or "green" construction. LEED provides both a metric for evaluating green buildings through the certification of construction projects and an accreditation for construction and maintenance professionals. DRL, by using the concept of green building, is achieving energy efficiency through passive techniques such as taking advantage of the exposure of a site of the sun, reducing the need for winter and summer cooling. Even the indoor environment can be improved through the use of low – emission paints, carpets and sealants among other materials by letting in as much daylight is possible.

6.3. Green-house gas Inventorization

DRL has identified three major sources of emissions, which are Boilers (two with the emissions of 6 TPH and 14 TPH respectively), DG (Diesel Generators, 15 in totals at DRL) and Process Emissions. The emissions trends are represented in the figures below.



*SPM- Suspended Particulate Matter

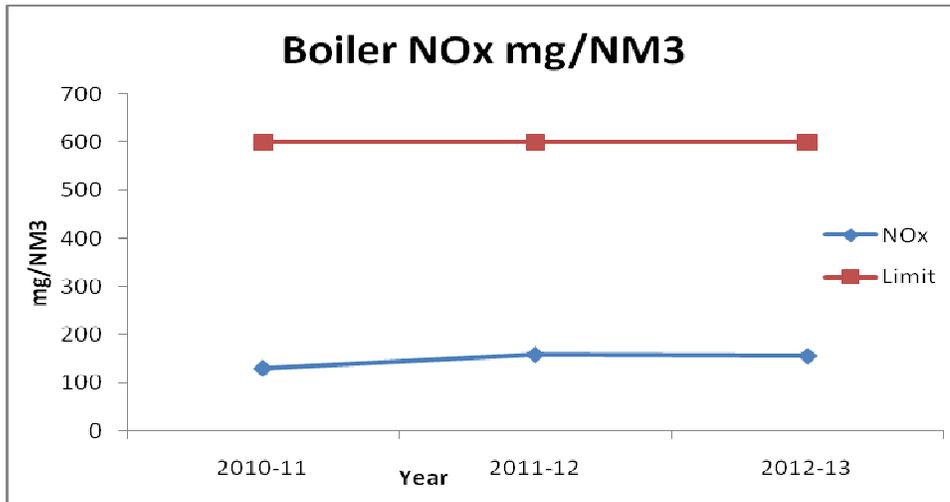
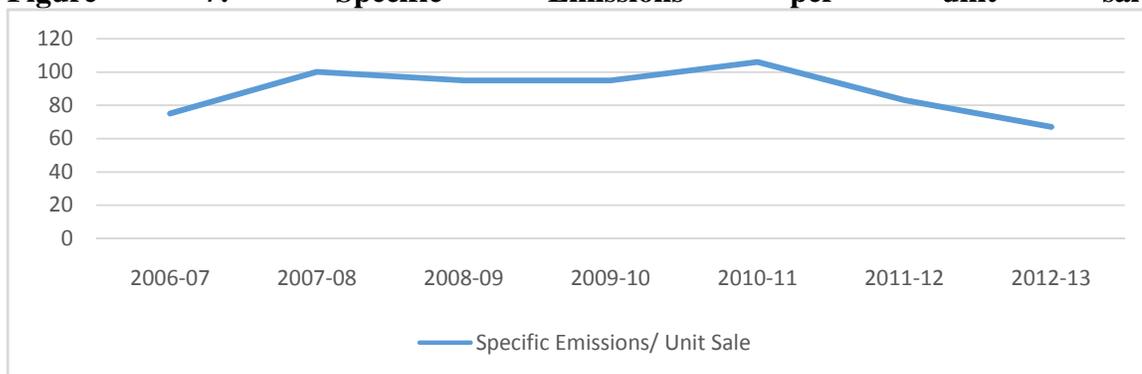


Figure 6: Boiler Emission Trends of DRL

DRL has adopted the concept of “Greenhouse Gas Inventorization”. Due to the usage of more energy, the amount of emissions also increases. According to a senior executive in the HSE (Health Safety, and Environment) department, carbon footprint of each plant is measured and if it is really high then steps are taken to control them and their relative impact on global warming. So by energy conservation carbon footprint can be automatically reduced. The company is also taking steps to control air pollution. Air pollutants are of regional concern, such as acid forming gases as sulphur dioxide and nitrous dioxides. A variety of pollution control technologies exist for reducing the amount of pollutants released in the air. The technology used by DRL is the connection of wet scrubbers with the chimneys. These wet scrubbers spray water on the emissions generated in the form of dust or powder and hence traps them, the water then produced is polluted so it is again recycled. Another way by which they control air pollution is through the process of ‘Solvent Recovery System’. The air contains the volatile organic compounds which are produced in the process of manufacturing. So this air is not allowed to pass in the atmosphere until it is treated through the process of Solvent Recovery System. The system contains activated carbon which traps these organic compounds and releases fresh air in the atmosphere thereby taking care of air ladder solvents which basically cause air pollution. Such processes have led to DRL significantly curbing their emissions per unit sale, which is represented below.

Figure 7: Specific Emissions per unit sale



***taking base year as 2006-07= 100.**

6.4. Waste Disposal Mechanisms

DRL has taken measures for effective management of waste generated during the process of manufacturing medicines. Waste defined by Section 75 of the Environmental Protection Act, 1986 is “any substance which constitutes a scrap material or effluent or other unwanted surplus substance arising from the application of any process. Disposal of such hazardous waste on land leads to its pollution and contamination. Therefore throwing of unwanted tablets on open land is considered hazardous because these tablets contain organic substances that are a source of land pollution. Hence whatever batches of medicines are rejected they are properly stored in a storage area which is also known as ‘hazard storage area’. Moreover these storage houses are made up of RCC (Reinforced Cement Concrete) flooring. After this process is over the materials collected are segregated and are sent to a place which is authorized by the concerned government for waste disposal. DRL send their products to Ramky Enviro Engineers, a part of the Ramky Group, which is a pioneer in waste management and infrastructure development. Ramky Group is authorized by the State government for the hazardous waste disposal and in return DRL has to pay them for the collection of their waste (an approximate cost of Rs. 25000 for a ton of waste disposed). Ramky Group has an incineration plant where waste is safely burnt at high temperature in the presence of sufficient air to achieve complete combustion either to reduce its volume or toxicity. The fly ash that is the end product of the process of incineration can be used to make bricks. These bricks are ecofriendly in nature and also of low cost as compared to the normal bricks due to the events leading to its production. In this way Ramky can profit in two ways, first by earning money for treating the waste and also making cost effective ecofriendly bricks, thereby contributing to lower prices in the infrastructure market.

Other hazardous and non-hazardous waste are similarly reused, recycled or disposed safely through various mechanisms. DRL’s Sustainability Report 2012-13 mentions a list of such wastes and their final destinations. Some prominent measures are mentioned in the table below.

Waste Description	Generated from	Reuse/Recycle/Disposal
Used lead acid batteries	Utilities	Reuse: Returned to Manufacture

Spent catalyst	Manufacturing	Reuse: Returned to Manufacture for recovery
Process Organic residues and spent carbon	Manufacturing	Recycled in cement plants for use as auxiliary fuel
Waste oil and used oil	Effluent treatment	Sent to secured landfill
Discarded and off specification medicines	Manufacturing	Sent for offsite incineration
Boiler ash	Utilities	Recycle through brick manufacture

Table 2: Waste Disposal Trends of DRL

These positive steps are reflected in the overall outcome of these process which has significantly reduced the waste produced per unit sale.

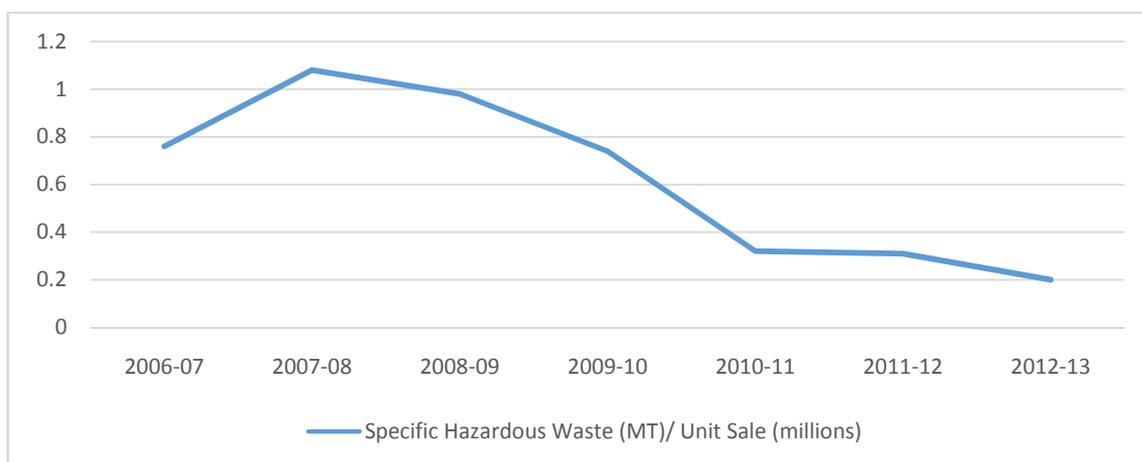


Figure 8: Specific Hazardous waste per unit sale

Apart from the proactive environmental approach that has led to the creation of a respectable image for DRL among various stakeholders, it has also made direct financial gains through many of its environmental initiatives. In its two plants in Nalgonda and Srikakulam, DRL has made savings of even Rs. 21 lakhs per year while simultaneously creating significantly lesser impact on the environment. In the Nalgonda Plant, by optimizing excess air by oxygen monitoring and VFD-based draft control system DRL makes savings up to Rs. 19 lakhs per year while saving 209 tons of fuel per year. Even by maintaining recommended TDS levels and recovering blow down heat with continuous blow down control system, DRL makes a savings of 258 tons of fuel per year, saving Rs. 18 lakhs a year. By its initiatives on energy efficiency alone, DRL has invested Rs. 156 million and an estimated savings of Rs. 77 million thereby covering the costs in less than three years.

7. Conclusion

DRL has through its activities gone beyond the compliance limits set up by the regulatory agencies. Many agencies- both public and private- have been referred to study the model of DRL by the Central Pollution Control Board. This highlights the positive impact that

such practices have had. This case study of DRL negates the notion that a proactive environmental strategy necessarily be a source of loss. DRL has been proactively pursuing its environmental strategy in the five essential areas of environmentalism as discussed by Lee and Rhee (2007) i.e. product, manufacturing process, organization and system, supply chain and recovery and external relationship.

Product	Imbibes “Green Chemistry” strategies into its product. A member of ACS-GCI (American Chemical Society-Green Chemistry Institute). The coating solution used on tablets has been used prudently by DRL leading to lesser cost of the product at lesser cost to the environment. Use of volatile solvents such as Dichloromethane, Acetone, Ethers and other hazardous chemicals has been discouraged.
Manufacturing Process	During manufacturing, four key indices are manufactured Atom Efficiency, E-factor, Reaction Mass Intensity and Energy Efficiency. Specific usage of various inputs like energy and water have been reduced. The first manufacturing company in India and one of the first in Asia to be Sarbanes-Oxley compliant.
Organization and System	Development of groups of employees (called Self-Management Teams) to spread awareness among one another. Various simple practices like putting specific type of taps, sensitive lights to reduce water and energy usage have been applied. Various systems of checks put in place to track the impacts of these practices.
Supply Chain and Recovery	Although no major incentives are observed in the domain of supply chain, waste management practices as discussed above in detail ensure recovery, both of certain materials and of costs.
External Relationship	DRL has specific relationships and partnerships with organizations like DuPont which guide DRL in a significant manner as regards environment sustainability. High stakeholder engagement.

Table 3. An analysis of the various facets of DRL

Although corporations and people from various business oriented activities have repeatedly conceded that environmentalism is one of the predominant areas where improvement is sought, these ideas have remained largely up till the theoretical level. Resources are depleting at an ever accelerating pace and many of them are expected to be completely wiped off the face of earth by as early as 2050. Therefore a lot of firms who rather follow a passive strategy as regards the environment need to shift gears to shoulder some social responsibility for at least the depletion caused by them. As an official in DRL said “for a company the stature of DRL, it is hardly a big deal to spend a few lakhs on fresh water. However that negates the whole purpose of production for the public.” Therefore, firms all around the globe can emulate the strategies that DRL has adopted, especially firms engaged in manufacturing and production. As the case study depicts, all this need not be a source of loss or additional expenditure for the firm rather can be a full-fledged strategy that reaps huge benefits.

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