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**A B B S**

NURTURING THE FUTURE

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Dear Readers,

Business not only generates employment and wealth, it also facilitates economic development. More than this, business provides solution to social problems. Today's greatest challenge is to make development sustainable. Other related problems are unsustainable ecological footprints, widening gap between rich and poor, unmindful use of non renewable resources, pollution and depletion, extinction of flora and fauna at an unprecedented scale and speed. Business has to find answer to these problems. Green Entrepreneurship and Sustainable Development is the answer. Green entrepreneurship has to become a philosophy and a mission. It has to become a way of life. This is the only route to sustainable development.

This volume of AMBER would focus on Green Entrepreneurship and Sustainable Development. Posterity will not excuse us, if this generation does not make development sustainable. Green Entrepreneurship, Green Consumers in India, Green Banking Vis a Vis Ethical Banking, E-Waste Management, Green HR Practices, Decoding Green Productivity and Making Ecopreneurs are the important topics covered in this volume. When this issue reaches you, read and give your feedback.

I thank contributors of this volume and management of ABBS for their unwavering support in regular publication of AMBER. I fail in my duty; if I do not thank my co-editors of this issue- Dr. Jayanthi and Prof. Krishna Kishore S.V in making this issue see the light of the day.

Next issue of AMBER, to be published in October, 2013 would focus on the theme "Cross Cultural Management in Global Business". Incidentally, this is our International Conference theme too. Globalization has come a long way. We can only look back, we cannot go back. With integrated economies, Business Leaders of tomorrow have to learn to manage cross cultural implications, in addition to political, technological and economical factors. Study of Cross Cultural Management not only helps to improve global business but also facilitates to integrate the world. We invite articles for the next issue on sub themes: Culture and HRM, Advertisement and Cultural Insights, Business and Government-Cultural Dimensions, Etiquettes in Business, Product Design and Development- Regional Preferences, Globalization and Cross Culture, CSR and Cross Cultural issues and Culture as a Product in Global Business.

**Dr. H.R. Venkatesha**  
Chief Editor



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# Green Entrepreneurship: An Empirical Study With Reference to Level of Awareness Among the Graduates in Mysore District

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## ABSTRACT

Green entrepreneurship is a global phenomenon today. Every business is a part of the environment. Any damage to the natural system of the environment results in absolute disorder in the ecological system and causes adverse affect on human beings. In the journey to reduction of environmental degradation, business houses and entrepreneurs have found innovative mechanisms to carry out business operations to keep the environment less affected. Thus, green entrepreneurship and green business activities are attracting young entrepreneurs towards this 'Road Not Much Traded'. However, there is more cry for serious research in this area. In the light of this gap, an empirical study. Data was collected from sample of 140 respondents through questionnaire using convenient random sampling. Data analysis and hypothesis testing was executed. The results describe the level of awareness of Corporate Social Responsibility, dangers of global warming, preference of respondents towards pollution control activities, and environment protection. Hypothesis testing yields that there is difference in the level of awareness of green business activities. The strength of association between education and preference for environment protection, and pollution control was tested. The study uses Contingency Coefficient, Pearson Chi-Square test arrive at the result. Based on the findings of the study, the researchers offered valuable suggestions for policy making and future research.

**Key words:** Global warming, Green Entrepreneurs, Graduates, Awareness.

## 1. INTRODUCTION

Entrepreneurs are individuals who conceive new business opportunities, and who take on the risks to convert those ideas into reality. Entrepreneurs bring about change and new opportunities both for themselves and for the society they belong to. According to Schumpeter (1934), one of the early researchers in the field, entrepreneurs are agents of "creative destruction" (old ways of doing things are transformed, overtaken, when enterprising individuals bring change in business systems). Change in the economy and a society is caused when there are people who individually set new directions, suggest new methods, and become successfully the role models. Entrepreneurs can be found in small, medium and large scale business concerns. Entrepreneurs are also found in non-profit organizations, (called social entrepreneurs) they solve community problems, with innovative ideas. Along with enthusiastic and industrious individuals with profit motive (John C. Allen. & Stephani Malin 2008), a new breed of entrepreneurs are entering in to the business ranks fusing environmentalism with entrepreneurial spirit, potentially moving toward a reorganized ecological society (Bell 2004). Such sustainable oriented and environmentally concerned entrepreneurs are branded as Ecopreneurs, or Green Entrepreneurs. It is reflected from various academic theories.

Academic perspectives on corporate environmental strategy and performance signify that the corporate models on environmental concern through which growth is achieved and continued from a resistant state to a sustainable state (Roome 1992; Welford 1996). Another additional and significant element of moving towards sustainable future is the formation of new green business, or green start-ups (Liz Wally 2002). Until recently, more attention has been paid on greening of SMEs (Hillary 2000) and surprisingly little is written on green entrepreneurs.

### 1.1.1. CONCEPT OF GREEN ENTREPRENEURSHIP

The term 'green entrepreneur' stems from the book 'Business opportunities that can save the earth and make you money' (Berle 1991). Berle's book, being a practical oriented one, touches on topics such as recycling, nature preservation, renewable energy implementation, etc. In his book, Berle (1991) noted how "One man's garbage is another man's treasure". Practically, even in India, few visible cases in waste management projects such as Ramky Enviro Engineers Ltd, in joint venture with Chinese company Chongqing Sanfeng Environmental Industry Group has planned to take up waste to energy projects (Business Line 27 Jan. 2013 pg 2). Green entrepreneurship can be defined as a new company start-up in the environmental services or production industry, focused on natural resources or natural conditions such as eco-tourism, recycling, waste water-treatment, and biodiversity (Nikolaou et al.2011). Green business ideas aren't limited to new businesses. Existing companies can implement greener, more environmentally friendly features and provide the same or similar products and services.

Green entrepreneurs are embracing environmental values as a core component of their identity and considering them as a competitive advantage of their company in the market place (Allen and Malin, 2008). However, recently green entrepreneurs are identified with well mixed motives of being green and ethics; their motives may not be solely green but a combination of

green, ethical and social motives instead. These are often difficult to separate (as, indeed, the concept of sustainability reflects) (Walley and Taylor, 2002).

### 1.2 SIGNIFICANCE OF THE STUDY

Today's burning issues are global warming and climate change. Environmental problems such as air and water pollution, solar ultra violet radiation, climate change, lead and mercury are major environmental threats which have huge adverse impact on health, education, livelihood and well being of human beings. India will be affected pretty massively by climate change. Vast areas in the low lying subcontinent could sink under the ocean as it rises, and the Himalayas could melt more, thus drenching the northern regions of India in a flood. States such as Assam are supported to be struck by increased landslides and flooding. Ecological disasters could be brought on by elevated ocean temperatures tied to global warming. The Top 10 countries polluting environment in terms of million tones- China, United States, Russia, India, Japan, Germany, Canada, United Kingdom, South Korea and Iran respectively.

The much awaited global conference, the Copenhagen Climate Change summit held on December 2009 has failed many hopes and expectations of many people across the globe. The political tussle continues between different superpowers, developing and under-developed countries of the world, once again ignoring the fact that we are standing against a greater force of nature and when it gets back to us for all our unfavorable deeds, no nation can stand against it. Now when our environment fights back, we are forced to rethink and amend our ways of living to become more eco-friendly. A new trend hence was given birth in our endeavor to become eco-friendly which many define as 'Being Green'. Sustainable development is a concern for every business entity since it has to survive and continue its operation in the future. Entrepreneurs have realized that, neglect of environment may be counterproductive to both society in general and business in particular. Enterprises with the long term profit

motive also, will have a clear sustainable strategy combined with ethical, social and environmental concern by going green. Some of the most popular ways existing businesses can go green include operating almost entirely online and allowing employees to telecommute. Many businesses provide their employees with electronic or direct deposit payroll options to avoid using the ink, paper, and mail services associated with printed checks. Companies can include discounts on public transportation in their benefits packages. Other ways existing businesses can become greener include placing recycling bins in employee lounges or cafeterias, replacing paper towel dispensers with hand dryers, and using recycled paper.

#### **GREEN ENTREPRENEURS- EVIDENCES FROM INDIA**

Indian entrepreneurs are steadily conquering the untraced business potentials. In India, entrepreneurs are investing talent, technology and huge cash to kick start green businesses. Wind turbines, human made whirls in Kanyakumari, Tamil Nadu. Jatropha farms have sprung up on barren land to provide raw organic matter for ethanol in Rajasthan. A business of Rs 1,000 crore in annual revenues has arisen from machinery that converts sugarcane to fuel in Pune, Maharashtra. Eco-tourism that recycles waste and measures ecological impact is proving a big draw in Kerala. Indian-Chinese collaboration is betting big on solar power in Hyderabad, Andhra Pradesh. A firm is investing Rs 1,500 crore on the latest solar technologies in Noida, near Delhi in Uttar Pradesh. And one can plug electric car as if it's a cell phone for a recharge. Wind power makes for a clean and rewarding business. By some estimates, more than two-thirds of all investment in alternative energy across the world is directed towards this model. With a client list of firms such as Tata Power, Reliance Industries and ONGC, and orders of nearly \$3 billion, Suzlon is likely to keep its fans turning. Worldwide, wind energy is in infancy as an industry. This Pune-based company is the world's fifth largest wind-turbine maker, with 14 per cent of the world market. Suzlon currently has

operations across 21 countries and five continents, and will reach over 40 countries in the next two to three years. Its acquisition of RE power is part of its global game plan. Today Suzlon feeds electricity into India's power grid. Its installed capacity has soared from 3 mw in 1995 to 7,500 mw. Biofuels, including ethanol, offer the potential to alleviate the high cost of oil with a carbon-abatement option. Legendary venture capitalist Vinod Khosla, who helped found Sun Microsystems and Google, is now looking at alternative energy. "India is naturally a huge market for alternative energy," he says, "Biofuels offer the potential to alleviate the high cost of oil." And when Khosla makes a move, others follow. Jose Dominic, 50, Managing Director of CGH Green, was at it long before eco-tourism came into vogue. That first step in Lakshadweep, an archipelago in the Arabian Sea off the coast of Kerala, began his eco-friendly journey. His flagship destination, however, is a lake resort in Kerala called Marari Beach. It's a resort—there's the sun, the sand, and the breaking waves amidst the calm Kerala coastline. The beach resort is considered one of the most environment friendly tourist sites in Asia. It has investments in pollution control, waste management and water recycling, all of which combine to reduce the carbon print of guests to almost zero. It has a water purification plant that recycles and purifies 80 per cent of the water used. There is a sericulture area with three pits that recycle organic waste into manure for a 30 acre organic farm that provides the kitchen with vegetables. Analysts believe that the market for green tourism in India is set to expand fast. While destinations like Bhutan and Mauritius control their inward tourism flow, places in India like Goa and Kerala are at threat from global warming. Luckily CGH Green, Marari Beach is an exception. Green Grameen Infra, owned by a social entrepreneur Neha Juneja, aims to solve energy problems of rural consumers with breakthrough product innovations. The company has come up with its first product, Greenway Smart Stove that has the advantages over its traditional counterparts: With 85% less smoke, this patent



this patent is pending on design innovation that uses no moving parts and few materials to deliver fuel savings up to 65%, minimizes harmful emissions of CO, CO<sub>2</sub> and Particulate Matter and delivers convenient cooking without any requirement of fuel processing or change in cooking habits thus solving the health, environment and fuel collection effort required for operating traditional stoves.

## 2. REVIEW OF LITERATURE

There are not much empirical studies conducted in Indian context. Literature from Lenox and York (2011) focused on three aspects. The first, being the extent of mitigation in environmental degradation by enterprise activities quite different from that of social movements and government regulation. Dean and Saraswathy S.D (2010) studied on the first aspect by existing firms' role in environmental protection. The study is characterized as fragmented and inconclusive since it focused remotely related questions. The second aspect is on triggers and barriers to individuals in green entrepreneurship. Studies by Linnenen(2002), Kuckertz and wagner(2010) have thrown light on the motives of individuals. The studies adapted econometric models to study the motives. They pointed out that motivations of green entrepreneurship are partially different from those of traditional entrepreneurs, as green entrepreneurs are motivated by economical and environmental concerns. But these studies have failed to examine the implications. However, only one study by Wagner et.al (2010) uses empirical techniques and many research questions have been kept unanswered. At this stage, hence, the results can not be construed as matured and replicable generally. The third aspect is on the role of public and private institutions for green entrepreneurship. Isaak, (1997), Pacheo and York, (2010) were concerned with the questions of what may be inhibiting entrepreneurship and whether and how green entrepreneurship may be fostered. A few existing empirical studies are region or country specific rather in the context of renewable energy industry.

Lee (2009) makes empirical studies on the triggers to green entrepreneurship in the United States wind energy industry. The study finds that the presence of large-scale social movements has a significant positive impact on the emerging green activities. The studies however failed to provide a deeper understanding of the key matters for policy makers. Linnenen (2002) states three kinds of barriers to overcome to succeed in introducing green products. Financial, Marketing and Organizational barriers are traced in his research. He suggested a framework for green entrepreneurship on the background of his practical experience. Hence, the results can be more generalized than those resulting from other qualitative case studies with narrowed scope and lack of empirical results. From the available literature survey it can be obviously concluded that hardly any literature of empirical soundness can be traced, rather theoretical contributions have been made based on small number of case studies. Therefore, there is a wide gap in theoretical and empirical research with respect of green entrepreneurship in India.

As the number of emerging green entrepreneurs is growing in India, there exist plenty of research gaps and untraveled path to explore the motivations, problems, and strategy, competitive edge, compliance and brand building by respecting the environment and sustainable growth.

## 3. RESEARCH OBJECTIVES

The main objective of the study is to measure the awareness level of green entrepreneurship. The sub-objectives revolve around searching for future prospects of green entrepreneurship by digging out motivators and inhibitors that encourage and discourage people to get started with green consumption by stimulating opportunities for green entrepreneurship.

### 3.1. HYPOTHESES

**H<sub>01</sub>:** There is no relationship between level of education and preference for environmental protection.



**H<sub>02</sub>:** There is no relationship between level of education and preference for pollution control activities.

**H<sub>03</sub>:** There is no difference, in the level of awareness of the green business activities, among the population.

**3.2. RESEARCH METHODOLOGY**

Both primary and secondary data are used for this descriptive-cum-empirical study. Primary data consists of responses collected from graduates who are in the final semester. These graduates are identified as sample initially. Convenient random sampling method is used. Data was collected in Mysore city. In all 140 completed questionnaires were collected out of the 200

distributed questionnaires. Data collected was edited, codified and analyzed with the use of SPSS. The research used percentages, the Mean, standard deviation, chi square test, and contingency coefficient for analysis and interpretation and testing of hypothesis.

**4. DATA ANALYSIS & INTERPRETATION**

Distribution of respondents education-wise and gender-wise is shown in Table 4.1. The table shows that 95 respondents (67.9%) are male and 45 (32.1%) are female. Education-wise distribution shows that engineering and post graduates in commerce are 30 percent each. 22.9 percent are of post graduates from non commerce background, while 17.1 percent are graduates from general category.

**TABLE 4.1: GENDER \*EDUCATION CROSS TABULATION**

	GENDER					
	MALE		FEMALE		Subtotal	
	Count	Column N %	Count	Column N %	Count	Column N %
Education ENGG / Poly technique	25	26.3%	17	37.8%	42	30.0%
PG in commerce/Mgt.	27	28.4%	15	33.3%	42	30.0%
P.G in non commerce graduates general	27	28.4%	5	11.1%	32	22.9%
Subtotal	16	16.8%	8	17.8%	24	17.1%
	95	100%	45	100%	140	100%

Chart 1 (Table 4.2) depicts the number of respondents who are aware of the dangers of global warming and climate change. Among the Engineering graduates, 40 (95.2%) say 'yes' while only 4.8 percent said 'no'. In the postgraduates-commerce category 36 ( 85.7%) said 'yes' while 6 (14.3%) said 'no'. In Post Graduates – non commerce only 29 (90.6%) said 'yes' while 9.4 percent said 'no'. In graduates general category, only 75 percent said 'yes' while remaining 25 percent said 'no'. The analysis reflects that the level of awareness is very less in case of general graduates. Overall, 123 (87.9%) are aware of dangers of climate change and global warming, and only 17 (12.1%) of the respondents together from all the streams are not aware of the dangers of global warming.

Table 4.3 shows the distribution of population according to awareness of corporate social responsibilities. In total 93 (66.4%) aware and 47 (33.6%) of the respondents have no knowledge of it. Education-wise distribution shows 71.4 percent of engineering, 83.3 percent of P.G commerce, only 40.6 percent of P.G non-commerce graduates and 66.4 percent of general under graduates have the knowledge of corporate social responsibilities. Among those who unaware of CSR, 28.6 percent are engineering students, 16.7 percent are P.G commerce students, 59 percent are P.G non-commerce, 37.5 percent are undergraduates. The problem area, here, is the P.G. non-commerce students, and general graduates who do not know about CSR. Knowledge of CSR is the indication of climate change and its impact on businesses,

compliance commitment and green entrepreneurs concern for the environment friendly business activities. And lack of knowledge may hamper the competitive spirit of prospective entrepreneurs in taking up green ventures.

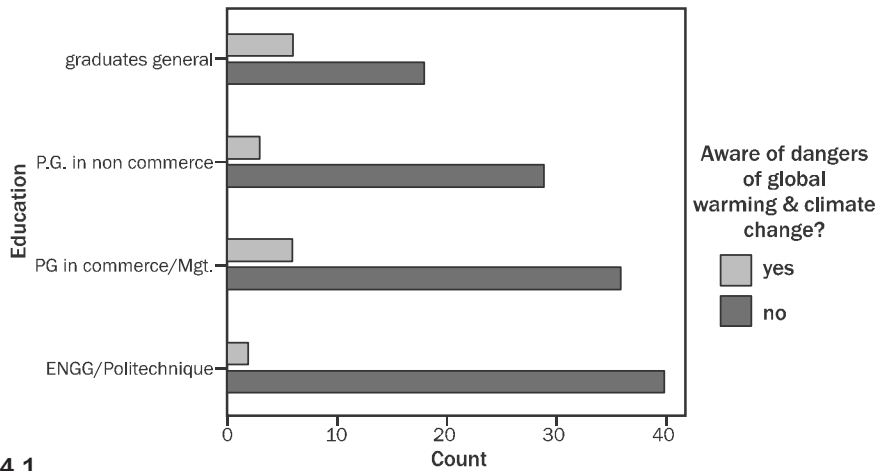


CHART 4.1

TABLE 4.2: EDUCATION\* AWARENESS OF DANGERS OF GLOBAL WARMING AND CLIMATE CHANGE

	Aware of dangers of global warming & climate change?					
	YES		NO		Subtotal	
	Count	Row N %	Count	Row N %	Count	Row N %
Education ENGG/Poly technique	40	95.2%	2	4.8%	42	100.0%
PG in commerce/Mgt	36	85.7%	6	14.3%	42	100.0%
P.G in non commerce	29	90.6%	3	9.4%	32	100.0%
graduates general	18	75.0%	6	25.0%	24	100.0%
Subtotal	123	87.9%	17	12.1%	140	100.0%

TABLE 4.3: EDUCATION\* AWARENESS OF CORPORATE SOCIAL RESPONSIBILITY

	Are You Aware Of Corporate Social Responsibilities?					
	YES		NO		Subtotal	
	Count	Row N %	Count	Row N %	Count	Row N %
Education ENGG/ Poly technique	30	71.4%	12	28.6%	42	100.0%
PG in commerce/Mgt	35	83.3%	7	16.7%	42	100.0%
P.G in non commerce	13	40.6%	19	59.4%	32	100.0%
graduates general	15	62.5%	9	37.5%	24	100.0%
Subtotal	93	66.4%	47	33.6%	140	100.0%

Table 4.4 and 4.5 show mean and standard deviation of two variables, viz education and preference of respondents with respect to protection of environment on ethical and moral norms, and that of education and preference in ranking the pollution control activities. The mean values of first group of variables are the highest (2.54) in general graduates category and the standard deviation also is higher in this case.

**TABLE 4.4 MEAN AND STANDARD DEVIATION OF EDUCATION AND VARIABLES**

Education	*How do you place environment protection on ethical & moral norms	**How do you rank pollution control activities ...etc.?
ENGG/Mean	1.83	1.98
Poly technique Std. deviation	1.034	1.070
PG in Mean commerce/Mgt	1.74	2.00
Std. Deviation	1.014	1.148
P.G in Mean non commerce	2.03	2.31
Std. Deviation	.967	.965
Graduates Mean general	2.54	2.42
Std. Deviation	1.103	1.248
Total Mean	1.97	2.14
Std. Deviation	1.052	1.107

Mean values in case of P.G non commerce graduates is less and standard deviation is also less. This emphasizes that engineering and P.G commerce graduates tendered highest priority on environment protection and pollution control activities. The results are not much skewed except in the case of P.G non commerce and undergraduates. Similar result is reflected in the second group variables.

**TABLE 4.5 & 4.6: CHI SQUARE TEST AND CONTINGENCY COEFFICIENT (C) OF ENVIRONMENT PROTECTION ON ETHICAL & MORAL NORMS**

**\*TABLE 4.5: Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.833a	9	.019
Likelihood Ratio	21.468	9	.011
Linear-by-Linear Association	6.963	1	.008
N of Valid Cases	140		

a. 3 cells (18.8%) have expected count less than 5. The minimum expected count is 2.91.

**\*TABLE 4.6: Symmetric Measures**

	Value	Approx. Sig.
Nominal by Nominal Contingency Coefficient	.352	.019
N of Valid Cases	140	

Null Hypothesis is that there is no relationship between level of education and preference for environmental protection. Chi-square test calculated for testing the hypothesis. The researcher used the following formula for chi-square test.

$$\chi^2 = \sum_{\text{all cells}} \frac{(f_o - f_e)^2}{f_e}$$

Pearson Chi-square computed (Table 4.5) is 19.833, where the critical value of X<sup>2</sup> at 9 degree of freedom and at 5 percent level of significance is 16.919, which is greater than the computed value. Hence, the null hypothesis is rejected, and another test to assess the strength of association in the table between variables is taken up.

In the present study contingent coefficient technique is used for the purpose. Contingency coefficient is applicable in case of equal rows and columns (2x2, 4x4 design... etc.) of variables.

The following formula (Siegel, 1956, p.196) is used generally to compute C.

$$C = \sqrt{\frac{x^2}{x^2 + n}}$$

Calculated Pearson Chi-square being 19.833 and degree of freedom at nine, contingency coefficient 0.352 is obtained (Table 4.6). The upper limit of C is found to be 0.866 (r-1 / r). The computed value of contingency coefficient is approximately midway between 0 and 0.866. This means that there is a moderate relationship between the variables.

Similarly, association between education and ranking priority among the respondents for pollution control activities has been displayed in table 4.7 and 4.8. Computed  $\chi^2$  is 17.287, critical value of  $\chi^2$  is 16.919.

Statistics at 9 degree of freedom and at 5 percent level of significance is 16.919. Since the computed value is greater than the critical value, the second null hypothesis has been rejected. Further compute Contingency coefficient as discussed in the earlier similar case.

**TABLE 4.7 & 4.8: CHI SQUARE TEST AND CONTINGENCY COEFFICIENT (C) OF POLLUTION CONTROL ACTIVITIES**

\*\*Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.287 <sup>a</sup>	9	.044
Likelihood Ratio	16.152	9	.064
Linear-by-Linear Association	3.411	1	.065
N of Valid Cases	140		

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is 4.11.

**Table 4.8: Symmetric Measures**

	Value	Approx. Sig.
Nominal by Nominal Contingency Coefficient	.332	.044
N of Valid Cases	140	

The C value computed is 0.332 (table 4.7). The upper limit of value of C, in this case also, is 0.866. Again the value of C is approximately midway between 0 and 0.866. This means that there is a moderate relationship between the variables.

Another important awareness criteria applied in the present study is to know which of the given list the respondents consider eco-friendly business activities. Table 4.9 displays frequency of the responses indicating the eco-friendly business activities. A simple analysis from the table emphasizes that only 68 percent of the respondent know that all items in the list falls under the category of green business activities, where as remaining 32 percent represent some of the items. This exhibits that respondents are not fully aware of green business activities that contribute to sustainable growth. The possible reason for this variance can be attributed to the different faculty and lack of exposure to trends and dynamics of businesses in the global level.

The area of level of awareness of green business is also shown in the chart 2. The Mean, standard deviation and variance has been calculated for this analysis. Mean value of 7.44 and Standard deviation 2.609 and variance 6.809 as shown in table 4.9 gives much support for this analysis. The third null hypothesis (H03) that there is no difference in the level of awareness of green business among the sample population has been set before.

**TABLE 4.9: ECO FRIENDLY BUSINESS ACTIVITIES**

Valid	Freq- uency	%	Valid %	Cumu- lative %
Wind energy	7	5.0	5.0	5.0
Bio fuels	6	4.3	4.3	9.3
Water recycling	7	5.0	5.0	14.3
Waste recycling	5	3.6	3.6	17.9
Energy efficient devices	6	4.3	4.3	22.1
e-administration	6	4.3	4.3	26.4
Fuel efficiency engines	4	2.9	2.9	29.3
Eco-tourism	4	2.9	2.9	32.1
Any of the / All of the above	95	67.9	67.9	100
Total	140	100	100	

Which of the fig. you consider eco friendly business activities ?

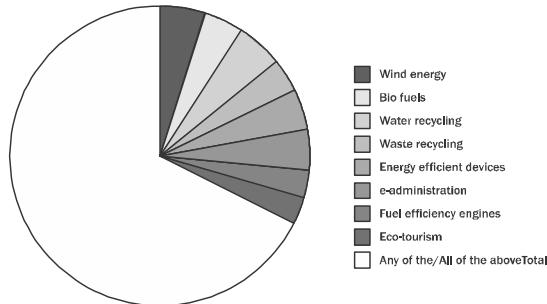


CHART 4.2: AWARENESS OF ECO-FRIENDLY BUSINESS ACTIVITIES

Source: Primary data

TABLE 4.10: MEAN, STANDARD DEVIATION AND VARIANCE OF AWARENESS OF GREEN BUSINESS ACTIVITIES

N	Valid	140
	Missing	0
Mean		7.44
Std. Deviation		2.609
Variance		6.809

TABLE 4.11: CHI-SQUARE STATISTICS FOR LEVEL OF AWARENESS OF GREEN BUSINESS ACTIVITIES

Chi-Square	457.086 <sup>a</sup>
df	8
Asymp. Sig.	.000

a. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.6.

To know the result more precisely, chi-square test is calculated. The computed value is 457.086 (Table 4.11) where as critical value of  $\pm 2$  at 8 degree of freedom and at 5 percent level of significance is 15.507. Computed value of chi-square statistic is much greater than the critical value. Consequently, the null hypothesis has been rejected and also, we can infer that there is much difference, in the level of awareness of green business activities, among the students at various faculties.

5. FINDINGS, SUGGESTIONS AND CONCLUSION

From the analysis of the primary data with the help of various statistical tools, it was found that pollution control activities are certainly a priority for engineering and post graduate commerce students, where as non commerce post graduates and graduates in general do not have the similar awareness and priority. The level of awareness in respect of CSR activity increases with the increase in the level of education. But in the beginning, the awareness is poor in case of non-commerce post graduates and non-technical education students at the undergraduate level. The level of awareness about global warming and climate change is much higher in case of post graduate commerce students as well as engineering students, than the other category of respondents. The study has found that there is a moderate relationship between education level and variables such as priority on pollution control activities on ethical norms, moral norms, and ranking of pollution control activities in the form of establishing and running green business activities. Another important finding of the study is that there has been much difference among the respondents, in the level of awareness of green business activities.

Based on the findings, the level of awareness has to be created through education at the undergraduate level, irrespective of course the students are studying. A common syllabus, which disseminates information about the urgent need for green business activities and its significance to all young graduates, has to be framed to get involved in green business activities. The policy makers have to streamline the corporate social activity practices in a more objective manner so that minimum amount of profit generated from business that pollute the environment shall be compulsorily spent and contribute in the form of taking up all possible measures for the inclusion of innovative green business activities. It is advisable to make corporate social responsibility compliance more transparent but flexible and feasible.

### 5.1 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The study is in the infant stage of research in green entrepreneurship literature and all possible variables could not be included and the sample size was very less for this type of research and further, the research has not been focused on the practicing green entrepreneurs. Despite these limitations, this study contributes, in the form of findings, significant direction for further research in this untraveled green path of business research. The study suggests for future research on the areas such as green entrepreneurship life cycle, qualitative studies on strategies for innovative green products, investors' perception on green business investment, consumers perception about green products.

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# 2

## Green Consumers – An Empirical Study in Bangalore City

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### ABSTRACT

Green consumerism has emerged as an important aspect in the 21<sup>st</sup> century. Companies and business enterprises are giving more importance to environment. Green consumer behaviour is being closely observed in most of the western markets and they are giving more importance to the consumer consumption patterns. 'Green Consumerism' is not a new phenomenon. But until 90's, it did not reach its zenith. Consumers are responsible for the ecological problems, instead of producers, as the consumers decide, what is sold in the market. On the other hand consumers also contribute to its solution by buying Green (Smith, 2000).

Businesses are trying to reach Indian consumers with new responsibility of consuming Green and are coming up with environmental friendly products. Corporate sectors as part of corporate responsibility are incorporating good number of Green activities.

There are numerous research studies conducted on Green consumerism in developed nations, whereas in India very few studies are there on Green consumer. This study highlights on Green consumerism and consumption behaviour by finding out whether (or not) Indian urban consumers have completely become 'Green Consumers'. The study also understands the awareness level of consumers towards Green, their attitude and perception towards the concept 'Green' and 'Green Consumption.'

**Key Words:** Consumers, Green Consumers, Green Consumption, Green Consumerism

### 1. INTRODUCTION

Green consumers are very earnest in their intention and always have a commitment to Green lifestyle. They try to judge their practice of environmental purchase as insufficient. Green consumers mostly look for companies taking steps in Green product creations and their effort to maintain sustainability towards generating Green products. A Green Consumer can be defined as 'An individual who is very concerned about the environment and, therefore, only purchases products that are environmental-friendly or eco-friendly'. Products with little or no packaging, products made from natural ingredients and products that are made without causing pollution are all examples of eco-friendly products.' A Green Consumer will always be attentive towards environmental related issues and will be supportive towards environmental causes. "Buying Green products presents people with a social dilemma: they have to be willing to pay premium prices – not for their own direct benefit, but for the greater good," says Professor Shruti Gupta of Penn State University, a world expert in ethical behaviour. "Consumers will buy pricier Green products," Gupta says, "but only if they are convinced that the sacrifice of higher prices signals some measurable value."

Adams provides a useful definition of Green Consumerism as: "The exercise of consumer choice which expresses a preference for less

environmentally harmful goods and services” (Adams *et al* 1991). This emphasis the importance of ‘choice’ in the decision to purchase goods, owing to the individualistic character of the Green consumer act. It is performed alone, not collectively, with decentralised decision-making on the basis of identified self-interest (Smith 1990). Green consumerism is hence a type of “public environmentalism” (Buttel and Larson 1980) in that individuals are sympathetic to environmental causes and espouse some environmental behaviours, but not in any collective form.

Green consumption mainly happens by two different types of consumption

- Individual objectives of the consumer.
- Collective long term environmental protection objectives of society.

Consumers are slowly moving towards the concept ‘Green’ in India. Mainly in major cities like Delhi, Mumbai, Kolkata, Hyderabad, Chennai and Bengaluru people are becoming aware towards eco-friendly products. Products are certified as Green only if they satisfy the norms of Government Environmentally Preferable Products (EPP) program, Fair Trade, Energy Star and so on. A product is considered earth-friendly if it is biodegradable, meaning that it will pose no threat to the earth and environment, when it is released to the air, water or earth while in use or when disposed of. The term ‘Green’ has nothing to do with colour, but the choice of name is appropriate because Green is a colour that is often associated with nature. The term is widely used and it doesn’t take much for a product to be called Green, so it can cover a wide range of consumer goods. Green Products are those which are non toxic, energy and water-efficient, as well as harmless to the environment.

### 1.2. SCOPE OF THE RESEARCH

Marketers are trying their best by incorporating Green products or eco friendly products in the markets. Almost all consumers are aware about eco-friendly products but take little initiative to buy Green products. It’s a real challenge to

understand the Indian Consumers attitude and perception towards Green product purchase and their consumption pattern. One of the major problems faced by environmentalists today is to know the consumption pattern of a consumer towards durable products. The scope of this research paper is to know whether (or not) Indian consumers have become ‘Green’ and has their consumption pattern changed towards the environment.

### 2. REVIEW OF LITERATURE

As majority of Indian consumers are comparatively poor, their choice of products is natural and notably influenced by price. Other issues, such as environmental impact, play little role in their choice of products. As environment friendly products usually cost more, only consumers with higher purchasing power are willing to pay the premium price because of their concern for environment (Swapnali Borah; 2012). Every time someone makes a decision about whether (or not) to purchase a product or service there is the potential for that decision to contribute more or less sustainable pattern of consumption. Each purchase has ethical, resource, waste and community impact implications. When individuals consider the adoption of sustainable lifestyles, they engage with an increasingly complex decision-making process. These every day decisions on practical environmental or ethical solutions often ending up at trade-offs between conflicting issues and result in a “motivational and practical complexity of Green consumption” (Moisander, 2007).

Researchers in the past have also highlighted importance of Green promotion tools such as Green advertising and eco labelling towards influencing consumers to buy Green product and to indulge in more sustainable life styles (M.R. Cohen, 1973; S. K. Jain 2006). Jackson (2005) provides a comprehensive review of the literature on consumer behaviour and behavioural change. He concludes on the evidence base for different models of change and recommendations to policy-makers encouraging more sustainable lifestyles.

Faiers et al (2007) have also produced a useful categorisation and review of consumer behaviour theories that relate to the critical internal and external factors influencing consumer choice in respect of energy use. The categories are Consumer choice, Needs, Values and Attitudes, Learning, Social learning, Buying process, Categorisation of consumers and Product attributes (Biel & Dahlstrand 2005; Sener & Hazer 2007; Wheale & Hinton 2007). This could be brand strength, culture, demographic characteristics, finance, habit, lack of information, lifestyles, personalities and trading off between different ethical factors. This perspective has served to highlight the nature of compromises reached in real decision processes. In this way individuals or families build up portfolios of purchase (or non-purchase) decisions, which may or may not be linked or underpinned by a belief set (Peattie, 1999). Consumer demand for Green products and services in China, India and Singapore is outstripping supply. That's according to a recent regional study (2011) by product certification and testing company Tuv Sud. The study found that business are missing out on opportunities and need to change their attitudes to tap a growing market.

When it comes to Green products, businesses seem to be underestimating demand. Tuv Sud's Green Gauge, which surveyed 2600 consumers and more than 460 businesses in China, India and Singapore, has shown disconnection between how consumers and business view Green products. The research demonstrated that on an average 84 per cent of consumers are prepared to pay a 27 per cent premium for products which are clearly certified as Green. Peattie (1999) suggested that the clearest way to understand Green consumerism is by viewing each individual's consumption behaviour as a series of purchase decisions. These decisions may be inter-related and underpinned by common values or they may be unconnected and situational. Looking at sustainable consumption in this way leads to a micro focus on individual purchases, an approach that is followed in this paper.

### 3. OBJECTIVES OF THE STUDY

Basically this study is about exploring the Green consumers and behavioural patterns. The sub-objectives revolve around portraying the extent of Green theme consideration by an individual while purchasing consumer durables. As housewives occupy key place in purchase decision, influencing and deciding about vast array of goods, their attitudes towards Green products has also been given a window sight.

### 4. METHODOLOGY

The study is a descriptive approach to achieve stated objectives. Both primary and secondary data was used to collect data. Primary data was collected using a structured questionnaire. The questionnaire was administered to understand the Indian consumers' opinion towards Green Consumerism and to know whether (or not) in reality they follow the pattern of Green Consumption. The questionnaire was made keeping in mind ease of understanding. While framing the questionnaire 5 point Likert scale was used to collect the responses. The questionnaire was divided into two parts: one to know respondent's attitude and perception towards Green products and second part helped to know the consumption pattern towards Green products and sustainability maintenance.

The study adopted non probability method sampling as there was no sample frame available. 150 respondents were chosen from Bengaluru city, Karnataka, India. All the respondents chosen were in the category of housewives- as they are called as 'Queens' in consumerism. This is because most of the household purchase decisions are mainly influenced by them. The respondents were selected on a convenient sampling method and an in-depth interview was conducted. All respondents were in the age group of 35-45 years. The average monthly income was in between 20,000-30000 INR.

White Goods (Household Consumer Durable Appliances) were taken into consideration in understanding the housewives behaviour towards

Green consumption pattern. The products focused were Refrigerators and Washing Machines. Refrigerator is one of the fastest growing segments of the consumer durable industry witnessing significant growth on account of rising per capita income and improved social indicators. Washing machine, no longer a luxury appliance, is gaining ground as a utilitarian product for the rapidly growing middle class and increasing younger population, who routinely holiday overseas, spends on aspirational goods, and experiments with western food habits. With such evolving lifestyles, consumers are warming up to the idea of purchasing home appliances with advanced features (ADI 2012). The data collected was analyzed using simple statistical tool like percentage for descriptive analysis.

**5. DATA ANALYSIS AND INTERPRETATION:**

The environmental movement is an international movement, represented by a range of organizations, from the large to grassroots and varies from country to country. Due to its large membership, strong beliefs, and occasionally speculative nature, the environmental movement is not always united in its goals. At its broadest, the movement includes private citizens, professionals, government and religious bodies, politicians, scientists etc. Environmentalists advocate the sustainable management of resources discusses about ecosystem, nature etc.

**Take Part in Environmental Movements**

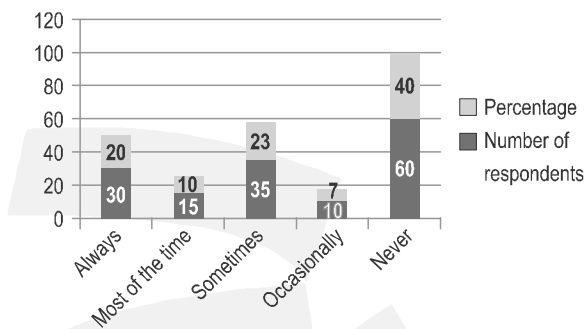


Fig No 5.1  
Source: Primary Data

Most of the respondents (60%) mentioned that they never involve themselves in environmental movements whereas; only 20% mentioned that they always take part in such movements and are more concerned about the environment. 23% of the respondents mentioned that they look for the movement on basis of its theme and then try to attend the environmental campaigns.

**ROOM FOR GREEN PRODUCT IN THE LIFESTYLE**

The definition of “Green” is a grey area and certainly varies among different people, and especially among consumers within different cultures. While Western consumers define the term more in the concept of “back to nature” and Asian consumers define it more in terms of a form of ‘lifestyle’.

**Purchasing Green Products is part of Lifestyle**

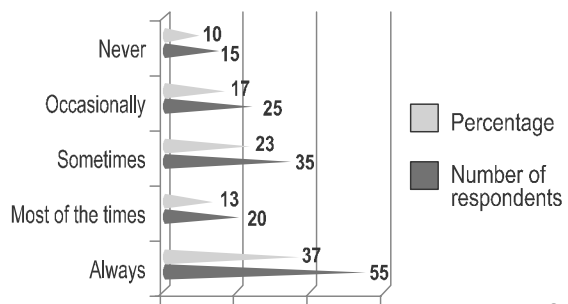


Fig No. 5.2  
Source: Primary Data

In the research study it was observed that, majority of respondents (37%) mentioned above always they buy Green products because it is the part of their lifestyle. Over 10% of the respondents have mentioned that they never purchase Green products based on their lifestyle and image.

**PERCEIVED ROLE PLAYING IN ENVIRONMENTAL PROTECTION**

Every human must know the importance of environment and nature sustainability. They need to protect environment and realize the role that can be executed. In the research study it was observed that 27% of the respondents feel that they play a pivotal role in changing the scenario of protecting environment through Green purchases occasionally.

**Table 5.1 :To Believe you have a Role to Play Towards Environment**

	Always	Most of the time	Sometimes	Occasionally	Never	Total
Number of respondents	32	30	33	40	15	150
Percentage	21	20	22	27	10	100

Most of the respondents (37%) believe they have a role to play in preserving environment. Only 10% of the respondents believe that they don't have to play role towards environmental safe product purchases.

**GREEN VALUES**

Values are part of human behaviour. Values can be observed from the point of ethical or moral perspective.

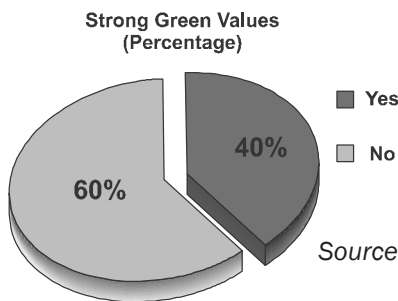


Fig No 5.3  
Source: Primary Data

The research study shows that, 60% of the respondents mentioned that Green values are not very strong and only 40% of them mentioned they have strong Green values.

**PURCHASE INTENSITY OF GREEN PRODUCTS**

An individual usage or consumption towards products need not be Green. Purchasing Green products can always motivate a person based on his/her behaviour towards pro-environmental thoughts and feelings.

**Table 5.2 Ask for Green Products**

	Always	Most of the time	Sometimes	Occasionally	Never	Total
Number of respondents	15	25	39	50	21	150
Percentage	10	17	26	33	14	100

Source: Primary Data

In this research study respondents have mentioned that they use to ask for Green products occasionally (33%) for certain specific products than always. Over 14% of the respondents mentioned that they never ask for Green Products inspite of knowing Green environment importance.

**AWARENESS OF ECO-LABELS IN INDIA**

As the world's environmental consciousness is progressing, the need towards environmental products are increasing too. Green Label therefore gradually plays an important role in international trade.

**Awareness of Green Labels used in India (Percentage of Respondents)**

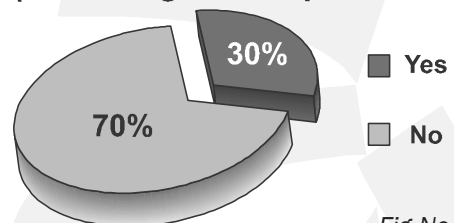


Fig No 5.4  
Source: Primary Data



Today, there are about 50 different types of Green labels around the world. In Asia, countries such as China, India, Japan, Korea, Malaysia, Singapore and Thailand have already launched their Green label schemes. Some of the product labels are 'Environmental Friendly', 'Green', 'Ozone Friendly' etc. In the research study it was observed that many of the respondents' i.e., over 70% are not

aware of eco-labels used in India, whereas 30% of the respondents mentioned that they are aware of eco-labels used for Green Products in India.

#### PERCEIVED PRICING OF GREEN PRODUCTS

Most of the respondents (50%) believe that Green Products can bring in price hike for the product marketed, whereas only 17% of the respondents were against this statement.

**Table 5.3 Green Products Are Always Expensive**

	Always	Most of the time	Sometimes	Occasionally	Never	Total
Number of respondents	75	30	15	5	25	150
Percentage	50	20	10	3	17	100

Source: Primary Data

Even though Green Products matters to them still they prefer to purchase products without the tag/label 'Green' because they always looked for value of the product. They believe that because of technology usage these products become more expensive than other products.

#### GREEN CONSUMPTION PATTERN

In this research study, two products (Refrigerator and Washing Machine) Green Consumption pattern was studied. To know the consumption pattern 7 questions were asked to the respondents under each product category and were analysed on a scale of 3 point Likert Scale.

#### 5.4: TABLE SHOWING RESPONDENTS CONSUMPTION PATTERN TOWARDS GREEN PRODUCT

##### REFRIGERATOR

Items	Always	Sometimes	Never
Do you follow the Green Tips or Green Instructions	53(35)*	40(27)	57(38)
Do you check the temperature (set temp. at 4 <sup>o</sup> C and freezer at 16 <sup>o</sup> C)	55(37)	35(23)	60(40)
Do you clean the coil (back of the refrigerator) twice a year	20(13)	30(20)	100(67)
Do you keep the refrigerator where there is proper ventilation	40(27)	35(23)	75(50)
Do you keep the refrigerator away from heat generating home appliances'	46(31)	20(13)	84(56)
Do you multi-task yourself by getting/keeping two or more things at one go from the refrigerator	35(23)	40(27)	105(70)
Do you follow the disposal of refrigerator as per the local regulations	11(7)	10(7)	129(86)

\*Note: The figures in brackets are percentages

Source: Primary Data



In the present day business scenario, marketers are mainly concerned about providing Green Products to the consumers. For this reason, they spend a lot on technology and thereby create Green Products or Eco-Friendly Products. They try to educate consumers too with regard to Green Consumptions. This research study tries to understand whether (or not) the respondents follow the concept of Green Consumption after the product purchase. While observing the table (5.4) it's observed that only 35% of the respondents follow Green instructions provided by the marketers whereas many of the respondents are not following the Green Consumption pattern of behaviour. Majority of the respondents mentioned that while using refrigerator they never follow the instructions of 'Green' given by the marketers or environmentalists. With regard to disposal of refrigerator majority of the respondents (86%) were of the opinion that they never dispose the product based on the instructions and always sell it as second sales and are not aware of the procedure of product disposal.

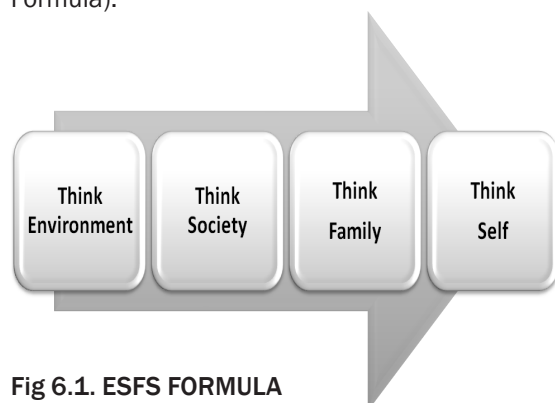
**5.5 TABLE SHOWING RESPONDENTS CONSUMPTION PATTERN TOWARDS GREEN PRODUCT WASHING MACHINE**

Items	Always	Sometimes	Never
Do you follow the Green Tips or Green Instructions	47(31)*	40(27)	63(42)
Do you follow Water Saving Practices regularly	69(46)	15(10)	66(44)
Do you pre-soak dirty garments	26(17)	28(19)	96(64)
Do you use required water always	39(26)	28(19)	83(55)
Do you always wash full load	55(37)	40(27)	55(37)
Do you use natural laundry detergent	41(27)	32(21)	78(52)
Do you follow the disposal of washing machine as per the local regulations	09(6)	11(7)	130 (87)

*\*Note: The figures in brackets are percentages  
Source: Primary Data*

The concept of 'Save Energy, Save Water' should be the mantra while using washing machine. Consumers following this on a regular basis are observed in this research study. It is observed that only 31% of the respondents always follow the Green instructions provided by the marketer or the environmentalists. While considering water saving practices, majority of the respondents (46%) mentioned that they follow the practice regularly. Most of the respondents (64%) do not have a practice of pre-soaking the dirty garments. 87% of the respondents are unaware about the product disposal procedures.

individuals purchase Green Product they should follow a Green Consumption pattern to save environment and energy. Green Consumption is motivated by following Four Goals or Formula i.e. Think Environment, Society, Family and Self (ESFS Formula).



**Fig 6.1. ESFS FORMULA**

**6. FINDINGS & CONCLUSION**

Green consumer behaviour is always observed based on their actual purchase of Green products, the willingness of purchasing Green and also the intention of purchasing Green. Even though

There are a lot of products incorporated in the market with the tag 'Green'. Green advices to consumers about purchase and usage, can always motivate consumers to 'Go-Green' and thereby result a healthy change in environment.

The attitude and perception of housewives are slightly changing but not totally like in western countries. This might be due to lack of consumer education and enlightenment, towards environment. Authorities and marketers should go to grass root level and make the consumer aware about the Green Product Purchases (Green Consumerism) and Green Consumption patterns. Absence of reliable factors in literature on Green consumerism restricted this study to make use of advance analysis. Future studies can concentrate on more sophisticated analysis and specifically concentrate on Green consumersim.

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# 3

## Green Banking Vis-a-Vis Ethical Banking - A Business Model for Sustainable Banking in India

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### ABSTRACT

Sustainable development can be achieved by allowing markets to work within an appropriate framework of cost efficient regulations and economic instruments. In a globalised economy, the industries and firms are vulnerable to stringent environmental policies, severe law suits or consumer boycotts. Since banking is one of the major stake holders in the Industrial sector, it can find itself in credit risk and liability risks. Further, environmental impact might affect the quality of assets and also bank's rate of return in the long-run. Thus the banks should go green and play a pro-active role to take environmental and ecological aspects as part of their lending principle, which would force industries to go for mandated investment for environmental management, use of appropriate technologies and management systems. This paper explores the importance of Green Banking, cites international experiences and highlights important lessons for sustainable banking and development in India. The findings indicate the need to create awareness, implement and follow green banking as much as possible in today's business world of innovative technologies so as to make our environment sustainable.

**Key Words:** Banking; Business Process; Greenery, Green Banking; Productivity & Sustainability.

### 1. INTRODUCTION

In the present scenario of globalization through 21st century, one thing that is missed very badly is lush greenery. Society is becoming concerned

and worried about the natural environment. Business organizations and corporations have started modifying their work systems in an attempt to increase greenery. Green banking means combining operational improvements, technology and changing client habits in banking business. It means promoting environmental friendly practices and reducing carbon footprint from banking activities. This comes in many forms such as using online banking instead of branch banking; paying bills online instead of mailing them; opening up CDs and money market accounts at online banks instead of large multi-branch banks or finding the local bank in the area that is taking the biggest steps to support local green initiatives. Keeping in mind all the points related to environment protection, the role of green banking is expected to be observed at all levels of business process in this globalized world. Main emphasis has been given to analysis of the concept and need of green banking in business process so as to make our environment human friendly and enrich economic productivity. In many cultures, "Green" is an affirmation of life. It indicates growth, fruitfulness and spiritual rejuvenation.

### What is Green Banking?

Green banking considers all the social and environmental/ecological factors with an aim to protect environment and conserve the natural resources. It is also called as an ethical banking or sustainable banking. They are controlled by the same authorities but with an additional agenda toward taking care of the Earth's environment/

habitats/resources. For banking professionals green banking involves the tenets of sustainability, ethical lending, conservation and energy efficiency.

### 1.2. HISTORICAL BACKGROUND OF STUDY

Historically, banks have been viewed solely as financial institutions, which should concern themselves with financial transactions. Morality had not entered the equation. This public view has allowed banks significant leeway with concern to ethical standards. This is because they have not been associated with the actions taken by the businesses they lend. Banks have also stated that a reason for not mounting new challenges that sustainability presents is that such inspection would require interference in the activities of clients. However with changing social demands, more is known about the effects that banks can have through their lending policies. Banks have started getting pressure from the general public, NGOs, governments, and entities that would like to go beyond conventional business management. For example in the mid 1990s a Cooperative Bank asked 6,000 customers about thoughts on ethical banking. Over 84% consumers responded that it was a good idea. In fact the cooperative bank was formed in response to the growing consumer base looking for ethically oriented banks.

## 2. OBJECTIVES OF THE STUDY

The main objective of the paper is to investigate the awareness level of green banking among bank employees, associates and general public. The Sub-objectives revolve around probing alternatives that are positive signals for implementation of green banking and also search for possibility of new green banking products and services in the future.

## 3. ILLUSTRATIONS

### 3.1. HSBC

According to the first report regarding climate change policies of the world's largest banks; the study of 40 global banks, conducted by Risk Metrics Group for Ceres, evaluated each institution about addressing climate change in five areas

board of director oversight, management performance, public disclosure, greenhouse gas emissions (GHGE), accounting and strategic planning. European banks dominate top of the table, with HSBC in the lead, scoring 70 out of 100 points. HSBC was found to be active in all five of the areas evaluated. ABN Amro came second in the study with 66 points, followed by UK banking groups Barclays and HBOS both scored 61 points. Germany's Deutsche Bank follows with 60 points. But more than half of the 40 banks scored under 50 points out of 100, and the median score was 42 points. Only a handful of banks are pricing carbon into their financial decisions or setting targets to reduce greenhouse gas emissions. "For all of the positive momentum, many of the 40 banks have done little or nothing to elevate climate change as a governance priority – a trend that cuts across European, North American and Asian banks alike," said the report. "More banks realize that climate change is a big issue, but their responses so far just tip of the iceberg of what is needed to tackle this colossal global challenge," said Mindy S. Lubber, president of Ceres. Last year HSBC unveiled a \$90m (£45m) global environmental efficiency program. Over next five years, HSBC will spend this money to reduce the bank's impact on the environment through a series of initiatives, including introducing renewable energy technology, water and waste reduction programs. HSBC was 'carbon neutral' by 2006. To achieve carbon neutrality HSBC purchased verified emissions reductions (VERs) from several renewable energy projects in China and Thailand. In July 2007, HSBC appointed Sir Nicholas Stern as special adviser to the chairman on economic development and climate change. Stern is best known as the former World Bank chief economist and author of the Stern Review on the Economics of Climate Change. Also, HSBC's direct banking subsidiary first direct recently disclosed plans to install automated computer shut down software from Night Watchman to automatically switch off the 2,600 computers in an effort to reduce its carbon emissions by 147 tonnes and save £24,000 per year on energy costs.

### **3.2. ABN AMRO BANK (NOW ROYAL BANK OF SCOTLAND)**

ABN AMRO Bank (Royal Bank of Scotland) launched the Indian Sustainable Development Fund, opening up a new emerging market for socially responsible investors. It funds companies that meet global standards for environmental, social and corporate governance issues. Moreover, one of its branches in Ahmadabad is built with LEED certified platinum interiors resulting in savings of energy costs for lighting and reduction in consumption of potable water.

## **4. INDIAN PERSPECTIVE OF GREEN BANKING INITIATIVES**

### **4.1. GREEN BANKING BY ICICI BANK**

Paperless initiatives like e-statements and e-greetings helped ICICI Bank save 30,000 trees from being felled in 2009-10, besides cutting down spending on stationery by Rs 7.36 crore. According to ICICI Bank New Delhi Managing Director and CEO Chanda Kochhar "ICICI Bank recognizes and contributes to the need of conserving national resources and exploring clean technology. It collaborates with employees and customers alike to reduce the carbon footprint from banking," ICICI Group companies have saved around 30,000 trees and 16 crore liters of water through green initiatives. Through these internal and external initiatives, 1,754 tonnes of paper were saved, which translated into a saving of Rs 7.36 crore for the company as of February 2010. ICICI Bank attempts to support other organizations in their endeavors to 'Go Green' by funding and managing green technology projects. 'Go Green' is an organization-wide initiative that aims at migrating to environment-friendly platforms for daily operations within the organization, as well as beyond automated channels. The initiative aims to build awareness and fund alternate energy and environment projects, thereby preserving the environment. ICICI Bank tried to reduce its footprint by providing customers alternate and non paper based channels such as e-branches, e-statements, online banking and mobile banking. Bank opines "An internal movement towards

environment-friendly operations becomes necessary. Ideas are generated by employees through contests. Ideas included dateless diaries, visiting cards on recycled paper, sapling plantations and green walkathons," . ICICI has partnered with the Indian government, World Bank and UNAID to support SME projects in the area of green research and clean technology. It is also working with the Indian Army on water management, energy conservation and alternative energy projects.

### **4.2. INDUSIND BANK**

IndusInd Bank as part of its 'Green Office Project Campaign' titled 'Hum aur Hariyali' has introduced Mumbai's first solar powered ATM and has an expectation to save around 1,980 Kw of energy annually besides reducing carbon emissions by 1,942 kgs. It also anticipates saving power bills of around INR 20,000 per year in urban areas where it has replaced diesel generators with solar panels. Moreover, in an effort to reduce the carbon footprint, the bank has also introduced thin computing (which reduces the need for many personal computers), e-archiving, e-learning, e-waste management, paperless fax, energy conservation, CNG cars and supporting finance programs with incentive to go green.

### **4.3. YES BANK**

YES Bank has incorporated community development initiatives such as green drives, energy efficiency practices, workplace health and safety and development of local disaster management plans through its 'Yes Community' initiatives. The community engages with general public surrounding bank branches through micro events on themes such as pollution prevention, recycling, minimizing waste, water conservation, energy conservation, improving sanitation and cleanliness. Moreover, the bank is the first Indian Bank in the private sector to become signatory to the UNEP-FI (United Nations Environment Programme - Finance Initiative) Statement on the Environment and Sustainable Development and Carbon Disclosure Project (CDP).



#### 4.4. IDBI BANK

IDBI Bank has created an exclusive group working on climate change and more specifically on carbon credits advisory services to the clients for dealing with Clean Development Mechanism (CDM)/ Carbon Credits of Kyoto Protocol and Voluntary Emissions Reductions (VERs) authorities. CDM projects are the one that contribute to credible and sustained reduction in GHG emissions that are very vital. Earth's carbon absorbing capacity is finite and the growth of GHG emissions even at their present level pose a threat to humankind. The bank has set up dedicated carbon credit desk, providing all the services in the area of CDM. It has entered into formal arrangements with multilateral agencies and buyers of carbon credits like KfW, Bankergroupe, and Federal Republic of Germany to offer a complete range of CDM related to suit the needs of the clients.

#### 4.5. STATE BANK OF INDIA (SBI)

SBI as a part of its green banking policy has set up wind mills to generate 15 MW of power in Tamil Nadu, Maharashtra and Gujarat for its own consumption. The mill in Tamil Nadu would generate 4.5 MW of power, while the Maharashtra mill will have a capacity of 9 MW and Gujarat mill produces 1.5 MW. SBI was the first bank to consider generating green power as a direct substitute to thermal power. SBI has adopted a green banking policy with the objective of contributing towards the fight against climate change. One of the initiatives approved by the board for this purpose is to incentivize customers who opt for green projects, i.e., those projects which reduce carbon emissions and promote renewable energy. Green Housing or Green Home is a project identified for this purpose. The new Green Home Loan Scheme will support environment friendly residential projects and will offer various concessions-reduced margins, lower interest rates and zero processing fee. These loans will be sanctioned for projects rated by the Indian Green Building Council (IGBC). The new loans offer several financial benefits by offering a 5% concession in margin, 0.25 percent concession in interest rate and waiver of processing fees.

#### 4.6. UNION BANK OF INDIA

Union Bank of India decided to undertake an electrical energy audit annually. In addition, the bank has installed solar water heaters at various facilities maintained by them. The support service department of the bank has been indentified to implement such an energy/emission reduction program. It also finances an energy efficiency project in SME's where energy cost are significant.

#### 5. ROLE OF RBI

RBI initiated number of programs to make Indian Banks to go Green. For instance, on 20<sup>th</sup> December 2007 RBI circulated a notice to all the scheduled commercial banks asking them to highlight Corporate Social Responsibility of Banks in the report titled 'Corporate Social Responsibility, Sustainable Development and Non-Financial reporting-Role of Banks'. As per the guidelines issued by the RBI many member commercial banks started new programs contributing to the society. As important players in the Indian Economy, banks have realized that their role extends beyond traditional banking activities that are commercial in nature. They also need to examine the effect of their lending and investment decisions. Efficient use of energy by enterprises is emerging as an area of critical importance. Banks support this by sensitizing and educating its stakeholders in adopting efficient means of energy consumption through booklets, workshops and energy audit services. Banks have also been actively involved in organizing awareness campaigns to create awareness regarding the benefits of adopting energy saving equipments and technologies.

Keeping in mind and considering the growing influence of environmental liability on the economy, business organization should adopt environmental risk management practices and programs as a part their internal operations. They should also make systematic use of environmental information in their debt and equity transactions.

## 6. CONCLUSION

Environmental issues are on the top of the agenda of Governments around the world. As rightly said, 'No planet, No People, No Profit'. Indian banks need to be made fully aware of the environmental and social guidelines to which banks worldwide agree. As far as green banking is concerned, Indian banks are far behind their counterparts from developed countries. If Indian banks desire to enter global markets, it is very much important that they recognize their environmental and social responsibilities. Green banking requires a definitive change in thinking about economics, business and finance. Its success would be greater if the world governments start revising their economic paradigms from being 'monetary economics' to 'ecological economics' and begin to transform their accounting principles from purely being financial into ecological/operational energy accounting patterns. There is a crucial need to create awareness, implement and follow green banking as much as possible in today's business world of innovative technologies so as to make our environment human friendly. In addition to mitigating risks, green banking opens up new markets and avenues for product differentiation. India has a commitment to cut its carbon intensity by 20-25 percent by the year 2020. This provides tremendous opportunities for Indian banks from funding sustainable projects to offer innovative products and services in the areas of green banking. The survival of the banking industry is inversely proportional to the level of global warming. Therefore, for sustainable banking, Indian banks should adopt green banking as a business model without any further delay.

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# 4

## E -Waste Management Awareness and Practices by Households in Bangalore

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### ABSTRACT

The revolutionary changes in the field of science and technology has made the industries breed faster across the world. The swift growth factor has its own merits and demerits when it comes to the impact on society. The technological revolution in the electrical, electronic equipments and gadgets are getting upgraded very frequently resulting in diverse change in preferences of the customers for the same. One looks at change for the need of hour after a definite period of time. The question arises about what to do with the existing one. Companies have methodical policies/procedures to dispose electrical and electronic waste to abide by the compliances for business to run smoothly up to convinced extent with legal obligations. Whereas, the households are not bound by the formal obligations or compliances and the e-waste generated is disarray leading to lot of harm. The paper focuses on the process/procedures concerned with e-waste management by the households. It also gives a quick look at the awareness level among the Bangalore households concerning e-waste management. This article also gives insight into strategies, that can be implemented to educate the people about the vulnerability of e-wastes and the suitable alternatives for waste management by the households.

**Key words:** Waste, E-Waste.

### 1. INTRODUCTION

E-waste includes a lot of appliances, products, components, accessories, devices, etc. which becomes useless or non-functional after a certain period of time. This form of waste is referred to as e-waste generated by electrical and electronic products. The technological revolution has not only paved way to the development activities but it has also led to many harmful effects on human beings and other living organisms in nature. E-waste in households comprises of discarded camera, computer/laptop, cell phone, television, mp3/mp4 player, radio/hi-fi set, printer, cartridges, VCD/DVD/CD player, headset/earphones, batteries, telephone, microwave/oven, refrigerator, flat iron, washing machine, air-conditioner, electric fan and fluorescent lamps/bulbs.

If these accumulations of e-waste are not recycled or disposed properly then it would affect the ecosystem. In developing countries, when these materials are discarded into landfills the acidic conditions cause these harmful materials to leak out and pass through the liners of the landfills going right into groundwater. These materials can also harm the environment by damaging the air and the soil. Dangerous materials such as Lead, cadmium and mercury are all found within e-waste. Lead is found in the glass of computer monitors and in printed circuit boards.

Estimated E-Waste Generation (2010 -2025)

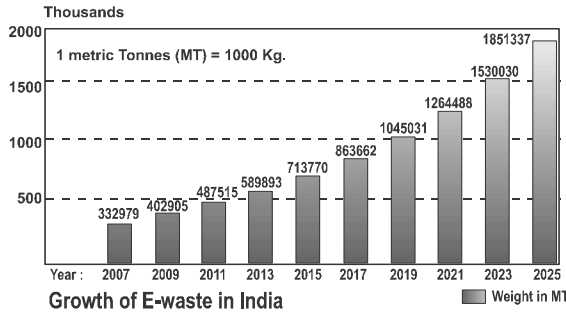
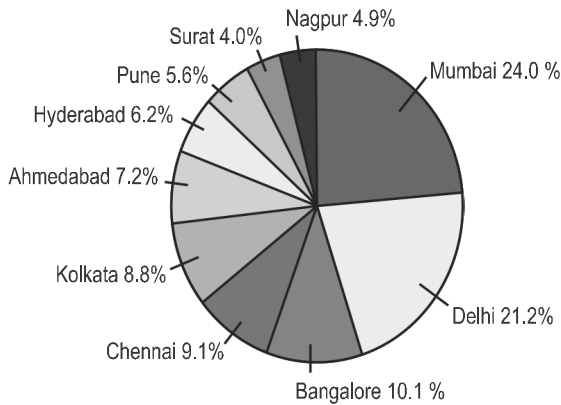


Fig No 1.1

Source: Department of Information Technology

The recent report from Center for Science and Environment (CSE) states that India is accountable for generating 350,000 tons of electronic waste (e-waste) each year and imports further 50,000 tons. Out of this enormous e-waste pile, only 19,000 tons are recycled. Some of the top generators of e-waste in India are Maharashtra, Tamil Nadu, Andhra Pradesh and Uttar Pradesh.



City-wise E-waste Generation in India (Tonnes/year)

Fig No 1.2

Source: Department of Information Technology

If one looks at the Indian cities, the E-waste generation is more in Mumbai, Delhi and Bangalore. Bangalore accounts for 10.1% of the e-waste generated in India.

The toxicity results to lead, mercury, cadmium and a number of other substances. The unsustainable factor of the redundant electronics and computer

technology is one more cause for the need to recycle. Due to lesser environmental standards and functioning conditions in India, the massive accumulation of e-waste is being sent to the underdeveloped and under developing countries for processing which is through illegal means for example, in Africa electronic gadgets and equipments are reused.

2. LITERATURE REVIEW

In recent times, waste electrical and electronic equipment (WEEE) or electronic waste (e-waste) generation, transboundary movement and disposal are becoming issues of concern to solid waste management professionals, environmentalists, international agencies and governments around the world (Musson et al., 2000~ Cui and Forssberg, 2003). According to a report by Confederation of Indian Industries (CII), the total waste generated by obsolete or broken down electronic and electrical equipment in India has been estimated to be 1,46,000 tons per year (CII, 2006). The results of a field survey conducted in the Chennai, a metropolitan city of India to assess the average usage of the personal computers (PCs), television (TV) and mobile phone has revealed that the average household usage of PC ranges from 0.39 to 1.70 depending on the income class (Ramesh, Shobbana and Joseph, Kurian, 2006). It is estimated by Greenpeace that an estimated 20–50 million tons of e-waste discarded globally each year, Asian countries alone are responsible for an estimated 12 million tons (Greenpeace, 2008) of e-waste.

Exposure to Lead could result in extensive damage of central nervous system and kidneys, in addition, effects on the endocrine system have also been observed, leading to serious negative effects on children’s brain development. The most dangerous form of burning e-waste is the open air burning of plastics in order to recover copper and other metals. The toxic fall-out from open air burning affects the local environment and broader global air currents, depositing highly toxic byproducts in many places throughout the world (Gupta, Saroj 2011).

### 3. STATEMENT OF THE PROBLEM

Electrical, electronic waste management awareness and practices by households in Bangalore is something that has to be studied and understood because the research findings from recent report of Center for Science and Environment say Bangalore is becoming the hub for e-waste generation. This title deals with the problem that is vibrant in many countries and many cities of the world. E-waste is hazardous if appropriate method of disposal and recycling isn't adopted. Households are not aware of this issue and the awareness level is very low in them. This study targets only households of Bangalore city. The awareness level and practices of people who stay in Bangalore related to e-waste management can be declared as the boundary of the study.

### 4. OBJECTIVES

The main objective of this study is to get an insight into the awareness level of households in Bangalore on E-waste management and practices. The sub objectives revolve around finding out current level of e-waste practices and also problems that are hindering the diffusion and adoption of E-Waste practices.

### 5. RESEARCH METHODOLOGY

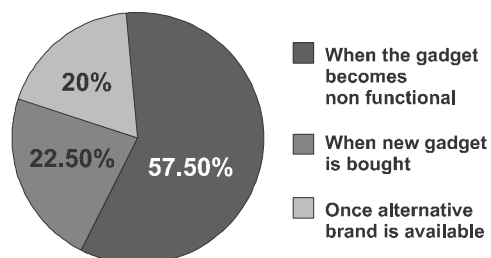
The simple random sampling design has been applied for this study as sample frames were available. Total of 198 wards of Bangalore city (BBMP) limits were considered as target areas for data collection and were given a number (1 to 198) and random numbers were generated from a table. Over 40 respondents were chosen from 40 random areas and questionnaires were administered after pilot testing. This study was conducted through a survey questionnaire among randomly picked respondents from selected areas of Bangalore. The survey was accompanied with a one on one discussion and telephonic interaction. A total of 40 questionnaires were administered to different respondents of Bangalore. Further source of primary data was observation method by personally visiting the site of second-hand market, scrap dealers, repairs shops and dump sites. Further the sources for

secondary data included Government documents and similar research conducted in other countries and previous studies in India. Data collected was checked for completeness before being analyzed using Statistical tools like graphs and charts. This was supplemented by using MS Excel for analysis and illustration.

### 6. RESULTS AND DISCUSSION

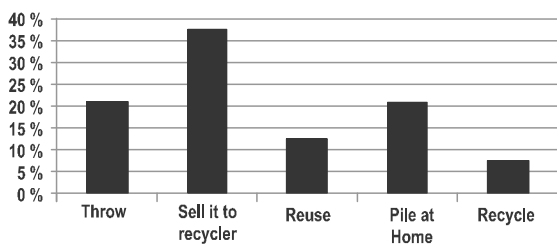
The questionnaire was administered to total number of 40 respondents across Bangalore. The respondents were selected randomly and questionnaire was administered in person as well as over telephonic conversation. Total 12.5% were below 20 years of age group, 77.5% of the respondents were between 21 to 40 years and 10% were aged between 41 to 60 years. Gender wise respondents were equal in proportion with 50% male and 50% female respondents. Most of the respondents produce e-waste from their households which comprises of discarded cameras, computer/laptop, cell phone, television, mp3/mp4 player, radio/hi-fi set, printer, cartridges, VCD/DVD/CD player, headset/earphones, batteries, telephone, microwave/oven, refrigerator, flat iron, washing machine, air-conditioner, electric fan, fluorescent lamps/bulbs, etc.

Respondents have less concern towards recycling e-waste products. Respondents felt that they would like to opt for the long lasting and more durable brands rather than choosing the less durable products, equipments or gadgets. Most of the respondents don't have the knowledge of e-waste segregation practices. The need of buying second hand gadgets and re-assembled gadgets are preferred by some respondents.



**GRAPH 6.1: CHANGING PREFERENCES IN ELECTRICAL/ELECTRONIC GADGETS.**

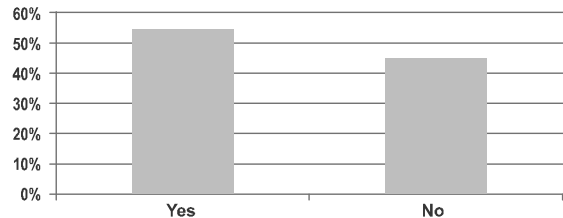
Demand of the respondents for electrical/ electronic gadgets is never-ending since there is a need for each individual or household. 57.50% of the respondents expressed their intention of buying when the existing one becomes non-functional. Second preference of the respondents was of 22.50% that helps to understand if respondents buy because they want to use new gadgets. Some of the respondents switch over to other brand over period of time which accounts to 20% of the respondents'. The observation is very clear that electrical and electronic gadgets or equipments would become non-functional very soon as the life span of these things are very short.



**GRAPH 6.2: STATE OF ELECTRICAL/ ELECTRONIC GADGETS AFTER THEY HAVE BEEN DAMAGED BEYOND REPAIR.**

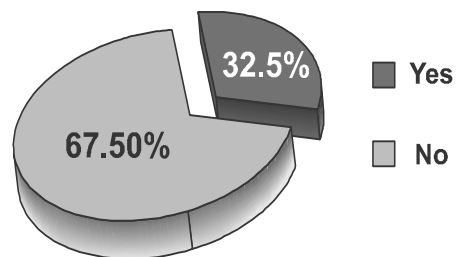
The damaged or beyond repair electronic/ electrical gadgets is an immense trouble since the scientific process of recycling is not happening at the user end according to the survey. Over 37.50% of respondents sell their e-waste to the recycler. Visit to the scrap shops and go-downs reveal that not all the e-waste is sent for recycling, but they burn certain e-waste to separate metal content. This burning process is very harmful to the environment and people as the process pollutes and contaminates the air. The next 21.25% expressed their opinion by opting throw option as they expect the rag pickers to sell the items to scrap shops and some of the e-waste is never picked or sold from the dump yards or bins which is scattered over everywhere. Some of these would harm the cattle and other living beings, disturb the biological cycle and environment. The amount of reuse is less and 21% of the respondents pile e-waste at home leading to so many ill-effects over a period of time. The important aspect of recycling

is completely low due to 7.50% of them hardly get into the process of recycling. e-waste management is highly neglected and there are many factors for it.



**GRAPH 6.3: AWARENESS OF HEALTH RISKS ASSOCIATED WITH E-WASTES.**

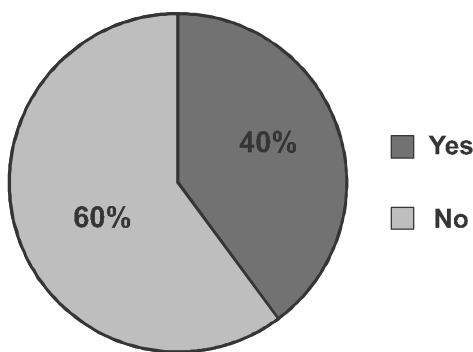
Awareness level of health risks associated with e-wastes is low among the respondents. This needs to be seriously addressed because 55% of them are aware of the health issues and remaining 45% of them aren't aware of such hazardous impact of improper recycling process. The contents of certain hazardous substances in the e-waste are a threat to human beings and other living beings. The households have practice of dumping everything in the same garbage without segregating it. Those would definitely affect the environment and our ecosystem. There are various health risks and challenges associated with this problem.



**GRAPH 6.4: AWARENESS OF LOCAL PROGRAMS OR ACTIVITIES RELATED TO E-WASTE MANAGEMENT.**

The governments, non-governments environment friendly associations and other volunteering groups should focus on educating the people about e-waste practices by organizing awareness programs and activities. But in Bangalore the effort is not made and it remains to be only a formal legislation. Since 67.50% of the sample population

expressed their opinion which is shocking result of not being aware of programs and activities about e-waste. If people are unaware about recycling and essential care of recycling process, then it's a serious concern for the local governments to implement and execute the activities. Government focuses most of the time on only factories, companies and other industries rather than making public aware of need and necessity of the same. People are clueless about imperatives of improper e-waste practices.



**GRAPH 6.5: AWARENESS OF RECYCLING/ TRADE FAIRS FOR E-WASTE MANAGEMENT**

Recycling fairs and trade fairs are a good source of educating customers and other people of the society about best e-waste practices. But 60% of the sample population is clueless about such fairs and shows. It can be ascertained from this response that the interest in people for such activities is low. It may not be the actual reason because we hardly find few advertisements on television channels on the same and very rarely any hoardings or flex boards, hand-outs, brochures. etc on the same across Bangalore. One thing which sensitive citizens need to observe is about how illiterate people are educated about e-waste management practices when educated people are not aware of the facts. Starting few e-wastes processing units and existing legislation on the papers would not address the need of the current situation.

**7. CONCLUSION**

The authority for controlling e-waste management should be more competitive by giving resources and linking the initiatives to other beneficial programs of government to the people of Bangalore. Schemes, incentives and developmental work should be introduced across Bangalore for the areas that work towards scientific disposal and recycling of the e-waste. Awards and recognition for the areas can be declared as e-waste free zones or areas. Legislation on papers needs to be efficiently implemented by putting it into practice. Waste segregation process is already introduced in Bangalore by BBMP for wet and dry waste. Further a step ahead BBMP can relook at segregation of e-waste to tackle this menace. E-waste management concerned organizations and associations like E-Parisaraa, Earth Sense Recycle Private Limited, Trishyiraya Recycling India Pvt. Ltd (TPL), Environmental Protection Agency (EPA), Saahas (NGO), etc. should be taken into the decision making body of the competent committees by BBMP to work towards e-waste management problem and its awareness among Bangalore households. Science, Engineering, Management and other institutions of Bangalore should look at encouraging its students in taking up some projects in developing new technologies and methods for e-waste management. Factories within BBMP limits and companies should earmark funds under social responsibility initiative and support projects of these colleges. Local media also holds the responsibility of educating the people of Bangalore about e-waste management practices and health risks associated with that. Compulsory training programs for workforce employed in this task about the scientific precautions should be taken while dealing with recycling and disposing process. Authorities should give necessary gloves, masks, uniforms, boots and regular health checks for them. Restraining workforce from dangerous processes of recycling and disposing should be taken care with usage of appropriate technologies and machineries. These skilled workforces can opt



for training the households in the e-waste recycling process up to some extent which can be done at the initial stages of processing.

E-waste is much talked about issue at international level with its hazardous chemical reactions and problems. E-waste is a matter of trouble due to toxicity of some substances from unprocessed e-waste. To avoid future problems and difficulties in handling e-waste, many governments have enacted several legislations and policies which organizations and industries should adhere to sustain business. On the other hand problem lies with households in many countries who are producers of large e-waste and are not educated about risks associated with the improper ways of disposing e-waste. Even the legislations are not controlling the individuals but most of the times they are passed keeping industries in mind. The workforce involved in the process needs a great support from authorities with necessary precautionary kits for their safety and health issues. It's the responsibility of each and every household to take accountability and be responsible to understand complexity of e-waste problem and make a genuine effort of making e-waste free areas and zones across Bangalore. The technical assistance and resource power to handle various initiatives of various teams and organization are vital for in-depth research. The necessary funding available for e-waste management researches and the projects can be taken up by Research Centers, Universities and other organizations and reports of studies/projects should be published and made accessible to general public to increase awareness.

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# 5

## A Study on Relationship Between Green HR Practices Implementation and Employee Satisfaction

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### ABSTRACT

Organizations should be innovative and systematic in achieving sustainable development. Concern for environment has been major issue of discussion world over, to sustain and achieve economic productivity. Business houses should have an eye for details regarding processes, techniques, systems and results. Green HRM is one such innovative technique which creates environment friendly HR practices and preservation of knowledge capital

This paper is an attempt to understand the employees' satisfaction level towards Green HR practices implemented by different organizations in Bangalore.

Over 101 employees of 5 reputed organizations were asked to respond for the questionnaire related to their satisfaction level. Statistical tools like standard deviation (SD), correlation coefficient were used to achieve the stated objectives.

**Key words:** Green HR Practices, Employee's Satisfaction.

### 1. INTRODUCTION

Today sustainability has become a major concern globally. Environmental issues are creating panic among the nations. Organizations are taking initiatives in going green. In India, Wipro, also named as Green brand, is a great initiator in green revolution. Wipro Ltd was named a "Leader" in Sustainable Technology Services by Verdantix, a leading analyst firm providing advice to clients in

the field of energy, environment and sustainability challenges. Walmart, global retail giant, has successfully implemented green HR practices, globally by engaging its more than 2 million associates.<sup>1</sup>

Lado and Wilson (1994), defined HRM system as "a set of distinct but interrelated activities, functions and process that are directed at attracting, developing and maintaining a firm's human resources". Green HR is the use of HRM policies to promote sustainable use of resources with the organization (Jadhav & Jadhav, 2012, Mandip, 2012). Green initiatives are increasing in the organizations due to the concern over global warming. Today, role of HR department is not only restricted to recruitment, training & payroll activation but they also have more responsibility. They implement policies and strategies relating to human capital. They also implement practices and policies that reflect corporate social responsibility.

Green HR involves two essential elements: environmentally friendly HR practices and the preservation of knowledge capital (Mandip, 2012). Green HR involves reducing carbon footprint via less printing of paper, video conferencing and interviews, etc. Companies are quick to layoff when times are tough before realizing the future implications of losing that knowledge capital. Green HR initiatives help companies find alternative ways to cut cost without losing their top talent.

Immense usage of paper should be reduced and organizations should focus more on



e-communications. Today HRIS play a major role in organizations. All the HR functions can be performed online. E-Recruitment, E-training etc. are examples. This will have a great impact of cost savings and sustainability. By going green, HR can play a crucial role in economic development of the nation. Natural resources should be preserved and sustained. Interviews and appraisals should be conducted online. Organizations should assure that all the communications are done electronically. Job offers, selection process etc. can be done electronically.

HR managers should be aware of carbon emission made by the employees. Unnecessary prints and photocopying should be avoided. Strict adherence to practices like switching off the A/C, fans and lights on a stipulated time can be implemented by HR managers. Training programs should be conducted for the employees in order to create the awareness across the employees about green HR practices and its advantages. Sustainability is the core part in this green world. Green HR management will play an important role to promote the environment related issue by adopting green HR practices and policies (Shaikh 2006).

Green HR helps employees in building image of an organization as a brand. It makes employees and society members aware of natural resource utilisation more economically and encourage eco-friendly products. Employees should be discouraged in wasting stationeries. According to Wilkinson (2007), "Employers can introduce carbon offsetting schemes into flexible benefits packages so that staff can take steps to reduce their own carbon footprint".

Reduced costs and increased marketing value are positive advantages noted by numerous online articles from respected business sites touting the financial benefits of going green. Green practices begin with an awareness of the products we use, what they're made of, how they get to us and what happens to them once we throw them away. It is imperative for the HR managers to educate the employees about these aspects.

## 2. LITERATURE REVIEW

'The Greening of HR', survey conducted by Buck Consultants (HR consultants), found that 54% of the respondents implemented green practices in their organizations (The Central New York Business Journal, April 3, 2009). The survey analyzed responses from 93 organizations in the United States, representing a wide range of industries.

The research was conducted during the fourth quarter of 2008, and examines the types of "green" initiatives employers are using in workforce management and human-resources practices.

Some common green human-resources initiatives included were:

- Using Web- or tele-conferencing to reduce travel (78 percent)
- Promoting the reduction of paper use (76 percent)
- Implementing Wellness programs to foster employees' proper nutrition, fitness, and healthy living (68 percent),

According to Don Sanford, managing director of Buck's Communication, Many employers have realized that green programs in the work place can promote social responsibility and help retain talent. Haden et al., (2009), stated that the incorporation of environmental objectives and strategies into overall strategic development goals of a company helps in arriving at an effective environment management system.

### 2.1. GREEN MOVEMENT AND GREEN HR

According to M.W.Shaikh (2006), "green movement is a political movement which advocated four important principles, environmentalism, sustainability, non-violence and social justice." Supporters of green movement are called greens and they adhere to green ideology. In March 1972, the United Tasmania Group, the World's first green party was formed. Green movement gave birth to green HR. Human Resource Managers are responsible for training

and implementing green practices in their organizations.

## 2.2. GREEN HR PRACTICES

If a company wants to be more eco-friendly, then it should see that its current employees are working towards achieving green goals. HR can accomplish this task through proper communication and training (Debus, 2011). HR can adopt computerized Human Resource Information System (HRIS) and applicant tracking systems to streamline hiring efforts which also reduce paper usage and costs. Employees should be educated and trained on company's green initiatives.

Green HR emphasises on having every employee touch point/ interface to promote sustainable practices and increase employee awareness on sustainability. It includes undertaking eco friendly HR initiatives that results in greater efficiencies, lower costs and better employee engagement. It also helps the organization to reduce employee carbon footprints, by car-sharing, job sharing, tele-conferencing, online training, energy efficient office spaces etc. (Mandip, 2012). Mandip (2012). Training programs should include environmental issues at all levels and strategic sustainability issues at executive management level. Orientation programs to the new employees should inform the employees about green practices. Implementation of green practice requires high level of technical and management skills among employees (Callenbach et al., 1993).

Environmental Management System (EMS) cannot be effectively implemented, unless companies have the right people with the right skills and competencies (Daily & Hunag, 2001).

In order to implement an effective corporate green management system it is important to promote a great deal of technical and management skills among all employees of the organization (Daily et al., 2007; Unnikrishnan and Hedge 2007).

Attainment of specific sustainable initiatives should be incorporated into the compensation system by offering employees a benefit package

that rewards employees for changing behaviors. A variable pay element can be added to the compensation system by linking pay to eco-performance (Mandip, 2012).

Candace Taylor, Wal-Mart's Director of Sustainability, explained that, Walmart has a volunteer associate sustainability program. The program asks their associates a basic question: "What one thing could you do to make a difference in terms of your health, your community or the natural environment?" By asking this question, Walmart has successfully engaged approximately half of its U.S. associates and more than half the associates in other markets such as Brazil and Canada to take some kind of action. A key best practice Taylor identified was Wal-Mart's continuous recognition of associates and their stories of achievement in order to encourage them to follow the green HR practices (<http://www.triplepundit.com/2010/04/interview-walmart-green-human-resources-best-practices>).

## 3. OBJECTIVES OF THE STUDY

- To study green HR practices implemented by the organizations.
- To study employees' satisfaction pertaining to the green HR practices implemented in organizations
- To understand about organisational communication on significance of green HR practices to employees.

## 4. METHODOLOGY

Purpose of this research was to study the Employees' satisfaction towards the green HR practices implemented in their organizations. Five Organizations in Bangalore city that have already implemented green HR practices were identified, and 101 employees were randomly chosen as the sample for this study.

Primary data was collected from employees associated with these organizations, identified for the study. Questionnaire was mailed to the respondents and filled questionnaire was mailed back by the respondents promptly. Assurance for

confidentiality of the data and information was provided to the respondents by the researchers.

**4.1. OPERATIONAL DEFINITIONS OF THE VARIABLES**

Green HR practices & Implementation was chosen as the independent variable and Employees Satisfaction was dependent variable in this study. Green practices are eco-friendly practices initiated and implemented by HR managers in the organizations to promote the sustainable use of resources with the organization. Implementation aspect is concerned with the way the green practices were communicated, how the employees were trained, and how the practices had been following up.

Employees' satisfaction - The degree of satisfaction derived by the employees pertaining to the green HR practices implemented in the organization and how it was communicated to the employees by the management.

**4.2. STATISTICAL TOOLS**

Descriptive statistics in the study comprises of grading number and frequencies. Further, Mean and Standard Deviation of the raw data was calculated. In order to understand the relationship between independent variable and dependent variable, Pearson Correlation was applied.

**FREQUENCY TABLE - INDICATING THE GENDER, YEARS OF EXPERIENCE AND OVERALL YEARS OF EXPERIENCE OF THE RESPONDENTS**

**TABLE 4.1 INDICATING THE GENDER OF RESPONDENTS (Footnotes)**

	Frequency	%	Valid %	Cumulative %
Valid Female	50	49.5	49.5	49.5
Male	51	50.5	50.5	100
Total	101	100	100	

**TABLE 4.2 INDICATING YEARS OF EXPERIENCE OF RESPONDENTS WITH THIS FIRM**

	Frequency	%	Valid	Cumulative %
Valid 1	16	15.8	15.8	15.8
2	34	33.7	33.7	49.5
3	36	35.6	35.6	85.1
4	8	7.9	7.9	93.1
5	7	6.9	6.9	100
Total	101	100	100	

**TABLE 4.3 INDICATING THE OVERALL YEARS OF EXPERIENCE OF RESPONDENTS**

	Frequency	%	Valid %	Cumulative %
Valid 1	15	14.9	14.9	14.9
2	22	21.8	21.8	36.6
3	11	10.9	10.9	47.5
4	18	17.8	17.8	65.3
5	20	19.8	19.8	85.1
6	11	10.9	10.9	96.0
7	4	4.0	4.0	100
Total	101	100	100	

**4.3. HYPOTHESES**

H<sub>0</sub>: There is no significant relationship between Green HR practices & Implementation and Employees satisfaction.

**TABLE 4.4 - CORRELATIONS**

		Green practices Implementation	Employees satisfaction
Green practices Implementation	Pearson Correlation	1	.329**
	Sig. (2-tailed)		.001
	N	101	101
Employees Satisfaction	Pearson Correlation	.329**	1
	Sig. (2-tailed)	.001	
	N	101	101

\*\* Correlation is significant at the 0.01 level (2-tailed).

Correlation results indicated that correlation was significant at 0.01 level, null hypothesis was rejected and alternative hypothesis was accepted. This implied that there is significant positive relationship between HR practices and employee satisfaction.

**TABLE 4.5 - DESCRIPTIVE STATISTICS (GREEN PRACTICES & IMPLEMENTATION)**

	N	Minimum	Maximum	Mean	Std. Deviation
Practices communicated	101	3	5	4.27	.467
Employees following practices	101	3	5	4.11	.344
Prior training given	101	3	5	4.08	.337
Training to educate employees about Green practices	101	3	5	4.01	.360
Innovative practices are communicated	101	3	5	4.02	.346
Employees actively participate in training	101	2	5	3.84	.484
Personnel appointed to ensure that employees are following practices	101	3	5	3.97	.386
Personnel encourage employees	101	3	5	3.84	.441
Management encourage car pooling	100	2	5	3.77	.529
Organization fosters a culture of corporate responsibility	101	2	5	3.80	.548
Organizations resorts to tele-conferencing, e-communication etc	101	3	5	4.00	.400
Training given to employees about significance of green practices	101	3	5	3.90	.332
Organization supports environmental charities	101	3	5	3.90	.412
Managers trained to implement green practices	101	3	4	3.90	.300
Recruitment policy reflects sustainability agenda	101	3	4	3.77	.421
HR identifies employees compatible to green practices	101	3	4	3.54	.500
EHR practices implemented & following	100	3	5	4.04	.374
Green orientation programs are provided to new employees	101	3	5	3.88	.516
Green orientation programs effectively convey employees	101	3	5	3.73	.488

**TABLE 4.6 - DESCRIPTIVE STATISTICS  
(EMPLOYEE SATISFACTION PERTAINING TO GREEN PRACTICES IMPLEMENTATION)**

	N	Minimum	Maximum	Mean	Std. Deviation
Incentives given for creative green products or ideas	101	2	5	3.75	.555
Incentives given for following green practices	101	2	5	3.41	.635
Management celebrate success of green practices	101	2	5	3.26	.702
Management welcomes suggestions from employees	101	2	5	4.04	.508
Employees are overall satisfied about green practices	101	3	5	4.53	.521
Employees involved in green practices	101	3	5	4.52	.521
Organization has implemented effectively	101	3	5	4.51	.522
Valid N (list wise)	101				

## 5. MAJOR FINDINGS AND SUGGESTIONS

Results of the study proved that employees are satisfied with the green HR practices and their implementation. Study indicated that green HR practices were communicated effectively and employees were satisfied with this aspect. This statement has the highest mean value of 4.27. Whereas, communication of green practices during orientation programs, perception of respondents was poor with a mean score 3.73. Study also indicated that success of the green practices is not celebrated in the selected organizations.

### 5.1. SOME GREEN PRACTICES PREVALENT IN STUDIED ORGANIZATIONS

- Discourage usage of plastics.
- Limited usage of paper, encouraging using electronic/digital media for communications to replace papers, keep a check on IPs- not more than 5 pages can be printed from 1 IP without approvals from managers.
- Usage of teleconferencing and video conferencing set up to avoid frequent travels.

- Regular free health checkups for all employees and wellness programs to ensure proper nutrition, fitness and healthy living, women employees in particular have offers on various vaccinations and medicines related to other health problems, example- cervical cancer.
- Organizing workshops and events like bird watching and plant a plant program.
- Regularly sending out communications to employees encouraging them to switch off the electronic gadgets while leaving the office premises to save electricity.
- Water treatment plant in the campus.
- A small paper recycling plant in the campus and use of recycled paper in the campus.
- Paper cups had been replaced with ceramic cups.
- Employees have to get approval from management to take color printouts.

Regarding the incentives given to followers of green practices, perception was poor with a low mean score of 3.26. It is suggested that HR managers should implement the incentive

programs to those who follow the green practices and thus encourage them. HR managers should also give emphasis to green practices in the orientation programs and convey it well to the new employees. Management should take initiatives to arrange for the celebration of success of green HR practices. Majority of the respondents agreed that green practices were implemented in their organizations effectively.

## 6. CONCLUSION

Being Green is becoming a big trend. Invented by need to become eco-friendly and to survive in harmony with the environment, the trend is fast spreading all across the globe. Study indicates that there is growing awareness of green practices in organizations and HR plays a crucial role in building this awareness, training the employees and implementing these practices in the organizations. ITC Ltd, Wipro Ltd, HCL Technologies, ONGC, Indus Ind Bank, Idea Cellular etc. are some leaders who have successfully implemented green practices in India. Other organizations can learn from these leaders and 'any time' is never late to implement green practices in any organization. Brands in India are now focusing more on practices and policies that would help them tap consumer's choice for green products and promotion of eco-friendly mechanism in their respective markets.

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# 6

## Decoding Green Productivity - A Transition to Sustainability

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### ABSTRACT

Humans are an integral part of world's ecosystems, constantly changing them and often damaging the ability of ecosystems to provide the services necessary for human well being. The deterioration of global environment is threatening the very continuation of life on our planet. To provide and satisfy the requirements of all, we may need two to three more planets, full of resources. But we have only one. Our population continues to grow. By the end of the 21st century, the United Nations predicts that this figure may even double. That means, to provide everyone with today's industrial standard of living, we would need the resources of eight planets, or more. We cannot do that. Instead, we must learn a new way of life. We have no choice. We must learn to provide affluence without effluence. We must do so by consuming less from the environment, not more. Therefore, the present study is undertaken to understand and explore the concept and importance of Green Productivity.

**Key words:** Green Productivity, Sustainability.

### 1. INTRODUCTION

The concept of green productivity stems from the 1992 Earth Summit and was picked up enthusiastically by the Asian Productivity Organization, a body which brings together productivity centers and institutes from throughout the Asia-Pacific region. (At the closing of the 1992 Earth Summit in Rio, more than 178 Governments adopted Agenda 21, the Rio Declaration on

Environment and Development, Statement of Principles for the Sustainable Management of Forests. This was perhaps the first time that rhetoric started to be translated into results.)

In a way, the industrial economy is like a business that doesn't keep good track of money it uses. The earth is a huge bank, full of resources that we can withdraw and spend. Yet no one is drawing down our accounts when we make withdrawals. We pay for earth's resources according to their cost of extraction, not their cost of creation. That is like valuing your life savings according to the cost of driving all the way to ATM for cash withdrawal. The challenge, of course, is to operationalize the concept – to show how green productivity works in practice. In particular to demonstrate that a concern for the environment is not a drain on business – an additional cost – but an opportunity to change business practices and increase productivity. Just as we expect a business to keep track of the *economic* resources it draws from society, and replenish them by adding value, Business organisation should track the *environmental* resources it consumes – and take responsibility for replenishing them.

#### 1.1. SIGNIFICANCE OF THE STUDY

Green Productivity leads to gains in profitability through improvement in productivity and environmental performance. It attempts to answer society's needs, therefore, by increasing productivity through environmentally sound practices and businesses, thereby catering to customer requirements for more environmentally

sound products while ensuring a healthy and safe environment. Green Productivity will benefit businesses by lowering its operational and environmental compliance costs preventing the generation of waste through effective and efficient utilization of resources. Workers will benefit from Green Productivity because it justifies wage increase and improves health and safety in the workplace.

## 2. OBJECTIVES OF THE STUDY

- I. To understand the concept of Green Productivity.
- II. To cite different organizations implementing Green productivity.

### 2.1. DATA TOOLS

The secondary data is collected from research journals, government publications, books and websites.

#### OBJECTIVE I: TO UNDERSTAND THE CONCEPT OF GREEN PRODUCTIVITY

The economic development policies of most developing countries have led to industrialization and urbanization of its nation. This has resulted in major environmental crisis and has become a challenging issue to economies in recent years as a result through extraction, production and consumption of natural resources as well as generation of wastes. Furthermore, the demand for energy, initially through burning of wood, charcoal later by consumption of coal, oil, natural gas has resulted in the depletion of natural resources and has produced adverse effects to the globe.

The word productivity first time appeared in literature in 1766 used by French mathematician in his study (Sumanth, 1990). Fabricant broadly defines productivity as always a ratio of output and input (Afzal, 2004). Productivity is the name of reaching higher level of performance with least expenditures of resources. Sumanth (1990) believes that productivity is a ratio family of output to input.

According to Lawlor (1985), productivity is a comprehensive measure about how efficiently and effectively organizations satisfy the following five aims: objective achievements, efficiency of the process, effectiveness, comparability with other organizations and trend productivity measured over a period. Baig (2002) has defined productivity in the following words; doing things right at the least possible cost in least possible time with the highest possible quality and to the maximum level of satisfaction of the customers and employees. Vittal (2002) says that productivity, at a basic level can be defined as output by input. But mere increase in output is of no value unless the output also has a bearing on the objectives of the organization or the environment under which the transaction takes place. In this context, productivity is associated not only with output and input but also with the value of the environment.

Evolution of Green Productivity - Productivity is above all a state of mind. It is an attitude that seeks the continuous improvement of what exists. It is a conviction that one can do better today than yesterday and that tomorrow will be better than today. Furthermore, it requires constant efforts to adapt economic activities to ever-changing conditions and the application of new theories and methods. It is a firm belief in the progress of humanity (APO, 2009).

Green Productivity (GP) reconciles two needs that are often in conflict: the need for business to earn profit and the need for everyone to protect the environment. The term green productivity covers two complementary, but different, concepts: Firstly, it is used to describe attempts at improving productivity whilst maintaining a concern for the environment i.e. the focus is on improving economic productivity but at the same time minimizing the harm done to the environment. Secondly and more correctly, it is used to describe attempts to improve the efficiency and effectiveness with which we use natural resources i.e. the focus is on the productivity of those natural resources. Green Productivity has two "silver bullets". It enables us to do more, and use less.

“Doing more” is a function of innovation. Designer William McDonough calls that *eco-effectiveness*. “Using less” is a function of efficiency – or what environmentalists call *eco-efficiency*. Green Productivity puts them together.

Green Productivity can be defined as “A strategy for simultaneously enhancing productivity and economic performance to achieve overall socio-economic development. It involves the combined application of appropriate productivity, environmental management tools, techniques and technologies that reduce the environmental impact of an organization’s activities, products services whilst enhancing profitability and competitive advantage.”

Improvement in the quality of life is often associated with an increase in demand for goods and services. Production of these goods and services, however, often has two negative aspects on the environment, in a way it depletes the natural resources and generates pollutants which, if dumped into natural bodies, often cause environmental damage. Even though such techniques may sometimes be economically attractive but are not sustainable because of their potential threats to society.

**OBJECTIVE II: TO CITE DIFFERENT ORGANIZATIONS IMPLEMENTING GREEN PRODUCTIVITY.**

Previous approaches to environmental protection have tended to ignore economic performance. Essentially the practice of Green Productivity results in using material resources and energy more efficiently as well as sustainably. Spurring innovation for products/services enhances economic development, therefore greening innovative minds enables development with less risk of socio-economic and environmental degradation.

The new millennium is rapidly changing the world. Humans’ expectations and needs are in flux. To meet or exceed such demands from traditional customers is a challenge. However, there are other parties who are now placing new demands outside

the traditional business relationships. They hold us accountable for not only what we do but how we do it. It is critical to address these challenges, maintain control of business, and remain profitable. Saxena et.al (2003) supported that current economic policies highlighted only productivity and economic growth, without addressing environment, have resulted in adverse and irreversible environmental impact.

Green Productivity offers a logical means of excelling. It is the combined application of appropriate productivity and environmental management tools, techniques and technologies that reduce the environmental impact of an organization’s activities, products/services while enhancing profitability and competitive advantage. Green Productivity is a dynamic strategy to harmonize economic growth and environmental protection for sustainable development. It is a practical strategy to increase productivity, protect the environment simultaneously.

The increased competitiveness, internationalization and sophistication of markets, the globalization of manufacturing and increased concern about social and ecological issues make productivity improvement more important. Liang-Hsuan et al. (2001) stressed important role that productivity improvement can play in the preservation, rehabilitation and enhancement of the environment is increasingly recognized. Productivity improvement through better utilization of energy, materials, water, solvents, etc. is now seen as an effective tool in preventing pollution at source. Productivity improvement must therefore take into full consideration about the impact of production, distribution, consumption and disposition processes on the environment.

While meeting customer needs, products/ services supplied and the processes used to produce as well as distribute them must have minimum negative impact on the physical environment (Liang-Hsuan et al., 2001). Regardless of the environment the firm is operating in, there is substantial business benefits associated with green productivity strategies that more than offset

additional costs associated with assuming responsibility for the societal costs associated with a given business. Bob Willard (Willard, 2002) says that there are 7 types of business benefits that can be achieved from adopting a sustainable business strategy. These areas of benefit include: Easier hiring of the best talent, higher retention of top talent, increasing employee productivity, reduced expenses in manufacturing or services provided, reduced expenses at commercial sites, increased revenue/market share and reduced risk, easier financing, reducing the cost of operations through better resource utilization, reducing long term liabilities, complying with government regulations, and improving corporate image that will eventually impact profitability. He also points out that in order to achieve these benefits; the firm must invest a substantial amount in education of all employees.

In an era of growing concern for environmental issues –we need to pursue the concept of green productivity and there are certain organizations whose footsteps we need to follow:

- **Ford Motors**

Ford Motor Company showed how a blue chip company with a sharp eye on the bottom line adopted a triple top line vision. When Ford's executives and engineers began to plan the renovation of their famed Rouge River manufacturing plant they wanted to maximize economic value. So along with other innovative designs, they conceived a storm water management system based on a 450,000 square-foot roof of topsoil and growing plants. In concert with porous paving and a series of wetlands and swales, the "living roof" would filter storm water run-off, replacing a water treatment facility at a savings of \$35 million. Now Ford executives are dreaming of the day when children will safely and happily play along the Rouge.

- **Reading**

This organization made upholstery fabric for office furniture as a supplier to Steelcase. The European Government regulators declared the waste

trimmings from the factory to be hazardous waste. McDonough and Braungart set out to redefine the process so that the trimmings could become mulch for gardens – application of the cradle to cradle principle. The key was to find chemicals for the production process that would lead to the desired performance characteristics for the fabric and have none of the hazards. They screened 8,000 chemicals and eliminated 7,962 as being too dangerous. However with only 38 chemicals, they were able to design a production process that produced an entire line of fabrics that met the customer requirements and had none of the toxic chemicals. When regulators came to test the effluent out of the plant, they thought their instruments were broken. After testing the influent as well, they realized that the equipment was fine. The water coming out of the factory was as clean as the Swiss drinking water going in. The manufacturing process itself was filtering the water.

- **Hoang Thach**

This Cement Company, a state-owned enterprise under Vietnam National Cement Corporation. It is one of the largest and most technologically advanced cement companies in Vietnam, and has two lines of production with a total installed capacity of 2.3 million tons of cement per year. It employs around 2,700 employees who work on three shifts. The Green Productivity implementation resulted in savings of four tons of cement per month with an investment to VND 100 million (USD 6410) and a payback of 10 months. The sustainability of the program derives from improving the awareness of employees regarding green productivity.

- **Ansell Healthcare**

This organizations European company has reduced the carbon dioxide emissions by 20% in four years (2004 - 2008) and a further reduction is targeted for the next five years. They have reduced the amount of water used in manufacturing processes, reclaiming and reusing water where possible and sensible. They have

minimized environmental impact of distribution centers by making smarter decisions on location sites, reduced truck mileage and fuel consumption by making transportation routes more efficient. Unused gloves are donated to non-profit organizations.

They have redesigned exam glove packaging to increase glove count per box and reduce packaging waste they recycle. Their collateral is printed on FSC (Forest Stewardship Council) approved materials using soy-based inks. The council promotes responsible management of world's forests by meeting the needs of present and future generations through social, economic and ecological management.

- **Ford & Lio Ho**

Taiwan established a Corporate Synergy System (CSS) with its suppliers to enhance its overall corporate environmental performance. Ford Lio Ho has also requested that all of its suppliers become certified under ISO 14000. The environmental benefits generated from these GPDP options during the second year are listed below and resulted in savings of US\$ 6.8 million:

- Raw materials consumption reduced by 8,000 tons;
- Water consumption reduced by 58,000 tons;
- Electricity consumption reduced by 8,900,000 kW;
- General waste reduced by 1,000 tons;
- Hazardous waste reduced by 290 tons; and
- CO<sub>2</sub> emissions reduced by 4,500 tons.

The total investment in the Green Productivity Demonstration Programs (GPDP) options and corporate synergy projects was estimated to be US\$ 15.6 million.

- **Shwee Shwian Food Corp**

A cleaner production program was implemented in Shwee Shwian Food Co., a medium-sized ginger factory in northern Thailand. The factory produces preserved ginger for export. Ginger was taken fresh from farms and washed by machine. The major problem at the factory was raw ginger has a high soil content, it required large amounts of washing water and therefore generated high volumes of waste water. It was estimated that about 12% of raw ginger weight was actually soil coating outside of the ginger. The results showed that incentive program linked to benefits gained by the company through better control of ginger quality led to better results than the awareness programs. The farmers could benefit from improving the quality of their ginger, lower their operating costs, and improve their productivity as well.

- **Indopherin Jaya PT**

PT Indopherin Jaya, an Indonesian company focused on finding alternatives to reduce liquid waste during the production process of automotive glue using phenol. The alternatives to reduce waste disposal were evaluated by using the concept of Green Productivity Indicator and through a financial feasibility analysis. The company proved that the best solution from the alternatives was to install the chiller and there was an increased rate of productivity by around three percent.

- **Du Pont Corp**

DuPont, Eco-Innovations Drive Costs Down and Market Share up, as they took on a journey to transform DuPont into a sustainable growth company, one where they increased societal value while decreasing their ecological footprint. Results have been promising. For example, between 1991 and 2000, the company increased production by 35%, while cutting greenhouse gas emissions 45%. Motivated by the zero waste goals, DuPont has cut toxic releases 74%, halved its landfill waste, and saved \$200 million on its \$1 billion-a-year environmental costs bill since 1987.



### 3. CONCLUSION

Green Productivity starts with an intellectual dare to shift from a monochrome bottom line to a more colourful triple bottom line. The emerging markets demand that organizations be novel, agile, profitable, and sustainable. Green Productivity provides tools, but it is up to every employee in every organisation in reality to put them to use. There is a strong urgency to identify where one can make a difference, and begin. There is a critical need to involve everyone to protect environment and preserve precious natural resources. By going 'green,' we make a promise to promote a lifestyle that ensures our environmental impact on the world around us is minimal and as positive as possible. Again, the exploratory study has facilitated the development of a conceptual framework to carry out Empirical study. There is hope that there will be awakening of heartfelt knowledge that we are caretakers of this planet.

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- <http://www.vnca.org.vn>



# 7

## A Conceptual Study on 'Green Management' in Food Processing Industry

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### ABSTRACT

The word 'Green' generally is referred to healthy and a clean atmosphere. 'Green' blends into the other topics of sustainability, pollution control, and conservation. The concept of being or going 'Green' is given due importance in all the business firms as it is considered imperative to a healthy society. Many countries aim at achieving a green economy which is defined as a sustainable economy and society with zero carbon emissions as there is a threat of global warming. A green economy rigorously applies the triple bottom line of people, planet and profits across all corporations at the microeconomic level and throughout entire economy at macroeconomic level.

This paper attempts to study the concept of 'Green' applied in the food processing industry. Food Processing is a branch of food science. The United States Federal Food, Drug and Cosmetic Act, Section 201, Chapter II, defines processed food as "any food other than a raw agricultural commodity and includes any raw agricultural commodity that has been subject to processing, such as canning, cooking, freezing, dehydration, or milling."

Food processing is the method and technique used to transform raw ingredients into food for human consumption. The green growth model recognizes the steps to protect and conserve environmental resources, which can be a driver for national and global economic progress.

**Keywords:** Green growth, Food Processing Industry, Environmental Resources, Recycling.

### 1. INTRODUCTION

Food processing is the method and technique used to transform raw ingredients into food for human consumption. Food processing takes clean, harvested or slaughtered and butchered components and uses them to produce marketable food products. Waste materials generated from food processing and food service facilities can present difficult treatment problems since they contain large amounts of carbohydrates, proteins, fats and mineral salts. For example, the waste from dairy plants, food freezing and dehydration plants, and processing plants for red meat, poultry, and seafood can produce distinct odors and heavy pollution of water if the discharge is not treated properly. Organic matter of these wastes must be treated by biological stabilization before discharge into the body of water. In processing, water is an essential tool to help cleanse the product and serve as a cleaning medium to carry unwanted materials to sewage system. Processing of food leads to preservation of food, enhances its flavor and reduces the toxins in the food product. It leads to better distributional efficiency and eases marketing of the food products. Reduction, recycling and efficient processing of wastes forms the core of waste reduction management in food processing industry.

Food processing is a capital intensive, water consuming and moderate to highly polluting industry. Food industry wastages in terms of raw materials, water and energy consumption can be minimized and a major source of environmental pollution can be avoided. The green growth strategy recognizes that steps to protect and conserve environmental resources that can be a driver for national and global economic progress. The food industry is facing increasing pressure to ensure that their activities are environmentally sensitive and has special concerns about health and safety of the consumer.

## 2. ISSUES OF THE STUDY

- a) To understand the importance of Green management.
- b) To understand the concept of 'Green management' applied in the food processing industry.
- c) To study the measures adopted to achieve food safety standards and quality in the food processing industry.

### 2.1 IMPORTANCE OF GREEN MANAGEMENT

Green Management is a new concept in the field of management; it employs a value based assessment methodology to understand how "green" values are internalized. Green management measures such as certified Environmental Management Systems (EMS) or tools like life cycle assessment activities are considered to improve corporate environmental performance directly by mandating companies to introduce environmental goals and management structures as well as programs to achieve them.

A recent United Nations Environmental Program, UNEP (2011 report) on green economy defined as one that "improves human well-being and social equity, while significantly reducing environmental risks and ecological scarcities":

The report makes two key findings: "that greening not only generates increases in wealth, in particular a gain in ecological commons or natural capital, but also (over a period of six years)

produces a higher rate of GDP growth"; that there is "an inextricable link between poverty eradication and better maintenance and conservation of the ecological commons, arising from the benefit flows from natural capital that are received directly by the poor". At the global level environmental impact of agribusiness is addressed through sustainable agriculture and organic farming. At local level there are various movements working towards local food production, more productive use of urban wastelands and domestic gardens. Green management also refers to sustained and successful adaption to climate change at a local, regional and global level.

Green management relates to adoption of clean technologies that lay focus on source reduction, recycling, reuse, and treatment of wastewater. Clean technologies are defined as "manufacturing processes or product technologies that reduce pollution or waste, energy use, or material use in comparison to the technologies that they replace." The food-processing industry has special concerns about the health and safety of the consumer. A green economy will maximize value and growth across the whole economy, while managing natural assets sustainably.

### Green growth has the following features:-

- i) Coherent domestic, trade and multilateral policies working to provide the right signals for input suppliers, producers, processors, retailers, food service, and consumers in the food supply chain that can contribute to realizing the economic growth, social equity and environmental performance potential.
- ii) Recognition that there is not necessarily a conflict between growth and environment if government policies provide appropriate incentives that align economic, environmental and social goals. Economic growth in the food and agriculture sector depends on the sustainable management of natural resources (water, air, soil, fish stocks, and biodiversity) and ecosystem.

- iii) Placing a higher priority on innovation. That is an essential element of improving sector performance.
- iv) An understanding that how growth occurs (production methods) is at least as important as how much growth takes place.

These measures may be helpful in the transition towards green growth. The implications of green growth for agriculture and food system in the longer-term should be mutually reinforcing in terms of environmental sustainability economic growth and social well-being. Green Economy development will help improve ecosystem health and sustain its functionality. Green Economy is a new development path that is based on sustainability and ecological economics.

- Placing a value on ecosystem services through mechanisms that facilitate investment in ecosystems will at the same time benefit local people and private sector who are rewarded for good environmental stewardship.
- Developing a Green Economy within ecosystem capacity, can be planned by better understanding of the science of ecosystems.

Green growth is the pursuit of economic growth and development while preventing environmental degradation, biodiversity loss and unsustainable natural resource use. There is considerable interest in understanding contribution of the global food system to green growth, and role of policies in moving towards a greener growth model. In OECD (Organization for Economic Co-operation and Development) meet in 2010, 'Green growth' was identified as one of the priorities by Agriculture Ministers.

According to Green Growth Strategy, it offers opportunities to contribute for sustainable economic, social and environmental development. Agriculture has an important role to play in the process, as do open markets that facilitate the sharing of technologies and innovations supportive of green growth. In this context; it needs to be taken care to avoid all forms of protectionism. Climate change presents challenges and

opportunities for the agricultural sector in reducing greenhouse gas emissions and the need for adaptation.

## 2.2 GREEN MANAGEMENT IN FOOD PROCESSING INDUSTRY

Food processing involves value addition to agricultural or horticultural produce and also includes processes such as grading, sorting, and packaging which enhance shelf life of food products. Green management applied in the food processing industry include improving the resource efficiency of production and reducing waste along the food supply chain, managing scarce natural resources – especially land, water, fish stocks, and biodiversity in a sustainable manner, reducing the carbon intensity of production throughout the food supply chain and avoiding harmful environmental impacts, while enhancing the provision of ecosystem services that provide critical life-support functions such as biodiversity, flood and drought control.

The American Public Health Association (APHA) defines a sustainable food system as “one that provides healthy food to meet current food needs while maintaining healthy ecosystems that can also provide food for generations to come with minimal negative impact to the environment”. A sustainable food system also encourages local production and distribution infrastructures and makes nutritious food available, accessible, and affordable to all, thus protecting farmers, other workers, consumers, and communities. Concerns about the environmental impacts of agribusiness, obesity problems of the Western world, poverty and food insecurity of the developing world have generated a strong movement towards healthy, sustainable eating as a major component of overall ethical consumerism. The environmental effects of different dietary patterns depend on many factors, including the proportion of animal and plant foods consumed and the method of food production.

Waste materials generated from food processing and food service facilities can present difficult

treatment problems since they contain large amounts of carbohydrates, proteins, fats and mineral salts. For example, the waste from dairy plants, food freezing and dehydration plants, and processing plants for red meat, poultry, and seafood can produce distinct odors and heavy pollution of water if the discharge is not properly treated. Organic matter of these wastes must be treated by biological stabilization before discharge into a body of water. A hazard to humans and aquatic forms of life results from improper waste disposal.

The food processing factories should follow the major technological innovations in the industry, including those in clean technologies and processes. Clean technologies include:

- a) Advanced Wastewater Treatment Practices.
- b) Improved Packaging.
- c) Improved Sensors and Process Control.
- d) Food Irradiation.
- e) Water and Wastewater Reduction

Ikerd (1993) defined sustainable agriculture as capable of maintaining its productivity and usefulness to society indefinitely. Such an agriculture must use farming systems that conserve resources, protect the environment, produce efficiently, compete commercially and enhance the quality of life for farmers and society.

Reduction, recycling and efficient processing of wastes forms the core of waste reduction management in food processing industry. To achieve this overall objective, the food processing plants have to take recourse to the following general principles:

1. Use raw materials of good quality;
2. Minimize wastage during handling, preparation and processing of raw materials and packaging of processed foods;
3. Use appropriate technology and process equipment to minimize energy consumption;
4. Minimize the wastage of water by reasonable care during preparation and processing without sacrificing quality;

5. Use recyclable or biodegradable packaging material as far as possible;
6. Recycle raw material and process waste as far as possible;
7. Use appropriate technology to process the non-recyclable wastes preferably into usable inputs, products or energy.

There are two types of Effluent Treatment Plants (ETP's), in the food industry- those working on aerobic conditions (i.e. in the presence of oxygen) and those working under anaerobic conditions (i.e. in the absence of oxygen). Food processing is a capital intensive, high energy & water consuming and moderate to highly polluting industry. However, fact remains that food industry wastages in terms of raw materials, water and energy consumption can be minimized and a major source of environmental pollution can be avoided. In the food processing industry waste is very often created in the production process, and is often disposed off in a landfill site. Using biogas technology it is possible to utilize the energy contained in this waste to produce green energy which can be sold or utilized.

### **2.3 MEASURES ADOPTED TO ACHIEVE FOOD SAFETY STANDARDS AND QUALITY IN THE FOOD PROCESSING INDUSTRY.**

In August 2006, Government of India had passed a new legislation Food Safety and Standards Act. The Act proposes establishment of a new authority, the Food Safety and Standards Authority, re-organization of scientific support pertaining to the food chain through the establishment of an independent risk assessment body.

New concept such as Good Agricultural Practices (GAP) have evolved in recent years to become international standards in the context of a rapidly changing and globalizing food economy and as a result of the concerns and commitments of a wide range of stakeholders about food production, food security, food safety quality and the environmental sustainability of agriculture. GAP applies available knowledge to address environmental, economic and social sustainability for on-farm production

and post-production processes resulting in safe and healthy food products.

ISO 22000 establishes a global standard for safe food supply chains from feed producers and farmers to processors, retail food outlets and restaurants. The goal is to harmonize the many national and private standards in existence and incorporate the management systems approach of ISO 9001, tailored to food safety management. ISO 22000 incorporates the principles of Hazard Analysis and Critical Control Points (HACCP) and can be applied to any company in the food chain—from field to store.

#### HACCP

HACCP is a food safety management system that relies on process controls to minimize food-safety risks in the food-processing industry. It provides a structure for assessing risks and putting controls in place to minimize those risks relying on extensive verification and documentation to ensure that food safety has not been compromised at any step of an operation. This provides basic industry-accepted food quality and safety standards.

The policies of the Government with regard to achieve green management in food processing industry includes encouragement and enhancement of biological cycles within the farming system involving micro-organisms soil, flora and fauna, plants and animals. Renewable farm resources are those which can be re-used on the farm. Integration of animal husbandry with the farm providing proper living conditions to livestock. The most effective approach for food waste management is source minimization and by product recovery.

### 3. CONCLUSION

Organizations are making conscious efforts to use chemicals responsibly. Taking the lead, many in food processing industry have adopted the National Organic Program standards and are also implementing Green Pest Management (GPM), which is a relatively new concept in India. The industry, over the last two decades, has moved

towards practicing integrated pest management (IPM), which is at the heart of “green” practices. Consumers are becoming more conscious of corporate social responsibility when choosing goods and services. Using biogas technology to deal with waste is beneficial to society and can help to promote the company by improving ‘green image’.

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## 8

# Role of Green Banking in Sustainable Development

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## ABSTRACT

Taking environment and climate changes into consideration in what we do has become very important. Banking and finances is probably one of the areas one might not think one can do anything about, but there's surprising amount that one can do to ensure that money and finances are being managed in a green, ethical way. Green banking as a term covers several different areas, but in general refers to how environmentally friendly banks are, and their commitment to green and ethical policies.

This paper is an attempt to understand issues of Green Banking and its impact to the bank, customers and society in general.

**Key words:** Green banking, Clean Development Mechanisms (CDMs), Carbon neutral banks, Environment Impact Assessment (EIA).

## 1. INTRODUCTION

A banking company provides services of accepting deposits and lending loans. Customers visit banks for cash withdrawal, cash deposits, cheque deposit, obtaining DD/PO/ Bankers Cheque, pass book updation, etc. Every banking transaction requires filling of forms which leads to a time consuming process as well as results in environmental destruction in the form of deforestation. There is lot of wastage of paper in the form of deposit and withdrawal slips. Such documents and stationery is creating a lot of load on the inventory, store keeping and purchase departments. With green banking countries it and

helps in reducing unwanted paper work..

The banking industry can play an outstanding role between economic growth and environmental protection for promoting environmentally sustaining and socially accounting institution. The banking of this kind can be termed as "Green banking". Green banking refers to the banking business conducted in selected area and technique that helps the overall reduction of external carbon emission and internal carbon footprint. To aid the reduction of external carbon emission, banks should finance green technology and pollution reducing projects.

## 2. OBJECTIVES OF THE STUDY

1. To enlist significant strategies for adopting green banking.
2. To focus on methods for adopting green banking.
3. To focus on cashless and paperless banking and digital payment system.
4. To highlight the benefits of green banking.

### 2.1. GREEN BANKING STRATEGIES

Indian banks can adopt green banking as a business model for sustainable banking by launching some of the following strategies.

### GREEN BANKING FINANCIAL PRODUCTS

Indian bank can develop innovative green banking financial products which can directly or indirectly help in the reduction of carbon emissions. These banks can introduce "Green Fund" to provide climate conscious customers the option of

investing in environment friendly projects. Banks can also introduce green bank loans with financial concessions for environment friendly products and projects such as fuel efficient vehicles, green building projects, housing and house furnishing loans to install solar energy system etc. Besides introducing specific green banking products, bank can incorporate Environmental Impact Assessment (EIA) in their project appraisal while financing any project to measure the nature and magnitude of environmental impact as well as suggest environmental risk mitigation measures. Bank can also conduct environmental audits of the financed projects.

**Green Banking Product Coverage Includes:**

- Green mortgages
- Green loans
- Green credit cards
- Green savings accounts
- Green checking accounts
- Green money market accounts
- Mobile Banking
- Online banking
- Remote deposit (RDC)

Carbon footprint is a measure of the Green House Gases (GHG). Banks are burning fossil fuels in their day to day business, while burning of fossil fuels for electricity, heating; transportation etc. banks can reduce carbon footprints by adopting paperless banking. Almost all banks in India are computerized or operate on a Core Banking Solution (CBS). Thus, there is ample scope for the banks to adopt paperless or less paper banking. These banks can switch over to electronic correspondence and reporting thereby controlling deforestation.

**ENERGY CONSCIOUSNESS**

Developing energy consciousness among employees, adopting effective office time management and using LED lights can help banks save on energy consumption considerably. They can also switch over to renewable energy (solar, wind etc.) to manage their offices and ATMs.

**USING MASS TRANSPORTATION SYSTEM**

Public Sector Banks (PSB) can become fuel efficient organizations by providing common transport for groups of officials posted at one office.

**GREEN BUILDING**

The Indian banking industry uses more than one lakh square feet premises for their offices and residential houses throughout the country. These banks should develop and use green buildings for their office and employee accommodations. A green building uses less energy, water and natural resources, creates less waste and is healthier for the people living therein compared to a standard building. These measures will not only help banks reduce their carbon footprint but also save their operational cost considerably.

**SOCIAL RESPONSIBILITY SERVICES**

As part of green banking strategy, Indian banks can initiate various social responsibility services such as tree plantation camps, maintenance of parks; pollution checkup camps etc. Carbon footprint reduction by Green building has been given top most priority in green banking strategies.

**2.2. METHODS OF ADOPTING GREEN BANKING**

**ONLINE SAVINGS ACCOUNT**

Online savings account and mobile banking is the easiest way that one can do their part to bank green and help the environment. Green banking includes setting up direct deposit to receive paychecks, receiving electronic statements from bank and by paying bills online. All of these steps can drastically reduce the amount of paper used by the bank. Online banking is highly effective way to keep track of finances and to avoid late payment fees. Another green banking step one can take is to suggest that the company he/she works for sign up for a product called "remote deposit".

**PAPERLESS STATEMENTS**

Signing up for online banking at most banks includes an option for customers to receive their statements electronically through a secure log in. Copies of banking records and statements can

then be stored electronically instead of using a filing rack. Receiving statements electronically also reduces the chance of identity theft.

#### **USE DIRECT DEPOSIT**

Most employers will give employees the option to receive their paycheck electronically. It does not only speed up availability of employee money and save a trip to the bank, which saves paper and lot of paper works etc.

#### **ONLINE BILL PAYMENTS**

Paying bills online is something of a lifestyle change. Telephone bills, cable bills, utility bills, credit card payments and mortgage payments can all be paid electronically. In fact, some online banking customers have thrown away their cheque books and completely converted to online payments. This practice not only makes record keeping easier but also saves massive amount of paper.

#### **REWARD DEBIT AND CREDIT CARDS**

Some banks have joined up with environment-friendly groups, to create reward debit cards and credit cards. Participating banks will make a small charitable donation as a percentage of customers' online banking activity to help the environment.

#### **NET BANKING**

Online banking is when customers perform most of their banking related functions without visiting the bank, personally. To do so, customers must possess an internet banking Id and a password provided by the bank in which the individual customer has an account. Online banking offers several benefits like time saving, convenience 24\*7 service, eco-friendly process, easy access etc.

**CREDIT AND DEBIT:** Credit and debit card can be used while making the payment for various expenses without depending on cash transaction.

**ELECTRONIC FUND TRANSFER:** Electronic banking, also known as Electronic Fund Transfer (EFT) uses computer and electronic technology as a substitute for cheques and other paper transactions. EFTs is initiated through devices like

cards or codes that allow one to access his or her account. Many financial institutions use ATM or debit card personal identification Numbers (PINs) for this purpose.

#### **MOBILE BANKING**

Mobile banking is a term used for performing balance checks, account transactions, payments, credit applications etc, via mobile device such as a mobile phone or Personal Digital Assistant.

### **2.3. TOWARDS CASHLESS AND PAPERLESS BANKING**

In September 2012 RBI Deputy Governor, H R Khana rightly said in meeting that, circulation of large amount cash in the economy leads to many problems, including corruption, there is need for predominant cash in the society to go down. If cash component in the society goes down, it will help solve a lot of problems like corruption and cash management for banks at the operational level. In a study carried out by the Indian Development Foundation, it was found that the initiative towards a less cash using economy will lead to an improvement in financial inclusion, more digital record keeping of transactions, and a reduction in the costs of transactions and encourage greater growth.

Banks can save lot of papers by adopting following simple steps and hence can contribute to the environment to save trees and can reduce deforestation.

1. Purchase recycled paper.
2. Print on reusable sheets.
3. Print multiple pages on single sheets of paper.
4. Set defaults to print double-sided and print on both sides.
5. Print only the pages required.
6. Preview documents before printing.
7. Increase margin width of the documents.
8. Change the default font size from 12 point to 10 which shrink document by about 10%.
9. Using e-mail statements, one can save enormous amount of paper.

10. Shredding and recycling all papers internally.
11. Sharing electronic files and e-mail instead of paper memos.
12. Limiting printed materials/e-mails/memos to only what is necessary.

Cashless, paperless regime would be achievable only if the banking system is completely adept with the technological changes and also the customers are willing to accept the changes brought about by the regime. Payment systems of 21st century not only include the traditional paper based payments, electronic fund transfers, credit, debit and prepaid cards but also new technologies such as digital wallets, e-cash, mobile payments, e-cheques, etc. Cashless and paperless regime includes plastic money, online transfers, ATMs, mobile banking etc; the banks to begin a journey onto the path of paperless, chequeless and cashless banking as the future of banking.

#### **DIGITAL PAYMENT SYSTEM**

Electronic payment products are expected to provide speedier, cheaper and hassle free payment experience to customers on comparison to traditional paper based payment instruments. The card based payment systems have been evolving over the period in India. The card based system in the country covers credit/debit and prepaid cards. About 308 million cards have been issued in the country. We have been witnessing an increase in the usage of cards such as debit cards, credit cards, prepaid cards, across various delivery channels like ATMs, POS (Point Of Sale), internet transactions etc. On an average, 647.5 million transactions of value INR 1.5trillion are being processed during a month using these cards. By seeing number of transactions and the amount of money transacted, we can imagine number of papers saved through Digital Payment System. Saving of paper leads to saving of trees, which in turn helps environment, giving meaning to the objective of Green Banking.

Mobile phone based payment is one of the important evolutions in payment systems. As of June, 2012, 50 banks were providing mobile

banking services with a total customer base of 14.75million. Both the volume and value of mobile banking transactions are undergoing a remarkable growth. 34.37 lacks payment transactions of value INR 306.71 Crore were processed through Mobile Banking during June 2012.

#### **CARBON NEUTRAL BANKS**

Given the global nature of banking industry, it would be reassuring to know that your chosen bank operates as a carbon neutral business. Well, more and more business, including banks is turning themselves into carbon neutral operations. It means the amount of CO<sub>2</sub> emitted during day to day activities of that bank is neutralized by another activity that utilizes or uses CO<sub>2</sub>. Until a few years ago, most traditional banks did not practice green banking or actively seek investment opportunities in environmentally-friendly sectors or businesses. Only recently have these strategies become more prevalent, not only among smaller alternative and cooperative banks, but also among diversified financial service providers, asset management firms and insurance companies. Although these companies may differ with regard to their stated motivations for increasing green products and services (e.g. to enhance long-term growth prospects, or sustainability principles on which a firm is based), the growth, variation and innovation behind such developments indicate that we are in the midst of a promising drive towards integrating green financial products into mainstream banking.

#### **2.4. BENEFITS OF GREEN BANKING**

Paperless banking can be adopted as almost all banks in India are computerized or operated on CBS creating awareness to bank people about environment by bank can help to brighten the image of the bank. Provision of loans with financial concession for environment friendly products and projects can be an excellent idea for green banking. Moreover, following certain environmental standards for lending will make business owners to change their business to environment friendly which is good for future

generations. Major benefits of green banking are listed below:

**A. AVOIDS PAPER WORK**

Almost all banks in India are computerized or operate on CBS. Thus there is ample scope for the banks to adopt paperless or less paper for office correspondence, audit, reporting etc. These banks can switch over to electronics correspondence and reporting thereby controlling deforestation.

**B. CREATING AWARENESS TO BUSINESS PEOPLE ABOUT ENVIRONMENT**

Creating awareness to business people about environment is another benefit of Green Banking. Many NGOs and environmentalists are propagating environment consciousness among the public in general by arranging awareness programs and organizing seminars etc. Banks may associate themselves by sponsoring such programs. Besides, many corporate bodies are organizing similar program in their own line of business such as “free pollution check program” organized by a car manufacturer. Banks may tie with such corporate. These will help to brighten the image of bank.

**C. SANCTIONING LOANS AT COMPARATIVELY LESSER RATES**

Providing loans at concessional rates to environment friendly products and project such as fuel efficient vehicles, green building projects, housing and house furnishing loans to install solar energy system etc. has been given top most priority as far as benefits of green banking are concerned.

**D. ENVIRONMENTAL STANDARDS FOR LENDING**

Banks follow environmental standards for lending, is really a good idea and it will make business owners to change their business to environmental friendly which is good for future generation. However, setting environmental standards for lending can also be a good idea for green banking. Sustainable development

**3. ROLE OF GREEN BANKING IN SUSTAINABLE DEVELOPMENT**

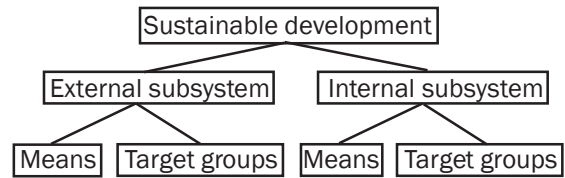


Fig No 1

Green banking can also help in attaining sustainable development by creating awareness and by imparting education. Awareness can be through communication. The first step would be defining target groups and means of communication. We can divide the whole system into subsystems that is internal and external subsystems. For internal subsystems, means which can be followed to create awareness on the issue can be weekly green news on internet, clearing programmes, high level meetings, bank’s news letter, publication etc. and the target groups are managers and other personnel. As far as external subsystems are concerned, effective means which can be followed are websites, capacity building, road shows, events, meetings, bench marking, media etc. whereas clients, subsidiaries and general public are target groups.

The sustainable development can best be achieved by allowing markets to work within an appropriate framework of cost efficient regulations and economic instruments. One of the major economic agents influencing overall industrial activity and economic growth is the financial institutions such as banking sector. The banking sector influences the economic growth and development in terms of both quality and quantity, there by changing the nature of economic growth. Banking sector is one of the major sources of financing investment for commercial projects that is one of the most important economic activities for economic growth. Therefore, banking sector can play a crucial role in promoting environmentally sustainable and Socially Responsible Investment (SRI). Banks may not be the polluters themselves but they will probably



have a banking relationship with some companies/investment projects that are polluters or could be in future. Green finance as a part of green banking makes great contribution for the transition to resource efficient and low carbon industries i.e. green industry and green economy in general. It is estimated that every ton of paper saves 17 trees.

### 3.1 IMPORTANCE AND RELEVANCE OF GREEN BANKING

Banks like any other business directly interact with the environment as consumers of natural resources. During their day to day business banks heavily contributes towards the carbon emission in terms of paper use, electricity, stationery, lighting, air conditioning, electronic equipment etc. even though this is moderate compared to other carbon sensitive industries like steel, oil and gas etc. In the case of banks, the direct interface with the environment has considerably increased due to rapid growth of the banking industry. Banks affect the environment indirectly by financing intermediaries that have an external impact on the environment. They are the major source of long term funding to various industries such as cement, fertilizers, nuclear power, steel, oil and gas, paper etc. which pollute the environment heavily. India has still a long way to go. Recently, as a part of the 'Green Initiative', the Centre has suggested the NBFCs to take proactive steps promoting day to day use of electronic payment systems, elimination of post-dated cheques and gradual phase-out of cheques in their business transactions. Similarly, the ministry of finance has directed all public sector banks, financial institutions and public sector insurance companies to take up e-governance.

State Bank of India has a green channel counter and the bank encourages paperless banking. There is no use of pay slips, withdrawal forms, cheque leaves, remittance forms and the transactions are done through SBI ATM cum debit card. They have also won the 'best customer initiative' award for the green channel counter at the IBA Banking Technology Awards.

The initiatives of State Bank of Mysore includes use of energy efficient photocopier, energy efficient computers and CFL bulbs; need based printing to save paper, auto cut off for air conditioners, ban on plastic bags in the office building, curbed usage of lights during the day, eco-friendly corporate gifting policy, rainwater harvesting system, solar power generation systems, solar powered ATM's, support for social forestry programmes, waste reduction and recycling, etc.

In Canara Bank, officials see green banking only as a form of paperless banking. "Foreign banks are implementing this form of banking only because they have the cream of employees, whereas in India, nobody is serious about it", said an official. They thought that it will be enforced when RBI insists on it. Canara Bank has initiated of paperless banking and also is the highest financer for solar energy related projects. The bank is also known to be conducting carbon financing in Delhi and Mumbai. The Indian banks are still taking basic steps into a much evolved form of banking. In order to contribute better towards sustainable banking, financial institutions and the government will have to make drastic changes in their policies. Educating the masses about this form of banking will be a good way to start. Being a major source of fund provider, banks can play a crucial role in ensuring environmentally sustainable and socially responsible investments in the economy. Banks should try and reduce the increase in carbon footprint caused by them either directly or indirectly and should play a vital role in ensuring sustainable and environment friendly development.

### 3.2. THE OPPORTUNITIES

The Green banking on one hand provides challenges to the banks and on the other hand it provides many opportunities as well. It is strongly believed that within the foreseeable future carbon will have a price tag attached to it. It gives banks a role to play in transition to a low carbon economy. Banks may formulate innovative financial solutions and re design the existing ones so as to



incorporate environmental perspectives. Some areas of development could be: -Green financial products - Loans with financial concessions to companies which undertake environmental friendly projects such as manufacturers of fuel efficient automobiles, solar and wind equipment etc. Banks can also introduce a 'Green Fund' to provide climate conscious customers an option of investing in environmental friendly projects. Besides introducing specific green banking products, banks can incorporate an Environmental Impact Assessment (EIA) in their project appraisal while financing any project to measure the nature and magnitude of environmental impact as well as suggest environmental risk mitigation measures.

**Carbon Credit Business:** Indian banks can involve themselves in carbon credit business, wherein they can provide all the services in the area of Clean Development Mechanisms (CDMs) and carbon credits including services of identification and funding of CDM projects, advisory services for registration of CDM projects and commercialization of CERs under different structures to meet the requirements of its customers, acting as an intermediary for buying Certified Emission Reductions CERs on behalf of end-users or carbon funds, financing against CERs and CERs receivables, and other related banking services. As India has huge potential for carbon credit business, Indian banks can set up dedicated carbon credit cells to capture a major share of this carbon credit business.

### 3.3. FUTURE OF GREEN BANKING

In future the Green banking will become the order of the day. And we expect a lot of associated green products, green services and green regulations would come into picture. Recognize and reward the environment conscious financial institutions. The Reserve Bank of India or regulatory authority will recognize and reward the environment conscious providers of green loans on an annual basis. By doing this environmentally irresponsible firms may run the risk of hurting their bottom-line as well as their image in the market. GRISIL - Green Rating and Information Services of India Ltd -

Green rating agencies will be set up to provide green analysis of lenders and users of green loans via different ratings. Eco friendly Investment funds - Green mutual funds will be in markets and climate conscious customers can invest in environment friendly projects. Moreover investment in these would attract tax concessions as well. Green insurance - The IRDA shall come up with green insurance in which cover is provided for different kinds of environmental risks.

### 4. CONCLUSION

Financial institutions and banks in particular have an important role to play in this context by contributing to the creation of a strong and successful low carbon economy. They should expand the use of environmental information in the credit extension and investment decisions. The endeavor will help them proactively improve their environmental performance and creating long term value for their business. In future, business with a higher carbon footprint would be seen as a riskier business and banks may keep themselves away from financing such business and would look for financing new technology solutions that capture or reduce carbon emissions.

In a rapidly changing market economy where globalization of markets has intensified the competition, industries and firms are vulnerable to stringent public policies, severe law suits or consumer boycotts. This would affect the banks and financial institutions to recover their return from investment. Thus, the banks should play a pro-active role to take environmental and Ecological aspects as part of their lending principle which would force industries to go for mandated investment for environmental management, use of appropriate technologies and management systems.

Green Banking if implemented sincerely will act as an effective deterrent for the polluting industries that give a pass to other institutional regulatory mechanisms. The Green Banking is thus the order of the day and it will definitely benefit the banks, the industries and the environment as a whole.

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## 9

## A Case Study on Tender Coconut Vendor in Bangalore with Reference to Green Entrepreneurship

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### PRELUDE

Street vendors are people who sell goods or services in public space. This includes the full gamut of goods and services, traded on a whole sale or retail bases in streets and other public spaces including sidewalks, alleyways and medians. Street vendors may have fixed stalls such as kiosks, semi-fixed stalls like folding tables; mobile vendors walk or bicycle through the streets as they sell.

Street vendors are part of urban economies around the world. These street vendors are the distributors of affordable goods and services; they provide a class of consumers with convenient and accessible retail options and become a vital part of the social and economic life of country. Street selling as an occupation has been part of our society for hundreds of years and is considered as a historical and cultural heritage in some places.

The streets of every city in the country are not only home to tens of thousands of working poor and destitute men and women, they are also vibrant hubs of livelihood for impoverished people; and reliable sites for cheap and affordable retail. On city pavements, women and men energetically hawk an extraordinary variety of goods, including cooked food, fruit and vegetables, clothing, toys, books, household utilities and decorations.

### INTRODUCTION

An estimated ten million people live in India by street vending. To impoverished migrants, as also

laid-off workers, street vending affords low-end but steady employment. It is the only sale outlet available to many small producers of garments or cottage products. It allows working people and even middle class consumers to purchase their needs at convenient sites and cheaper prices than in any store. Street markets are in many ways invaluable spokes in the wheels of urban economy. They also enrich the distinct cultural life of every city.

Street vendors, however, typically lead a very hard life. A survey conducted by Sharit Bhowmik with the National Alliance of Street Vendors of India in seven cities, found their working conditions abysmal; their average working day stretches ten to 12 hours. There is no protection from the rigours of climate, any health services or social security. Their earnings typically fall well below statutory minimum wages; these ranged in 2002 from Rs 50 to Rs 100 for men and Rs 35 to Rs 40 for women. Credit for working capital is available only from private moneylenders, who charge exorbitant interest.

But the greatest stress and insecurity of this vocation is created by a hostile state. Street vendors are condemned to fight daily undeclared battles against the police and municipal authorities. The seven-city study confirmed that in all the cities street vendors are forced to pay daily and weekly bribes to police and municipal authorities, as well as huge fines, but even this does not free them from the perennial dread of sudden, violent eviction. The study estimates that

at least 20 per cent of their income is lost to rent-seeking by public officials. "Bribery is the only way most street vendors can survive in their trade".

Official extortion and insecurity arise from an oppressive and opaque license regime, which effectively illegalises almost the entire profession of street vending. An arbitrary, ridiculously low ceiling is placed on the number of licenses in a city, and this is only a small fraction of the actual numbers who vend in the city. In Mumbai, for instance, an estimated 2 lakh hawkers operate, but the municipal corporation arbitrarily fixed a ceiling of only 14,000 licenses, and even these were not issued for many years. Therefore most vendors were illegal and there is huge rent-seeking in the grant of licenses. The situation was worse in Kolkata, in which all street vending was barred by law, and hawking was a cognisable and non-bailable offence.

Since the 1990s, the declared official policy was to free private business enterprise from the stranglehold of the license permit raj. Government efforts focused on deregulating and easing norms for setting up businesses in the organised sector, and in licensing, taxation, regulation and credit. Recently, norms have been eased for foreign direct investment in large multi-brand retail stores. Land acquisition laws are being amended, with a declared objective of facilitating access of private industry to land.

However, no such efforts have been made for easing up the livelihoods of poor producers and service-providers, such as street vendors and rickshaw pullers, which remain choked in unjust licensing systems. Far from being eased, these have only become more stringent and unforgiving in recent decades.

In India, street vendors represent approximately 3 percent of total non-agricultural employment. According to official statistics this translates to more than 3.1 million street traders countrywide (Unni 2011). Unofficial estimates suggest the numbers could be closer to 10 million.

Millions of street vendors in India are treated as a nuisance and affected by middlemen and are doing business without any rights. Yet this people provide invaluable services in cities inspite of earning less income. Their standard of living is very low and they even suffer from less market knowledge.

### **THE MAIN CAUSES FOR THE GROWTH OF STREET VENDING**

Firstly, lack of gainful employment coupled with poverty in rural areas has pushed people out of their villages in search of a better existence in the cities. These migrants do not possess the skills or the education to enable them to act better paid, secure employment in the formal sector and they have to settle for work in the informal sector.

### **A CASE STUDY ON RAMMANAA TENDER COCONUT VENDOR**

Ramanna is a Tender Coconut Vendor in Bangalore North region. Originally he hails from one of the remote village from Mysore where he used to do farming in other's land on contract basis, as the income was not sufficient he came to Bangalore and started vending. On the advice of some of his villagers that it is better for him, he decided that he will be moving to bangalore, he came to Bangalore 2 years back. Deciding to take up vending he bought a cart for Rs 3500/-. Presently, he stays with his family in a rented house paying Rs.1000/- monthlyrent excluding electricity charges. Though drinking water is available at his house he has to use a common toilet shared by four other households.

He buys Tender Coconuts for an agent who is associated with Tender Coconut Union who inturn get the coconuts from market located in Mandya. He starts vending at around 8'o clock in the morning and continue till 7'o clock in the night. He takes rest during lunch break for 30 minutes. Though he is capable to do additional business depending on season but due to capital problem he is unable to do that. He is an illiterate and has problem in managing money as he is 32 year old now and depends on 'credit on interest' from local

loan providers for tender coconut purchases. He generates an income ranging from Rs.200/- to Rs. 250/-per day through vending and sends a part of this amount to his village monthly. He visits his village annually for a month. During such visits he locks his cart in a nearby house. Very often, he is harassed by authorities and he has to pacify them by giving bribe.

#### **PROBLEMS FACED BY TENDER COCONUT VENDORS WITH REFERENCE TO RAMANNA**

**Lack of proper supply:** Supply depends on the middlemen; street vendors like Ramanna should depend completely on those people who are connected to the small Unions.

**Influence of middlemen:** Middlemen play a vital role in connecting tender coconut producers and vendors. Many times the vendors should depend on middlemen for the supplies as there is no regulated market.

**Influence of Union Leaders:** The Union Leader will take decision on the selling cost and there are some advantages by union for the vendors. If there is any wastage due to less demand, unions will become a helping hand. But disadvantages are more as it makes Tender Coconut vendors to be more dependent on these Unions for supplies and even sometimes for microloans for more interest.

**Lack of proper place to sell:** Vendors normally are abused by public and authorities as they don't get right place to sell Tender coconut. As these vendors sell on pavements, on roadsides complaints and ill-treatment by authorities are more.

#### **Lack of proper security and exposure to extreme heat and rain:**

Street vendors have poor social protection and their working conditions on the streets expose them to a variety of safety and health issues. The SNTD – ILO study on Mumbai found that around 85 per cent of the street vendors complained of stress related diseases – migraine, hyper acidity, hyper tension and high blood pressure. In general, there are more men vendors than women vendors in India. Women vendors earn less, on average,

than men vendors: their earnings range from 40 to 60 rupees per day. The lack of toilets has an adverse effect on women's health. Many suffer from urinary tract infections and kidney ailments. The mobile women street vendors also face security issues.

Vendors are often regarded as public nuisance. They are accused of depriving pedestrians of their space, causing traffic jams and having links with anti-social activities. The municipal authorities and housing societies, aided by the media, have targeted vendors at frequent intervals. "The lack of recognition of the role of street vendors culminates in a multitude of problems faced by them: obtaining license, insecurity of earnings, insecurity of place of hawking, gratifying officers and musclemen, constant eviction threat, fines and harassment by traffic policemen."

#### **Less Income:**

The average earnings of street vendors are low - ranging between 150 and 250 rupees per day. They work under grueling conditions for long hours and are frequently harassed by the municipal authorities and the police. A large part of the vendors' income goes in bribes and 'protection money'. Street vendors pay between 10 to 20% of their earnings as rent.

#### **Wastage Problem:**

Waste Management has been a problem for the street vendors from ages. As these men have less knowledge on the reuse of the Coconut Shells. Proper training should be provided for them so that their awareness increases with respect to making income even with wastages also.

#### **Lack of technology in chopping or drilling coconut:**

Tender coconut vendors have been practicing manual process to drill hole in Tender Coconuts, hence forth there is a need to improvise the process they have been using. Customized machine can help them in drilling hole in Tender coconuts which will reduce wastages and manual fatigue.

**PROPOSED GREEN ENTREPRENEURSHIP SOLUTION:**

Serving Tender Coconut in Reusable Bamboo Glasses: Placing Coconut Vending Machines in Institutions, Malls and Companies as an alternative to Coffee/Tea vending machines would be a better move. Vendors can use Vending Machine and install it in office premises and earn better income and also provide health drink for people within their reach. Coconut shells can be sold to handicraft industries by pooling empty shells from other tender coconut vendors as an extra income.

**Making homemade Coconut Vinegar: Vinegar is a natural food ingredient** for many food preparations for enhancing their tastes and quality. Besides, it is also used in canned and packed food products like pickle, meat products etc. The vinegar available at present is mainly synthetic origin. So by using technology from Coconut Board, Mysore one can think of preparing homemade Coconut Vinegar.

**Making Coconut Barfi, Yoghurt, Paneer, Coconut cookies etc using tender coconut enables Vendors to earn better income.** By this way a Tender coconut vendor can earn better income by selecting new market and with the help of MSME, this business can be enhanced further through funds and technology. Starting a Business of serving Natural drinks like tender Coconut, Sugarcane juice etc in a reusable bamboo glasses to the employees of Companies in Bangalore as an alternative to soft drinks, tea, coffee etc under the guidance and support of a specialized Non-Government Organization that can support these people with technical and marketing support.

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10

## Making Ecopreneurs: Developing Sustainable Entrepreneurship

- By Michael Schaper

Year of Publication – Jan 2005  
No of Pages - 255  
- An Ash Gate Publication



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### INTRODUCTION

Far away is Austrian Alps; organic farmer Sepp Holze uses strategies of avoiding industrial farming, which he claims to be hugely destructive in the developing countries. Creating chronic dependency Holzer grows exotic plants and lemons the natural way. He gives tours in April through October at 130 Euros a ticket.

Green start ups make it easier to 'Fix' environmental components and processes from the outset. They are models that can help show the way to increase productivity while reducing resource use in a manner that is harmonious with human health and sustainability of non-human species as well.

### EVALUATION

This book is a result of dedicated contribution made by many authors, compiled by Michael Schaper, Professor, Massey University. The book highlights on understanding the importance of sustainable Green business practices and provides readers with a better understanding of the entrepreneurial perspective in the sustainability debate.

Many live cases and examples of practicing entrepreneurs and business are the major highlight of this book, which provides the interested reader with a snapshot of the current level of understanding of 'Ecopreneurship'. It seeks to analyze and explain the behavior of Ecopreneur in holistic view to pass on lessons and advise that they can give other prospective

business ventures, and assess the macro-level frameworks that can help or hinder Green entrepreneurship.

Part one of the book examines the framework of 'Ecopreneurs' and typical features of entrepreneurs. This section highlights a brief history of research work in the field of entrepreneurship. The author suggests models that can be used to help define categories and explain the notion of 'Ecopreneurship' in a generic sense. In part two, the factors motivating and inhibiting environmental entrepreneurship is discussed at length. It also examines some pre-conditions needed to foster ecopreneurship in developing countries. Regulators and policy makers will be guided towards promoting Greener and more entrepreneurial firms in different countries and regions. Finally part three of the book concludes with relevant case studies that highlights environmental enterprises in action. Leigh Holland, explains the creation of a micro business venture in UK. Thierry Volery's tale of 'Earth Sanctuaries' shows how a larger green ventures can be created and listed on stock exchange. Gabrielle-Kruks-Wisner, discusses Ecopreneurs in the non-profit sector where social entrepreneurs can establish and grow sustainable conservation projects that delivers environmental, social and financial returns for local communities.

This book edited by Michael Schaper "Making Ecopreneurs: Developing Sustainable Entrepreneurship" portrays 'ecopreneurship' as an exciting area to get anchored. At its best,

entrepreneurship is about harnessing the enthusiasm, initiative and creative energy of individuals. When this dynamics is applied to developing business models, it helps in retaining, promoting natural habitat and avoiding harmful impact on environment. Such sustainable pathways will always be cherished and looked up to.

### CONCLUSION

“Making Ecopreneurs: Developing sustainable entrepreneurship” talks not only what it says on the cover, but also does more on highlighting how Ecopreneurs can boost the economical sustainability for the country. It is a highly specialized and a serious book for youngsters who want to become future entrepreneurs, researchers in the field of sustainable business development, academicians, policy makers within government and NGO sector. The book, highlights in my opinion technical and critical ecological concern for today’s entrepreneurs to sustain future development of the country in particular and world in general.

## Call for Papers

**AMBER – ABBS Management Business and Entrepreneurship Review** is a referred journal of Acharya Bangalore B School (ABBS), Bengaluru, India (ISSN: 0976-3341).

**The Theme of the forthcoming issue is “Cross Cultural Management in Global Business”**

We invite research papers, book reviews and case studies on the said theme. The journal is seeking submissions from academicians, practitioners and scholars. Submissions, if found eligible, will be put through a blind review process to be carried out by external reviewers. In order to inculcate the spirit of research amongst students, a section has been reserved for student contributions too.

### GUIDELINES FOR SUBMISSION

1. Your submission must be in MS Word 2003 format.
2. Name of the author, designation and affiliation, and contact e-mail must be placed on the first page.
3. The second page must contain the abstract and keywords. Ensure that the abstract is no more than 150 words. Abstract should be in fully justified; italicized text. The abstract should elaborate research background and methodology. Maximum 4-6 keywords, listed alphabetically, separated by commas, and full stop at the end.
4. The third page must contain the title and the body of the article must start here.
5. The body of the article must be center-justified and the entire article must be of font size 10 in Times New Roman font except for headings. The title must be boldfaced with 14 font size, in Title Case. Each of the subheadings must be of font size 12, boldfaced, and in Title case. Section headings of the subheadings can be of font size 10 and boldfaced in Title case.
6. The spacing between lines must be 1.5, and a spacing of 10 points between paragraphs must be given. There must be no tab for the first sentence of every paragraph.
7. All tables must be numbered and must be placed inside the body of text where relevant. The table headings must be placed above the table and be of font size 10 and boldfaced in Title case and centered: **Table 1: Export of Technology Products**. The source of the table data must be given at the bottom of the table in the same font and size as that of the body of the text.
8. All figures must be numbered and must be placed inside the body of text where relevant. The figure headings must be placed above the figure and be of font size 10 and boldfaced in Title case and centered: **Figure 1: Phases of growth of exports**. The source of the table data must be given at the bottom of the table in the same font and size as that of the body of the text.
9. Notes must be placed on the same page that the text to which it corresponds in the form of footnotes.
10. Annexure must be numbered and must follow immediately after the body of the text.
11. The body of text must contain references as follows: (Goel, 2009) or (WTO, 2009) i.e. last name/surname of the author and year
12. All references have to be arranged in alphabetical order and must be numbered except those of Internet sources. The Internet sources must be placed after other references and must be separately numbered.

13. The references must be presented as follows:

**For books, reports, manuscripts, and unpublished volumes:**

Toffler, A. (1980), *the Third Wave: The Classic Study of Tomorrow*, Bantam Books, New York, pp. 195-207.

**For journals and other periodicals:**

Venkatesha, H. R. (2008), “ Dealers’ Performance and Customers’ Preference in Passenger Car Marketing”, *Vilakshan*, Vol. 5, No. 6, pp. 222-235.

For Internet sources, web site addresses must be alphabetically arranged and numbered at the end of the reference section.

14. Authors have to submit two hard copies and one soft copy.

15. Two hard copies have to be posted to:

The Editor,  
**AMBER,**  
**Acharya Bangalore B School**  
Andrahalli Main Road, Off Magadi Road,  
Bengaluru 560 091.

**Soft copy of the paper must be e-mailed to  
editoramber@acharyabbs.ac.in**