Paper Title: Reducing Carbon Footprint through Green HRM

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Abstract

Industrialization and globalization has led to a growing need for the integration of human resource and environment management into Green HRM. Green HRM primarily involves practises which promote sustainable use of resources. The purpose of this paper is to identify green initiatives taken by the organizations to combat the challenges posed by industrialization and globalization. The findings of the literature review suggest that companies are implementing green policies to reduce carbon footprint. Researcher used a case based approach where the annual and sustainability reports (2011-12/2012-13) of seven different organizations is analysed. This paper studies one company each from the selected seven sectors i.e. IT Services, FMCG, Aviation, Cloth industry, Communication, Telecom and Beverages. It is being found that several organizations have started realizing the importance of the environment and are implementing green policies to reduce carbon footprints and this behaviour is prevalent in all the sectors.

Key words: *Green HRM, Carbon footprint, Environment, Sustainability*

Paper Type: Case Based Research paper

Introduction

Industrialization and globalization have become major causes of concern as all the natural resources like air, water, land minerals, plants and animals are depleting alarmingly. Exploitation of natural resource has led to serious issues like depletion of ozone layer, global warming and increase of CFC and CO_2 in the atmosphere. To overcome the challenges posed by the industrialization, organizations are incorporating environmentally and ecology-friendly policies; a new emerging phenomenon - "GREEN HRM". GREEN HRM includes ecological aspects in fiscal policies, foreign policies and industrial policies as well. It fosters eco-friendly initiatives resulting in cleaner environment, reduction in consumption of paper, high retention rate and proper disposal of wastage.

Objectives:

- To find out the green policies implemented by the companies.
- To study the impact of green policies on the environment.

Literature Review

Bank of America gives tax incentive to its employees who purchase hybrid cars; Google provides cash to buy cars that gives you aggressive mileage and HSBC in UK started a program under which an employee can bring rubbish in from home and recycle at work to reduce the carbon footprint (Gill Mandip,2012) [1]. Godrej started a green movement in 2001. The salient features of green movement are efficient use of water and water recycling, use of energy efficient and eco-friendly equipment, use of recycled and environmental friendly building material and use of non-toxic and recycled/recyclable materials (M.W.Shaikh,) [2]. Henkel has switched to phosphate-free detergent formulation to reduce water pollution. Henkel switched from LiquidSpee to Spee Gel and launched green products: "Persil Gold and Persil Actic Power" (Societal Value Change and change in Product Portfolio). Aura Herbal Textiles Limited started using certified organic fabrics, textiles and yarns. Aura Herbal Textiles Limited started using "Manual Farming" and organic cotton". Telstra incorporated the concept of "Teleworking" in their working culture. It enables employees to split their working time between the office and another location. It reduces office demand by 15 percent. (Telstra, 2009)[3] DHL's introduced 3 programs: "GoGreen" (environment), "GoHelp" (disaster management), and "GoTech" (education) to reduce the carbon footprint. When the shipments are less time-sensitive, DHL introduced a new product called SeaAir. This product offers solutions to substitute transportation by air partially or entirely by sea which is a more CO_2-efficient way. (Julia Sweeney)[4]

All of earlier research papers have proposed the ideology that companies are taking appropriate measures to reduce the carbon footprints.

Research Methodology

Initially researcher analyzed the paper published earlier. This reveals company are implementing green policies to reduce carbon footprint. As part of research, a case-based approach is being used. The researcher extracted data from the annual and sustainability report of one company from the selected sector. The data extracted is analyzed and finally researcher came out with the result.

Hypothesis

- Companies are implementing green policies to reduce the carbon footprints

Case Study 1 : Airtel

Airtel has commissioned 100 KWP Solar power plants at one of the Main Switching Centres (MSCs) of the Company in India. This is the largest rooftop installation in India's entire telecom sector, generating 1.5 Lakh units of green energy annually; moreover, planning to replicate this in its other MSC locations with 300 KWP solar power plants. It has implemented solar solutions at mobile base stations and transport network site and battery hybrid solution at BTS sites. It has successfully completed the trial of biomass gasifier to replace DG running at BTS sites at Airtel network. As a part of the green IT initiative and according to the directive from the Ministry of Environment and Forests, the IT Team started an e-Waste Initiative, along with the SCM team. The objective is to ensure that all the scrap IT Assets are recycled/e-Wastes can be disposed of according to applicable WEEE (Waste Electrical and Electronic Equipment) norms. At Airtel Centre, 500 IT assets were recycled with e-waste recycler vendors in FY 2012-13.Airtel has started distributing annual reports through email, thus helping reduce paper consumption. The Company has sent the electronic version of the Annual Report to more than 2 Lakh shareholders, saving over 2 Cr. pages.

Case Study 2 : Infosys

To achieve sustainability goals, Infosys has started using the concept of intelligent building on their campuses. These platinum certified campuses cover an area of over 1.8 million sq. ft. with more building applying the same certification. It has reduced the capital energy consumption and delivers an energy performance index as low as 84 kh/m^2 /year. Recently, Infosys started using smart meters to monitor the energy consumption of our lighting system, plug loads, air conditioning and other devices. It has reduced their lighting consumption by 50% and plug loads by up to 20% in the fiscal year 2013. Infosys have also deployed optimized desktop power management by designing a tool named "Terminator". It's their home grown tool which reminds user to switch off their computers after working hours and shut down the machine after a predefined time. About 96% of the total desktop powered on a given day being shut down post working hours. Infosys has taken Eco-friendly initiatives for managing Data centres and servers. Infosys has incorporated power and cooling best practices to reduce the consumption of energy. Infosys have started using video and audio conferencing which indirectly cutting down their travel requirement and hence the carbon foot prints. Infosys has also implemented the concept of virtual cloud strategy which has enabled its client to reduce the carbon foot print. Recently Infosys won

the National Energy Conservation award 2012 for energy conservation efforts at Jaipur and Pune campuses.

Case Study 3 : ITC

ITCS has always been known for its Eco-friendly initiatives. To continue its endeavours towards clean environment, ITC trained and raised awareness of over 2000 business managers on various sustainability issues. Recently ITC has constructed Green Centre at Gurgaon which has been certified as the highest rated green building in the world. To reduce its environmental impact and create a positive environmental footprint, ITC has taken several measures in waste management which led to reduction in waste over the previous year.

In fact, ITC started a WOW initiative in 2007 under which it used to create awareness among the people about the advantages of recycling process to improve civic amenities, public health and hygiene but also generates cost-effective raw materials for the paper, plastics, and metal and glass industries. The WOW initiative which was started in 2007 with an average monthly collection of 1000 tonnes has spread many parts of India and roughly 26,731 tonnes of waste get collected through this initiative. ITC has charted out a proper plan on OZONE depleting substances.

The salient features are:

- All units to monitor and reduce consumption of ODS.
- Replace all the existing equipment using ODS well before the phase out stipulation
- Recover all the ODS from the equipment being replaced for recycling or safe disposal.
- All newly purchased equipment to be free of Chlorofluorocarbons and methyl Chloroform

ITC has also taken sustained efforts to reduce the intake of fresh water by conducting water audit, bench marking and implementing best practices. Below table compares the intake of fresh water in 2012-13 over the 2011-12.Similarly ITC has incorporated many clean technologies/fuels and invested in many state of the art pollution control equipment such as plasma filters to reduce air emission levels.

Case Study 4 : Lufthansa Group

Lufthansa Group has implemented various measures like intelligent software solutions, reducing the weight of aircraft etc. to lower the kerosene consumption. In 2012, the specific kerosene consumption fell to only 4.06 litres per 100 passenger kilometres, after having already reached a record company low the previous year with a value of 4.18 litres per 100 passenger kilometres.

This represents a decline of 2.8 percent over 2011.Lufthansa group is working on electric propulsion technologies to cut emissions and noise. Lufthansa Group has also implemented various individual projects like unloading all loose items in the aircraft's cockpit, cabin and cargo, operating department are evaluating which items in which quantity can remain on board, which can be eliminated and which can be replaced by more light versions. Lufthansa Group has decided to incorporate sharklets in all the new A320s to reduce fuel consumption and thus CO_2emissions. Lufthansa Systems developed the flight route planning solution Lido/Flight; it helps airlines to cut their fuel costs by up to 5 percent. LSG Sky Chefs develops environmentally friendly products, such as the lightweight trolley "Quantam" which weigh one-third less. For the airline, this means a reduction in kerosene consumption of 9,000 tonnes per year and the avoidance of about 28,350 tonnes of CO_2 emissions. Lufthansa group is also working on biofuel; recently accompanied pioneer work by running a six- month trial of bio kerosene on scheduled flights between Hamburg and Frankfurt.

Case Study 5 : Coca-Cola

Company has reduced operational carbon footprint by 6 percent since 2011. Company is working on HFC-free coolers Company achieved 25 percent recycled plastic in the packaging process by the end of 2012. Coca-Cola launched a program called Continuum which reprocessed more than 15 million plastic bottles recycled at the Olympic Games in time for the Paralympic games. Recently it has announced a second joint venture – Infineo with apple in France. The company has taken various measures to reduce water usage. Company also started using plant bottle packaging which is expecting reduction of CO_2 by 25% by 2020. Company also invested in low carbon warehouse and storage facility, the purchase of 14 delivery vehicles powered by landfill gas and the use of beverage coolers that were entirely HFC-free.

Case Study 6 : Nokia

Company utilized waste at their factories at an average of 98%. Company used renewable, paper based materials for 97% of their packaging. Company also introduced eco devices which show cause widest range of environmental features and innovations in Nokia Lumia 820 and Nokia Asha 311. It reduced their intake of fossil based raw materials. Company also developed ecology themed Nokia Climate Mission 3D game. It teaches user how to reduce ecological footprint. During 2012, Nokia ran recycling campaigns in over 20 countries, partnering with mobile operators, retailers; universities and schools to ensure mobile devices end up in environmentally-

safe recycling processes. During the year company collected 431 tonnes of used mobile phones, batteries and accessories through the recycling campaign. Nokia is developing services that help people reduce their daily environmental impact, in particular in transport. Nokia's suite of location applications - HERE Transport, HERE Maps and HERE Drive - help people optimize their travel, thereby reducing emissions. Nokia was the first manufacturer to put alerts into mobile phones to remind people to unplug their charger once their phones are fully charged. Nokia along with other manufacturers created and began using a Mobile device charger energy rating. Nokia has introduced Energy Star or Electronic Product Environmental Assessment tool in laptops, desktop and monitors. Nokia require its suppliers to have an EMS in place. Nokia has been focusing on optimizing order sizes and loose carton management to avoid shipping incomplete pallets. In addition, by making pallets higher we ensure the efficient use of space in air shipments. All of these actions reduce our C02 emissions from transportation. During 2012 new videoconferencing devices were also installed in practically all larger meeting rooms (over 20 m2 in size) in Nokia offices globally. Nokia also works with its suppliers to increase awareness, set water reduction targets and support best practises in water management.

Case Study 7 : Grasim

During the year 2012-13, Grasim introduced energy efficient screw chillers in place of reciprocating type compressor in Viscose and CS2 Refrigerating System. Grasim started using rotary vacuum filter (RVF) backwashing using RVF mother liquor in place of soft water. Grasim replaced conventional surface aerators with energy-efficient surface aerators in effluent treatment plant. Grasim replaced 74% of the Light Diesel Oil and 23% of the Furnace Oil with biogas in the hot air and lime kiln respectively. It reduced 52,000 tonnes of carbon dioxide. Grasim invested Rs 3.9 crore in four water projects at Birla Cellulosic resulted in 15% saving from the total water used there.

Results

It is found that Infosys has incorporated new ERP System and Private Cloud implementation which reduces the energy consumption by 85%. They have also introduced "Smartmeters" which reduces the lighting consumption by 50%. Infosys also introduced the concept of "Intelligent building System" which reduced the energy consumption from 297 kwH in 2007 to 178 kWh per person in 2013.

Table 1 - Impact of green policies (Infosys) on the environment

Policies	Impact
New ERP System and Private Cloud Implementation	85% reduction in energy consumption
Smart Meters	50% reduction in lighting consumption
Intelligent Building System	Per capita energy consumption reduced from 297kWh in 2007 to 178 kWh/ per person in 2013

Nokia has shifted from air to ocean transport whenever it is possible. Nokia achieved an estimated 80% reduction in CO_2. Since 2008, Nokia has taken a stricter approach to business travel. They have started using video conferencing with the aim of recuing both costs and carbon footprint. Nokia's CO_2 emission from air travel was 38,514 tonnes in 2012 which is a 54% reduction from 2011. In 2012, Nokia reduced total waste by 30% from 2011. In fact the amount of waste per mobile device decreased by 22%. VOC emissions arise from the use of solvents in the soldering and cleaning processes. With the implementation of green operations and facilities, in 2012 VOC emissions reduced by 46%.

Table 2 - Impact of green policies (Nokia) on the environment

Policies	Impact
Shifting from air to ocean transport	80% reduction in CO_2
Takeback and recycling	$C0_2$ reduction by 30,000 tonnes
Awareness campaign, Videoconferencing	54% reduction in CO_2
Waste treatment to waste reduction	Reduction in waste by 30%
Green operations and facilities	Reduction in Volatile Organic Compound by 40%
Introduced energy-efficient chargers (AC-20 & AC-50)	Reduction in no load consumption by 73%
Product Lifecycle Assessment	Reduction in green house gas footprint of phones by 50%

ITC has introduced new measures in water management and waste management which has reduced the fresh water intake from .3645 litres/unit to .3495 litres/unit and resulted in recycling

of 99.8% of waste. ITC has taken various steps to control air pollution which resulted in reduction in emission of PM from 701 tonnes to 690 tonnes, reduction in emission of NOx from 732 tonnes to 649 tonnes and SO_2 from 841 tonnes to 790 tonnes. During the last year, it is found that there was no significant spill of any chemical oil, fuel or hazardous waste in any of the units. And proper manufacturing and freight management resulted in reduction of CO2 from 1563526 tonnes in 2011-12 to 1474558 tonnes in 2012-13.

Table 3 – Impact of green policies (ITC) on the environment

Policies	Impact
Water Management	Fresh water intake reduced from .3645litres/unit to .3495 litres/unit
Waste Management	99.8% waste is recycled
Air Emission measures	Reduction in PM from 701 tonnes to 690 tonnes, reduction in NO_X from 732 tonnes to 649 tonnes and SO_2 from 841 tonnes to 790 tonnes
Management of chemicals, oils and fuels	No significant spill of any chemical oil, fuel or hazardous waste in any of the units
Manufacturing and freight Management	Reduction in $C0_2$ from 15,63,526 tonnes in 2011-12 to 14,74,558 tonnes 2012-13

Lufthansa Group has recently introduced fuel efficiency measurement which resulted in reduction in CO_2 by 4,55,000 tonnes in 2012-13 versus 2011-12. Lufthansa Group worked on the design of the aircraft to reduce the weight which again resulted in reduction of CO_2. Lufthansa group has recently introduced light weight trolley "Quantum", LZ Catering, Airport eMove, Active Noise Protection and eFly campaign which led to reduction of 28,350 tonnes of CO_2 , 37 tonnes of CO_2, 18,000 tonnes of CO_2 per year and 2.5 million papers were saved.

Table 4 - Impact of green policies (Lufthansa Group) on the environment

Policies	Impact
Fuel Efficiency Measurement	Reduction in CO_2 by 4,55,000 in 2012-13 versus 2011-12
Weight reduction in Aircraft	Reduction in CO_2 emissions
Introduction of light weight trolley "Quantum"	Reduction of about 28,350 tonnes of CO_2
LZ Catering	Reduction of about 37 tonnes of CO_2
Airport eMove	Reduction in CO_2 and noise emission
Active Noise Protection	Reduction of 18,000 tonnes of CO_2 per year
eFly campaign	2.5 million papers were saved

Coco-Cola has taken effective measures to reduce emissions through value chain. It is estimated that by 2020 it will enable company to reduce 20 million metric tons of CO_2 emissions by 2020. This is equivalent to taking 3.8 million cars off the road for a year. Coca-Cola has introduced cold drink equipment to phase out the use of hydrofluorocarbons and upgraded 30 air handlers which led to reduction of CO_2 by 650 metric tonnes. Coco-Cola have deployed 5.5 million energy management devices for cold-drink equipment reducing 3.1 million metric tons of CO_2.

Table 5 - Impact of green policies (Coca -Cola) on the environment

Policies	Impact
Plant Bottle Packaging	Reduction in 1,30,000 metric tons of CO_2
Agriculture packaging and refrigeration	20 million metric tons of CO_2 emissions
Introduced new cold-drink equipment	Phasing out the use of hydrofluorocarbons
Up gradation of 30 air handlers	Reduction of CO_2 by 650 metric tonnes
Energy Management Devices	Reduction of 3.1 million metric tonnes of CO_2

Grasim replaced 74% of the light diesel oil and 23% of the furnace oil with biogas in the hot air generator. It resulted in reduction of 52,000 tons of CO_2. It introduced technology at Nagda plant which resulted in reduction of CS_2 emission. Grasim has introduced reverse recycling plant, a new way of using recycled treated effluent for cleaning and priming the acid plant, recycling of the

backwash from the multi stage flash evaporator plant and recycling water from the hydrochloric acid fume chamber. It will reduce the company's water usage by 15%.

Table 6 - Impact of green policies (Grasim) on the environment

Policies	Impact
Replacing 74% of the light diesel oil and 23% of the furnace oil with biogas in the hot air generator	Reduction of 52,000 tons of CO_2
Recycling Plant	15% saving in total water used
Introduction of technology at Nagda	Reduction in CS_2 emission

From tables 1 through 6 ibid, it can be deduced that companies have implemented many green policies to reduce carbon footprint thus the hypothesis is accepted.

Conclusion

Companies have started realizing the importance of clean environment and have taken effective measures by incorporating green policies: audio and video conferencing to reduce travel, less paper usage, shutting down desktop before you leave, waste management, green building, training program to increase the awareness of clean environment, recycling, alternate fuel and many more. But in India still Green HR will be considered in a nascent stage. HRM integrating Green policies would be required to play a central role in implementing green practices to save this beautiful planet. The limitations of this paper are that it covers only one company from each sector and includes only six sectors. Researchers could undertake further research studies into several activities involving other sectors and industries to gain a wider insight and impact.

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