CHAPTER 2

LITERATURE REVIEW

2.1 Overview

This literature review focuses on a presentation of the guiding theoretical framework presented by the Theory of Reasoned Action (TRA) and the consumer literature that examines the relevant components of TRA within the context of general consumer behavior and environmental consumer behavior. I conducted a search for articles published in the years 1929-2012 in peer-reviewed journals and indexed in the following databases: Cambridge Journals Online, EBSCO E-Book Collection (Net Library), EBSCO Host database, Education Research Complete, Emerald Management e-journals, Ingenta Connect, JSTOR, Mendeley Database, Metapress, Online library, Sage Journals online, Science Direct, Taylor and Francis Journals, Taylor and Francis Online, and Willey e-journals. Keywords included Theory of Reasoned Action, Theory of Planned Behavior, Consumer Behavior, Green Supply Chain, Decorative Paints, and Environment friendly paints. The studies were critiqued according to the researchers' adherence to accepted criteria for quantitative and qualitative research designs. The results of this critique are organized into the following sections:

2.2 Green Supply Chain and its practices,
2.3 Paint Industry and emergence of Eco Paints, Consumers' environmental awareness,
2.4 Consumer behavior and acceptance of environmental responsiveness, and
2.5 Theories and Evidences

2.2 Green Supply Chain and its practices

Sustainable development has made remarkable progress in establishing environmental and social sustainability towards operations management and the supply chain. The purpose of this portion of a chapter is to briefly review the literature of the green supply chain management (GSCM) over the last twenty years.

2.2.1 Supply Chain

The term 'supply chain' was coined in the mid 70's. Banbury (1975)[51] used 'supply chain' as a term of passing on electricity towards the ultimate consumer. It was not until the 1980's, however, that the term 'supply chain management' came into context. Oliver and Webber (1982)[52] discussed the potential benefits of integrating internal business functions of purchasing, manufacturing, sales and distribution into one cohesive framework. Stevens (1989)[53] has defined supply chain management as the integration of business functions involving the flow of materials and information from inbound to outbound ends of the business. Dyadic or party relationships between suppliers are becoming part of the supply chain process (Harland, 1996)[54]. Here we see the formulation of a supply chain framework in terms of establishing contracts between firms. Organisations have been given the opportunity to either vertically integrate or market their products in connection with other partners (Stevens, 1989).

In the early 1990's, supply chain management evolved dramatically with the increasing importance of the relationship with other suppliers (Harland, 1996; Fortes J., 2009[55]). Slack (1991)[56] and Christopher (1992)[57] explain that the reason for this was the emergence of a globalised marketplace. Wood (1997)[58] argues that firms need to become more integrative amongst other firms to reduce the vulnerability of the supply chain. According to Jamal Fortes (2009), there are

[51]Banbury, J. G. (1975). Distribution – the final link in the electricity–supply chain. Electrics and Power Journal of the Institution of Electrical Engineers, 21(13), 773-775.
[52]Oliver, R. K., & Webber, M. D. (1982). Supply chain management: Logistics catches up with strategy. In M. Christopher (Ed.), Logistics: The strategic issues. London: Chapman and Hall.
[53] Stevens, G. C. (1989). Integrating the supply chain. International Journal of Physical Distribution and Materials Management, 19(8), 3-8.
[54]Harland, C. M. (1996). Supply chain management: Relationships, chains and networks. British Journal of Management, 7, S63-S80.
[55]Fortes, J. (2009), Green Supply Chain Management: A Literature Review. Otago Management Graduate review
[56]Slack, N. (1991).The manufacturing advantage. London: Mercury Business Books.
[57] Christopher, M. G. (1992). Logistics and supply chain management. London: Pitman Publishing.
[58] Wood, A. (1997). Extending the supply chain: Strengthening links with IT.Chemical Week, 159(25), 26.

various case studies where firms are becoming more integrative to their supply chain partners. Lamming (1993)[59] and Womack, Jones and Roos (1990)[60] mention the Japanese automotive industry and the Italian craft-based industry as basic examples. Lean and Just-In-Time (JIT) Management have added factors that helped enhanced the operational processes of the supply chain (Wood, 1997; Power, 2005[61]). The requirement for organisations to become actively responsive to the needs of customers has increasingly been important (Christopher, 2000)[62]. Power (2005) observes that speed (delivering customer demand quickly), agility (responsiveness to customer demand) and leanness (doing more with less) are the contributing factors that would make firms more competitive.

2.2.2 Green Supply Chain Management

Green supply chain management (GSCM) is an emerging field that strands out of the traditional supply chain perspective. The "quality revolution in the late 1980's and the supply chain revolution in the early 1990's" have sparked businesses to become environmentally conscious (Srivastava, 2007, p. 53)[63]. GSCM has gained popularity with both academics and practitioners to aim in reducing waste and preserving the quality of product-life and the natural resources. Producing environmentally sound products (ESP) and servicing them to the final customers demand effective coordination throughout the supply chain (Hong, P., Known, H-B., Roh, J. J., 2009[64]). Eco-efficiency and remanufacturing processes are now important assets to achieve best practice (Ashley, 1993[65]; Srivastava, 2007). Global market demands and governmental pressures are pushing businesses to become more sustainable (Guide &Srivastava, 1998[66]; Gungor & Gupta, 1999[67]). Global and domestic pressures on environmental, economic and safety considerations

[59]Lamming, R. (1989).The causes and effects of structural change in the European automotive components industry. Working Paper of the International Motor Vehicle Program. MIT, Cambridge, MA, USA
[60]Womack, J. P., Jones, D. T., &Roos, D. (1990).The machine that changed the world. New York: Macmillan International.
[61]Power, D. (2005). Supply chain management integration and implementation: A literature review. Supply Chain Management: An International Journal, 10(4), 252-263.
[62]Christopher, M. (2000).The agile supply chain – competing in volatile markets. Industrial Marketing Management, 29(1), 37-44.
[63]Srivastava, S. (2007). Green supply-chain management: A state-of-the-art literature review. International Journal of Management Reviews, 9(1), 53-80.
[64] Hong, P., Kwon, H.B., Roh, J.J., (2009), 'Implementation of strategic green orientation in supply chain. An empirical study of manufacturing firms', European Journal of Innovation Management, Vol. 12, No. 4, pp. 512-532.
[65] Ashley, S. (1993). Designing for the environment. Mechanical Engineering, 115(3)
[66]Guide, V. D. R., &Srivastava, R. (1998). Inventory buffers in recoverable manufacturing. Journal of Operations Management, 16, 551-568.
[67]Gungor, A., & Gupta, S. M. (1999). Issues in environmentally conscious manufacturing and product recovery: A survey. Computers & Industrial Engineering, 36, 811-853.

(Xie, 2009[68]) drive us to manage supply chains' greening, i.e., improve the supply chains' economic and environmental performance by recycling the unused/unwanted medications and reducing medications that need disposal.

Walton, Handfield and Melynyk (1998, p. 2)[69] even claim that "increasing government regulation and stronger public mandates for environmental accountability have brought these issues into the executive suites, and onto strategic planning agendas." Realizing the significance of the GSCM implemented by the organisations, Sarkis (2003)[70] developed a strategic decision framework that aids managerial decision making in selecting GSCM alternatives, and product life cycle, operational life cycle (including procurement, production, distribution and reverse logistics (RL)), organisational performance measurements and environmentally conscious business practices serve as the foundations for the decision framework (Xie, Y., Breen, L., 2010)[71].

The new logic on competition is based on supply chains (Scavarda & Hamacher, 2003)[72], and new trends in the market can help to implement green supply chains. There is also the *governance* issue on the supply chain that could facilitate enhancing environmental performance through a supply chain. In 1994, the Confederation of British Industries (CBI[73]) identified the factors driving the competitive advantage through environmental performance as market expectations, risk management, regulatory compliance and business efficiency. Green supply chain management (GSCM) has a key role in ensuring that all of these factors are addressed (Hutchison, 1998)[74]. Environment is affected at every stage of the product's life cycle. Therefore, GSCM has emerged as an important new archetype for enterprises to achieve profit and market share objectives by lowering their environmental risks and impacts and while raising their ecological efficiency (van Hoek and Erasmus, 2000)[75]. "Academic and corporate interest in sustainable supply chain

[68]Xie Y. (2009), "Greening pharmaceutical supply chain in China", In proceedings of the 20th International Conference on Production Research, 2nd-6th August, Shanghai, P.R.China, pp137

[69] Walton, S., Handfield, R., &Melynk, S. (1998). The green supply chain: Integrating suppliers into environmental management processes. International Journal of Purchasing and Materials Management, 34(2), 2-11.

[70] Sarkis, J. (2003), "A strategic decision making framework for green supply chain management", Journal of Cleaner Production, Vol. 11 No. 4, pp. 397-409.

[71]Xie, Y., Breen, L., (2010),"Green Community Pharmaceutical Supply Chain in UK: Reducing and Recycling Pharmaceutical Waste", POMS, 21st Annual Conference Vancouver, Canada.

[72]Scavarda, L. F., Hamacher, S. (2003). "Trends in the automotive industry's Supply chain management", ABPERO, Brazil, pp.51-60.

[73] CBI Survey, (1994), Realistic returns: how do manufacturers assess new investment? Confederation of British Industries.

[74] Hutchison, J. (1998), "Integrating environmental criteria into purchasing decision: value added?",inRussel, T. (Ed.), Green Purchasing: Opportunities and Innovations, Greenleaf Publishing, Sheffield, pp. 164-78.

[75] Van Hock, R. I. & Erasmus, (2000), "From reversed logistics to green supply chains", Logistics Solution, No. 2, pp. 28-33.

management has risen considerably in recent years" (Müller & Seurling, 2008: 1699)[76]. "Perusal of the literature shows that a broad frame of reference for green supply chain management is not adequately developed" (Srivastava 2007: 53)[77]. Therefore, "researchers continue to struggle with identifying a clear, unified framework for green supply chain practices" (Klassen & Vachon, 2006: 797)[78].

The lack of consensus in literature is demonstrated by the following five definitions of green supply chain management:

1. "Environmental supply chain management consists of the purchasing function's involvement in activities that include reduction, recycling, reuse and the substitution of materials" (Carter & Narasimhan, 1998: 6)[79].
2. "Greening" (referring to GSCM) "will comprise all links from the manufacturer of raw materials to the end user and include products, processes, packaging, transport and disposal" (Skjoett-Larsen, 2000)[80].
3. "Environmental Supply Chain Management (ESCM) for an individual firm is the set of supply chain management policies held, actions taken, and relationships formed in response to concerns related to the natural environment with regard to the design, acquisition, production, distribution, use, reuse, and disposal of the firm's goods and services" (Siferd & Zsidisin, 2001: 69)[81].
4. "Integrating environmental thinking into supply-chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life" (Srivastava, 2007: 54-55).

[76]Müller, M. &Seurling, S. (2008) From a Literature Review to a Conceptual Framework for Sustainable Supply Chain Management.Journal of Cleaner Production. Vol. 16, no. 15, pp. 1699-1710.
[77] Srivastava, S. (2007). Green supply-chain management: A state-of-the-art literature review. International Journal of Management Reviews, 9(1), 53-80.
[78]Klassen, R. D. &Vachon, S. (2006) Extending Green Practices Across the Supply Chain. The Impact of Upstream and Downstream Integration.International Journal of Operations & Production Management. Vol. 26, no. 7, pp. 795–821.
[79]Carter, J. R. &Narasimhan, R. (1998) Environmental Supply Chain Management.The Center for Advanced Purchasing Studies, Arizona State University, USA.
[80]Skjoett-larsen, T. (2000) European Logistics Beyond 2000.International Journal of Physical Distribution & Logistics Management. Vol. 30, no. 5, pp. 337-387.
[81]Siferd, S. P. &Zsidisin, G. A. (2001) Environmental Purchasing: A Framework for Theory Development.European Journal of Purchasing & Supply Management.Vol. 7, no. 1, pp. 61-73.

5. "The management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements" (Müller & Seurling, 2008: 1700).

"This lack of consensus in practice and definition of GSCM is not surprising, since it lies at the confluence of elements of corporate environmental management and supply chain management which are both relatively new areas of study and practice" (Sarkis & Zhu,2004: 267)[82].

India is one of the fastest growing countries where the subjects related to GSCM have become even more serious (Rao, P. (2002))[83]. Recent studies have shown that a majority of world's manufacturing will be carried out in Asia in the next couple of decades (US-AEP, 1999)[84]. As a major manufacturing country, India has many opportunities, but they also face substantial environmental burdens with this opportunity (Rao, 2002). Moreover, developing countries such as India, China etc. are becoming increasingly industrialized. As part of supply chains, India has been used as a point of disposal of end-of-life products for multinational organizations and developed countries. For example, the end-of-life products have been shipped to developing countries, such as India, where these developing countries do not have the infrastructure or tools available to care for the end-of-life products (Puckett and Smith, 2002)[85], causing greater environmental burden on these nations.

The appropriate development of GSCM concepts and practices may indeed aid these countries by lessening the environmental burden of both manufacture and disposal of products, while even potentially improving their economic positioning(Zhu Q., Sarkis J., Geng Y., 2005)[86].With the relative scarcity of resources and the potential pressure of "green barriers" to trade, both the Indian government and enterprises have had increased reasons to initiate corporate and industrial

[82]Sarkis, J. & Zhu, Q. (2004) Relationship Between Operational Practices and Performance Among Early Adopters of Green Supply Chain Management Practices in Chinese Manufacturing Enterprises. Journal of Operations Management. Vol. 22, no 3, pp. 265-289.
[83]Rao, P. (2002). Greening the supply chain: A new initiative in South East Asia. International Journal of Operations & Production Management, 22(6), 632-655.
[84] US-AEP (1999), Supply Chain Environmental Management-Lessons for Leader in the Electronic Industry, Clean Technology Environmental Management (CTEM) Program, US-Asia Environmental Partnership, Bangkok.
[85] Puckett, J. and Smith, (2002), Exporting harm, Thebasel action network and silicon valley Toxics coalition.
[86] Zhu, O., Sarkis, J. and Geng, Y. (2005), ''Green supply chain management in china: pressures, practices and performance'', International Journal of Operations & Production Management, Vol. 25 No. 5, pp. 449-68.

environmental management measures. Some of the measures which are being promoted are environmental impact assessment, ISO 14001certification and recently GSCM (Delmas, M. & Montiel, I. 2009)[87].

With the advancement of environmental technologies and in combination with harder regulations, many companies began to make corporate commitment to sustainable innovation. Environmental awareness across the globe has increased rapidly in recent years in both developing and emerging nations (Pankaew P., Tobé M., 2010).

2.2.3 Green Supply Chain Practices

The key themes that came out in the literature over the last twenty years are the concepts of: green design, green operations, reverse logistics, waste management and green manufacturing (Guide &Srivastava, 1998; Srivastava, 2007). The very first green supply chain came into context in 1989. Kelle and Silver's (1989)[88] article was the first of this literature that developed an optimal forecasting system for organisations to use to forecast products that can be potentially be reused. This forecasting system, however, was highly contentious because returning individual containers is not usually known with certainty, so therefore, their findings may somewhat be incoherent.

The first green design literature came into context in 1991. Navin- Chandra's (1991)[89] article was the first of the literature to consider the need for a green design to reduce the impact of product waste. Works of Ashley (1993); Allenby and Richards (1994)[90] and Zhang, Kuo, Lu and Huang (1997)[91] came into context and expanded the framework of green design. Life-cycle analysis was an example of a framework that came out of green design. Works of Arena, Mastellone and

[87]Delmas, M. &Montiel, I. 2009, "Greening the supply chain – when is consumer pressure effective", Journal of Economics and Management Startegy
[88]Kelle, P., E. A. Silver. 1989. Forecasting the Returns of Reusable Containers. Journal of Operations Management. 8 17-35.
[89]Navin-Chandra, D. (1991). Design for environmentability. Design Theory and Methodology, 31, 99-124.
[90]Allenby, S., Richards, D. (1994).The greening of industrial eco-systems. Washington: National Academic Press.
[91]Zhang, H. C., Kuo, T. C., Lu, H., & Huang, S. H. (1997). Environmentally conscious design and manufacturing: A state of the art survey. Journal of Manufacturing Systems, 16, 352-371.

Perugini (2003)[92], Beamon (1999)[93] and De Ron Penev (1995[94]) all discussed life-cycle analysis as a framework.

Green Operations in terms of reverse logistics was an important concept that came out of the GSCM literature. Apart from Kelle and Silver's (1989) article, works of Pohlen and Farris (1992)[95]; Stock (1998)[96] and Tibben and Limbke (2002)[97] all provided case studies on reverse logistics. The use of plastics and bottle recycling are mentioned in some of these articles. Carter and Ellram, (1998)[98]; Srivastava and Srivastava, (2005); Shih, (2001)[99]; Nagorney and Toyasaki, (2005)[100] and Min, Ko and Ko, (2006)[101] are all academic perspectives of reverse logistics.

Waste management is another topic that came out of the GSCM literature. This came into prominence with the work of Roy and Whelan (1992)[102]. This article created a standardised model for reducing electronic waste without harming the environment. After this article, different waste management issues came into context particularly around recycling and remanufacturing. Works like Owen (1993)[103], Hannah and Newman (1995)[104];Sarkis and Cordeiro (2001)[105] and Nagorney and Toyasaki (2005) are all examples of trends of waste management becoming an issue. Green Manufacturing, on the other hand, was not conceptualised until 1993 in the work of Crainic,

[92]Arena, U., Mastellone, M. L., &Perugini, F. (2003). The environmental performance of alternative solid waste management options: A life-cycle assessment study. Chemical Engineering Journal, 96, 207-222.
[93]Beamon, B. (1999). Designing the green supply chain. Logistics Information Management, 12(4), 332-342.
[94]De Ron, A., &Penev, K. (1995). Disassembly and recycling of electronic consumer products: An overview. Technovation, 15, 407-421.
[95]Pohlen, T. L., & Farris, M. T. (1992). Reverse logistics in plastic recycling. International Journal of Physical Distribution & Logistics Management, 22, 35-47.
[96]Stock, J. (1998).Development and implementation of reverse logistics programs. Oak Brook: Council of Logistics Management.
[97]Tibben-Lembke, Ronald S. and Dale S. Rogers. "Differences Between Forward and Reverse Logistics in a Retail Environment." Supply Chain Management: An International Journal, 7: 271-282. (2002).
[98]Carter, C. R., &Ellram, L. M. (1998). Reverse logistics: A review of the literature and framework for future investigation. Journal of Business Logistics, 19, 85-102.
[99] Shih, L. (2001). Reverse logistics system planning for recycling electrical appliances and computers in Taiwan. Resources, Conservation, and Recycling, 32, 55-72.
[100]Nagorney, A., &Toyasaki, F. (2005). Reverse supply chain management and electronic waste recycling: A multi-tiered network equilibrium framework for e-cycling. Transportation Research Part E: Logistics and Transportation Review, 41, 1-28.
[101] Min, H., Ko, H. J., &Ko, C. S. (2006). A genetic algorithm approach to developing the multi-echelon reverse logistics network for product returns. Omega, 34, 56-69.
[102]Roy, R., & Whelan, R. C. (1992).Successful recycling through value-chain collaboration. Long Range Planning, 25, 62-71.
[103] Owen, J.V. (1993). Environmentally conscious manufacturing.Manufacturing Engineering, 10, 44–55.
[104] Mark D. Hanna, W. Rocky Newman, (1995) "Operations and environment: an expanded focus for TQM", International Journal of Quality & Reliability Management, Vol. 12 Iss: 5, pp.38 - 53
[105]Sarkis, J., &Cordeiro, J. (2001).An empirical evaluation of environmental efficiencies and firm performance: Pollution prevention versus end-of-pipe practice. European Journal of Operational Research, 135, 102-113.

Gendreau and Dejax (1993)[106]. This article established a comprehensive green supply chain model in terms of transporting containers from land to sea and vice-versa. Ideas of green manufacturing were then developed further by Van Der Laan and Salomon (1997)[107]; Guide and Srivastava (1998) and White, Masanet, Rosen and Beckman (2003)[108].

There are other comprehensive reviews around GSCM, particularly in the late 1990's where issues such as green production and planning and manufacturing (Bras & McIntosh, 1999[109]; Sarkis & Cordeiro, 2001; Van der Laan, Salomon & Dekker, 1996[110]) and product recovery (Gungor& Gupta, 1999; Van Der Laan et al., 1996) are discussed. Barros, Dekker, and Scholten (1998)[111] discuss recycling in the supply chain and Darnall, Jolley, Jason and Harnfield (2008)[112] critique GSCM by saying that Environmental Management Systems (EMS) are making less progress in reducing environmental harms. Some studies, however, are of limited focus. Van Der Laan et al. (1996) only discussed product remanufacturing and disposal, and Zhang et al. (1997)[113] only discussed environmental technologies and design. Journals that are useful to GSCM are Organisations and the Natural Environment, Business Strategy and Environment and Journal of Operations Management. Some key authors of the field are Srivastava (2006[114]; 2007), Gupta (1999) and Guide (1998; 2003[115]). Some of the famous books of GSCM are from Allenby and Richard's (1994) 'The Greening of Industrial Ecosystem' and Preuss's (2005)[116] 'The Green

[106]Crainic, T. G., Gendreau, M., &Dejax, P. (1993).Dynamic and stochastic models for the allocation of empty containers. Operations Research, 41, 102-126.
[107] Van Der Laan, E. A., & Salomon, M. (1997). Production planning and inventory control with remanufacturing and disposal. European Journal of Operations Research, 102, 264-278.
[108] White CD, Masanet E, Rosen CM, Beckman S, "Product Recovery With Some Byte: An Overview of Management Challenges and Environmental Consequences in Reverse Manufacturing for the Computer Industry" Journal of Cleaner Production, 11 (4),445-458, 2003.
[109]Brass, B., & McIntosh, M. W. (1999). Product, process, and organizational design for remanufacture - an overview of research. Robotics and Computer-Integrated Manufacturing, 15, 167-178.
[110]Van Der Laan, E. A., Salomon, M., & Dekker, R. (1996). Product remanufacturing and disposal: A numerical comparison of alternative control strategies. International Journal of Production Economies, 45, 489-498.
[111]Barros, A. I., Dekker, R., &Scholten, V. (1998). A two-level network for recycling sand: A case study. European Journal of Operational Research, 110, 199-214.
[112]Darnall, N., Jolley, G. J., &Handfield, R. (2008). Environmental management systems & green supply chain management: Complements for sustainability? Business Strategy & Environment, 17(1), 30-45.
[113]Zhang, H. C., Kuo, T. C., Lu, H., & Huang, S. H. (1997). Environmentally conscious design and manufacturing: A state of the art survey. Journal of Manufacturing Systems, 16, 352-371.
[114]Srivastava, S. K., & Srivastava, R. K. (2006). Managing product returns for reverse logistics. International Journal of Physical Distribution and Logistics Management, 36, 524-546.
[115]Guide, V. D. R., Jayaraman, V., & Linton, J. D. (2003).Building contingency planning for close-loop supply chains with product recovery. Journal of Operations Management, 21, 259-279.
[116]Preuss, L. (2005). The green multiplier: A study of environmental protection and the supply chain. Houndmills: Palgrave Macmillan.

Multiplier: A Study of Environmental Protection and the Supply Chain' and Sarkis's (2006)[117] 'Greening the Supply Chain'.

As per Fortes J. (2009), there are different motivators for companies to switch to 'green' in their supply chain. Although some of the motivators are quite unclear, Wu and Dunn (1995)[118] suggests that some organisations are simply doing this because it is the right thing to do for the environment. Perhaps some are more radical to environmental change, but others may not. Studies, however, have shown that profitability and cost reduction are some of the main motivators for businesses to become 'green' in the supply chain (Srivastava & Srivastava, 2006). Johnson (1998)[119] argues that reverse logistics were motivated primarily by economic factors and not concerns about protecting the eco-system. Tibben- Lembke (2002) suggest that reverse logistics can only bring about profitability, reduction of waste and, advertising. Zhu and Sarkis (2004)[120] took this idea further and argued that most of the 186 participants in their study all agreed that GSCM practices are only about 'win-win relationships on environmental and economic performance'.

Companies, however, need to acknowledge that there are hidden values to reverse logistics (Mollenkopf & Closs, 2005[121]). Jayaraman and Luo (2007)[122] claims that customers, on average, return about 6% of the products they buy. These products can be from plastic bottles to boxes. Organisations are able to cost-save if they can capture this 6% return from the consumers. Doing this, however, still remains in question. Srivastava and Srivastava (2006) suggested a model to manage product returns. The study utilized average-life cycle of product data; past sales forecast demands to support their analysis. Semi-structured interviews to 84 stakeholders were used to triangulate the findings of the model. The findings shows that only correct reverse logistic would save cost. Saying this means that organisations must have a core vision to encourage Environmental Management before going any further to green logistics.

[117]Sarkis, J. (2006). Greening the supply chain. London: Springer.
[118]Wu, H. J., & Dunn, S. C. (1995).Environmentally responsible logistics system. International Journal of Physical Distribution & Logistics Management, 25, 20-39.
[119] Johnson, P. F. (1998). Managing value in reverse logistics system. Logistics and Transportation Review, 34, 217-227.
[120]Zhu, Q., &Sarkis, J. (2004).Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. Journal of Operations Management, 22, 265-289.
[121]Mollenkopf, D. A., &Closs, D. J. (2005). The hidden value in reverse logistics. Supply Chain Management Review, 9, 34-43.
[122]Jayaraman, V., &Luo, Y. (2007).Creating competitive advantage through new value creation: A reverse logistics perspective. Academy of Management Perspective, 21(2), 56-73.

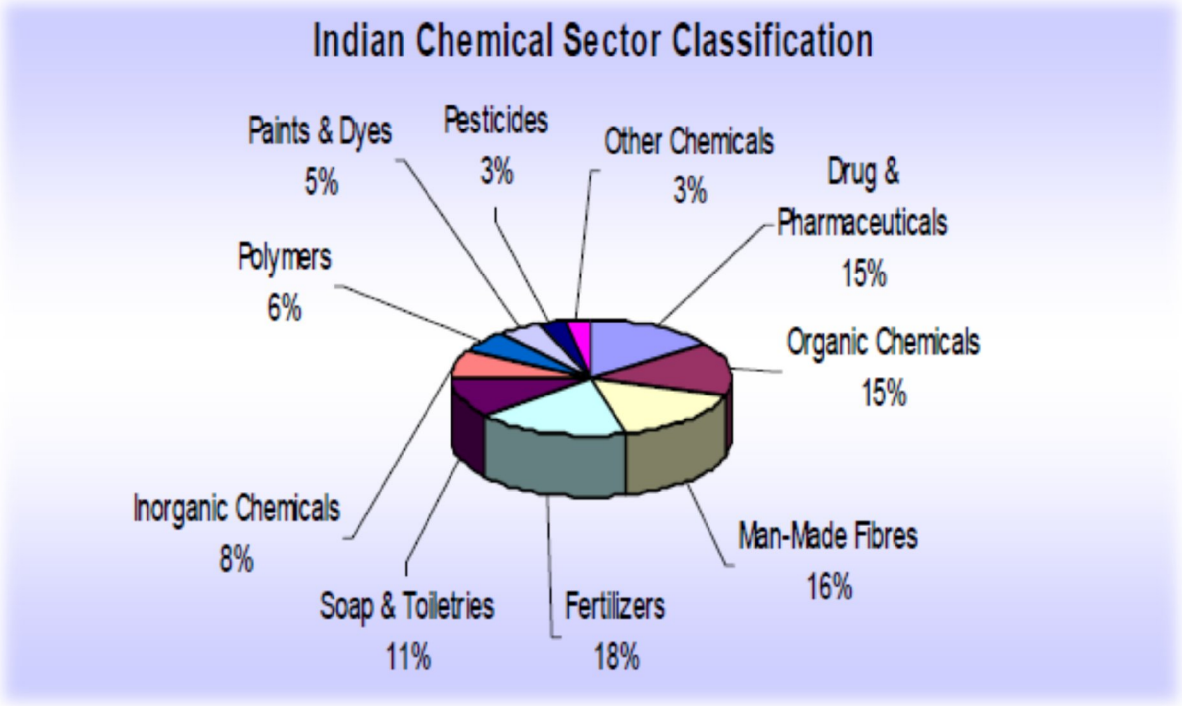
2.3 Paint, Decorative Paints and Eco-friendly paints

Paint is a product, which becomes essential to keep one's home safe from weather and other problems like dusting etc. Paint gives home a proper shape as well as a decent look, which attracts one's eyes. How paint industry was developed in India and then how Indian paint industries enhanced their products by extreme research work and passion? This part of a chapter would give brief introduction to paint industry and emergence of eco paints.

2.3.1 Paint Industry

Chart 2.3.1: Indian Chemical Industry Classification

(Source: Katiyar P.,[123])

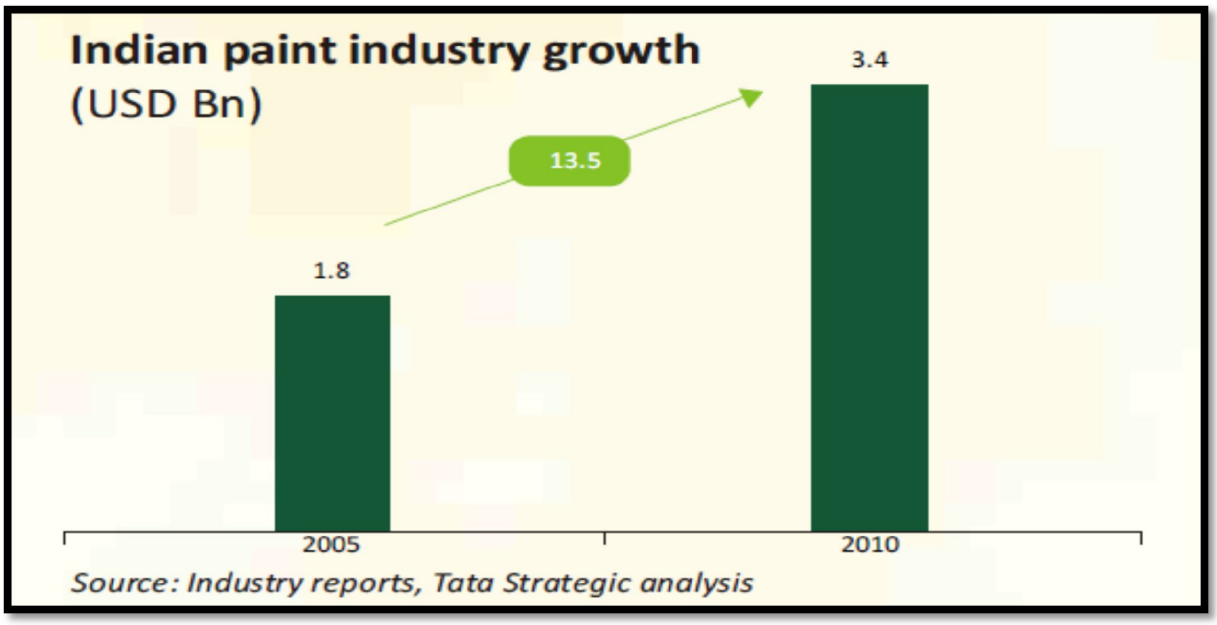


As per Export Import Bank of India[124], "global chemical production is growing and the growth is contributed by the chemical industry of developing countries". Growth in demand for chemicals

[123] Katiyar, P., (2009). Indian Chemical Industry Classification (Source: Indian Chemical Industry: An unprecedented Opportunity to grab.
[124] Export-import bank of India, 2007, Occasional paper no. 117 Indian chemical industry: a sector study

in developing countries is high leading to substantial cross-border investment in the chemical sector. Global sales of chemicals in the year 2005 were estimated to be around US$ 1.75 trillion. Chemical industry is one of the oldest industries in India. It is estimated that the size of Indian chemical industry is around US$30 billion. Volume of production in chemical industry positions India as third largest producer in Asia (next to China and Japan), and twelfth largest in the world. The industry is heterogeneous in nature with many sectors such as organic, inorganic, dyes, paints, pesticides and specialty chemicals. Gujarat is the leading contributor to the basic chemical as well as petrochemical production with 54% and 59% share, in all India production, respectively. Chart 2.3.1 shows the classification of the Indian chemical industry.

Chart 2.3.2: Growth of Indian Paint Industry

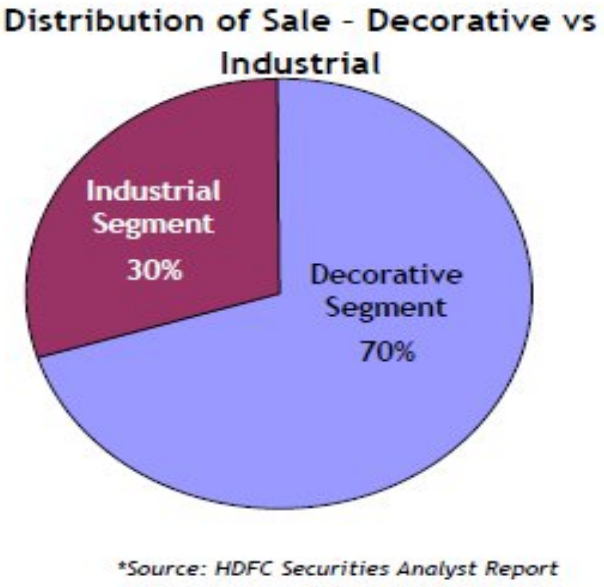


Indian paint industry has been growing at 1.5-2 times the GDP growth with compound annual growth rate (CAGR) of 13.5%[125] over the last five years (ref. Chart 2.3.2). Owing to the economic downturn, the growth slowed down the last 2 years (India Chem, 2010[126]).

[125] Industry reports, Tata Strategic Analysis, Tata strategic management group.
[126] FICCI, (2010). "India Chem-2010: Sustaining the India advantage", Handbook on Indian Chemical Industry, TATA strategic management Group and RolandBerger Strategy Consultants.

"The Indian paint industry has evolved a lot in recent times, both in terms of industry structure and product portfolio. Not long ago, paints were largely considered to be a luxury item. Such a mind-set has changed significantly of late due to the growing awareness on preventing corrosion through paints, by providing a massive fillip to the paint industry. China and India are the major growth drivers in the region with paint demand in these two countries likely to continue growing at more than 10% p.a. in the coming years. Indian paints industry is Rs.15,000 crore market" (GhallaBhansali Stock Brokers Pvt. Ltd.14thOctober, 2010.www.ghallabhansali.com)[127].The

Chart 2.3.3: Paint sales distribution in India



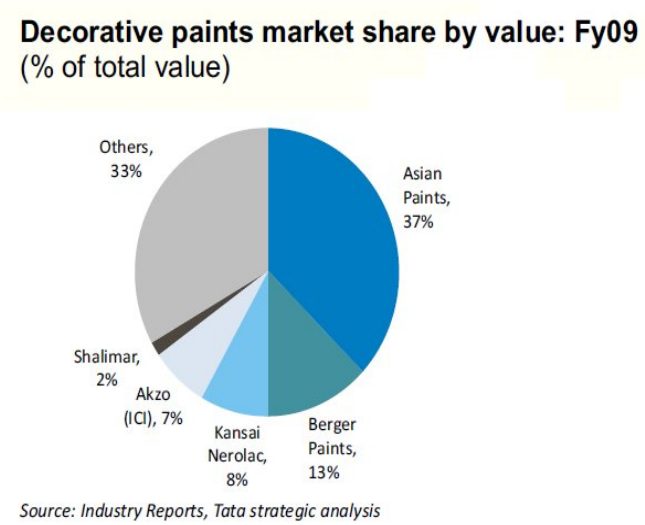
Source: HDFC Securities Analyst Report

As per the Gujarat paints raw materials suppliers association (GUJPRAMSA)[128], paint industry of Gujarat is having Large, Medium and about 250 small scale industry units contributing a massive 18% to the total paint production of India. In contrast to global trends, wherein industrial paints with a share of nearly 60 percent take prime importance, the domestic industry is dominated by decorative paints with an imposing share of nearly 70% (ref. Chart 2.3.3) of the paints market (Singhi, R., Kawale, D., Chaudhari, Y. 2009)[129].

[127]GhallaBhansali Stock Brokers Pvt. Ltd.14th October, 2010.www.ghallabhansali.com
[128] Gujarat Paint Raw Material Suppliers Association. www.gujpramsa.org
[129]Singhi, R., Kawale, D., Chaudhari, Y. (2009), Asian Paints: Changing Rules of the game. Indian Journal of Marketing, pp. 14-20.

A major portion of demand for decorative paints is from fresh coats on existing wall finishes. Thus, the fortune of this segment is closely linked to the construction activity in the country.

Chart 2.3.4: Market share of decorative paints in India



The leader in the high volume medium and mass segments of decorative paints, Asian Paints has been consolidating its market leadership over the last six years and now has the biggest slice of 37 per cent of the market for decorative paints in the organized sector. Trailing behind are Goodlass Nerolac and Berger Paints with market shares of 13 per cent and 11 per cent respectively. Other major players from the organized sector include Jenson & Nicholson with a low 6 per cent and ICI with 8 per cent (ref. chart 2.3.4) (Information Research Limited - 2003)[130].

2.3.2 Pollutants

The product category of paints shall focus on pollutants during the whole life cycle (ENVIRONMENTAL REGULATION)[131]:

- Volatile Organic Compounds (VOCs)
- Exclusion of heavy metals in paints such as Antimony, Arsenic, Cadmium, Hexavalent Chromium, Lead, Mercury
- Aromatic Hydrocarbons

[130] Information Research Limited survey – Indian Paint Industry Profile, (2003)
[131] Competitive implications of environmental regulation in the paint and coatings industry, U.S. Environmental Protection Agency and Hochschule St. Gallen. Copyright 1994 by MEB

- Halogenated hydrocarbons
- Use of Biocides in Paints
- Packaging material

VOCs are solvents that help determine the viscosity, flow and drying time of paints. VOCs readily evaporate into the atmosphere, potentially causing air pollution as well as contributing to global warming. White spirit and ethanol are two main VOC carriers in solvent-based paints. While VOC limits also apply to water-based products, they only carry small amounts of VOCs. For this reason, traditional solvent-based products, such as interior and exterior trim paints, varnishes and wood stains are the products that companies are seriously looking at dropping the VOC levels. VOCs are damaging to the environment and can pose a health risk to humans. VOCs contribute to air pollution and are seen to play a role in global warming.

Lead based paints in older houses has long been associated with elevated blood lead in children residing in such houses (Clark, et al., 1985)[132]. Lead is a toxic element that led the U. S. Centers of Disease control and Prevention (CDC) to consider lead concentrations in blood higher or equal to 10 µg/dl as being elevated. Because of such reasons, the U S Congress lowered the standard for lead in residential paints and paints on products used by children from 0.06 percent to 0.0009 percent (ATSDR, 1990)[133]. They also contribute to the creation of ozone in the lower atmosphere, which is harmful to humans, animals and plants." (Sustainability in action – July 2009)[134] According to Dr Abhay Kumar's report, 'Lead in Decorative Paint' (2009)[135], Most of Indian manufacturers have high lead containing emulsion decorative paints while in varnishes they have reduced lead level below 0.0009 percent. While Kansai Nerolac was very positive (Lead Concentration< 0.0009%) in test results of all decorative paint categories. In relation to this, recently many paint companies have started taking initiative to green manufacturing.

[132] Clark, C. S., Bornshein, R. L., Succop, P., QueHee, S. S., Hammond, P. B. and Peace, B., 1985. Condition and Type of Housing as an indicator of potential Environmental Lead Exposure and Pediatric Blood Lead Levels.Environmental Research. 38, 46-53.
[133]Agency for Toxic Substances and Disease Registry (ATSDR), 990.Case Studies in Environmental Medicine, No. 1.
[134]Sustainabilityin action, (July 2009), AkzoNobel Ltd.
[135] Kumar, A., 2009. Lead in New Decorative Paints,

For example Akzo Nobel Ltd. has set new goals for sustainable products and sustainable transportation which are as given below: (Sustainability in action – July 2009)[136]

- Continually optimize our logistics and delivery network
- Select our vehicles to ensure that miles travelled have the lowest practicable environmental impact
- Provide an infrastructure which enables people to do business effectively whilst travelling fewer miles
- Educate and engage our people to reduce their business miles and make informed travel choices
- Reduce the ecological footprint of our products without compromising performance
- Innovate to provide products that contribute positively to the well-being of people and the environment
- Design products, packaging and service solutions that reduce waste, energy consumption, water usage and transport impacts for ourselves and our customers
- Encourage our customers to make more sustainable choices
- Create partnerships that promote sustainability with key suppliers and customers
- Ensure we source raw materials from sustainable supplies
- Build sustainability into all our commercial functions and processes

In addition to this as per the reports of Ghalla Bhansali Stock Brokers Pvt. Ltd.14thOctober, 2010 the emerging trends in the decorative paint industry are:

- Consumers are increasingly involved in making purchase decisions.
- Consumers expect better and more relevant functional benefits from paints.
- Emulsion paints are outgrowing the industry growth rate.
- Trend of dark shades complementing light shades continues.
- Tinting systems at store level are the order of the day.
- Companies are getting more consumer-centric and a lot of value-added services are being offered, like application support, colour consultancy etc.

[136]Sustainabilityin action, (July 2009), AkzoNobel Ltd.

"Switching from a conventional paint to eco-friendly paint can do more than just help the planet; it can also prevent people from inhaling cancer causing chemicals that are formed when paint is mixed with phenol and formaldehyde. Ideally, eco-friendly paints are natural and contain low or zero-VOC" (Quick Bytes, (11th September, 2011), Times Property)[137].

According to Mr. Singh (GM, Marketing and Sales, Kansai Nerolac)[138] "There are many benefits of using these eco-friendly paints and stains such as: coating flexibility, better gloss retention, better face resistance, and reduced health risks such as headaches, nausea, respiratory disorders, dizziness, chest congestion, lung irritation, burning sensations in the eyes, nose and throat and the like. Since these paints come with new generation green additives and hence help maintain good indoor air quality but are safer and help make your home a happier and healthier place". (Quick Bytes, (11th September, 2011), Times Property)

Consumer demands are the powerful pressure for change within the organizations that offer products or service in those markets. Consumers demand more value and quality from products and since the environmental awareness has increased, this type of pressure creates market opportunities in the form of environmental attributes and responsibility within the supply chain, in the sense that they can deliver the "right product at the right time" (Paquette et. al, 2005)[139].

The current state and trend of environmental degradation indicates a need for a change in manufacturing philosophy, the challenge led to re-define the basic structure of the entire supply chain such as a fundamental shift in the way production systems operate, a move towards sustainability achieved through vast reductions in resource use and waste generation, and a move away from one-time use and product disposal (Beamon et.al, 1999; Paquette et. al, 2005).

[137] Quick Bytes, (11th September, 2011), The Times of India – Times Property: Article from advertorial promotional features.
[138] Singh, GM, Marketing and Sales, Kansai Nerolac.
[139] Paquette, J. (2005) The supply chain response to Environmental Pressures Discussion, MIT Center for Transportation and Logistics (CTL). Discussion paper. Cambridge MA: MIT.

2.4 Consumers' environmental awareness, Consumer behavior and acceptance of environmental responsiveness

In this part of a chapter, past experiences of researchers with consumers are depicted with reference to green buying and according to environmental awareness of consumers. This chapter would give brief about consumers' environmental awareness and their responsiveness towards swiftly changing world for sustainable development.

2.4.1 Consumer Behavior

"People make many buying decisions every day. This fact brings the companies to investigate what people buy, where they buy, how much they buy, when they buy, and why they buy. Such an investigation deals with a research of understanding consumer behaviors" (Sudiyanti, S., 2009)[140].

Consumer behavior is defined as "the behavior that consumers show in searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs" (Schiffman& Kanuk,2007, p. 2)[141].

Likewise, another source also describes that "consumer behavior is the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society"(Hawkins et al., 2007, p. 6)[142]. Consumer behavior also can be described as,

- The dynamic interaction of affect and cognition, behavior, and the environment by which human beings conduct the exchange aspects of their lives.
- The overt actions of consumers.

[140]Sudayanti, S., (2009). "Predicting Women Purchase Intention for Green Food Products in Indonesia"
[141]Schiffman, L. G. &Kanuk, L. L., 2007, Consumer Behavior, 9th edn., Pearson Prentice Hall, Upper Saddle River, New Jersey, 561 pages.
[142] Hawkins, D. I., Mothersbaugh, D. L. & Best, R. J., 2007, Consumer behavior: Building marketing strategy, 10th edn., McGraw-Hill/Irwin, 790 pages.

- (Consumer behavior definition) The behavior of the consumer or decision maker in the market place of products and services. It often is used to describe the interdisciplinary field of scientific study that attempts to understand and describe behavior (AMA, 2009)[143].

According to Hawkins et al. (2007), the conceptual model of consumer behavior indicates people beliefs in term of general nature of consumer behavior. It is mentioned that there are three components constitute consumer behavior.

They are...

1. **Cultural factors**. According to Hofstede (2001), culture is "the collective programming of the mind that distinguishes the members of one group or category of people from another" (p. 9)[144]. Each culture comprises subcultures, which include nationalities, languages, religions, racial groups, and geographical regions. Culture and subcultures determine individual's needs wants and behavior.
2. **Social factors**, which deal with reference groups, family, roles and status.
3. **Personal factors**, including age and stage in the life cycle, occupation and economic circumstances, personality and self-concept, lifestyle and values (Kotler& Keller, 2009)[145].

According to Schiffman & Kanuk (2007), a simple model of consumer decision making depicts step by step process on how consumer ends up with purchase decision. In the process of decision-making, psychological factors, for instance, individual's motivation, perception, learning, personality, attitude and his or her previous experience play an important role in persuading and evaluating alternatives.

2.4.2 Risk Awareness and Environmental Education

Environmentally harmful activities pose a risk to nature and, inevitably, to human health. The scale of personal importance of those risks determines behavior. Plough and Krimsky (1987)[146] define risk communication as "any public or private communication that informs individuals about the existence, nature, form, severity, or acceptability of risks" (p. 6). To communicate the risk of an environmental issue, an assessment of that situation must be completed. Risk assessment is used

[143] AMA, 2009, Conference Review
[144]Hofstede, G., 2001, Culture's consequences: Comparing values, behaviors, institutions, and organizations across nationals, 2nd edn., Sage-Publication, California, 596 pages.
[145]Kotler, P. & Keller, K. L., 2009, Marketing Management, 13th edn., Pearson-Prentice Hall.
[146] Plough, A., &Krimsky, S. (1987). The emergence of risk communication studies: social and political context. Science, Technology, \& Human Values, 12(3/4), 4–10.

to estimate potential harm or danger to an individual from a particular situation such as exposure to a toxic chemical (Cox, 2010)[147]. Technical risk communication translates technical data to the public in terms they can easily understand usually through numerical data with the intention of educating a target audience (Cox, 2010). Consequently, risk management is implementation of actual steps to reduce the danger to the public and the environment (Cox, 2010). Risk management can be difficult to communicate, especially regarding certain environmental threats not readily noticeable in everyday lives. For example, many toxic chemicals are invisible and their effects on people are delayed; thus, people rarely notice such toxins in everyday lives (Cox, 2010).

Risk can act as a gauge of level of importance to a particular person and situation. Risk literature supports that people are more easily mobilized against large infrequent risks rather than low-level everyday risk (Kaitlin Keith, 2011)[148]. According to Spangler (1984)[149], people identify risks through personal experience, memory, and other factors, which might ignore the probability of a particular event actually occurring. For instance, shark attacks are a risk the general public overestimates due to the media attention and personal reactions to the event (Botterill & Mazur, 2004)[150].

People may feel more of a threat from shark attacks (infrequent risks) versus inhaling VOCs on a daily basis. The visible physical and emotional damage related to shark attacks may seem scarier than breathing invisible pollutants daily. People also have a level of risk where they feel comfortable and they adjust their risky behavior if safety measures are present (Botterill & Mazur, 2004). Unfortunately, people's opinions related to a particular risk are difficult to change (Covello, von Winterfeldt, & Slovic, 1984[151]; MacCrimmon & Wehrung, 1986[152]). Thus, changing opinions, much less behavior, regarding everyday VOC exposure may be difficult.

[147] Cox, T. (2010) Work-related stress in Europe. Keynote paper: Italian Society for Occupational Medicine Annual Conference.
[148] Keith, Kaitlin, "Dangerous Decor: Consumer Knowledge of Health Risks within Interior Spaces" (2011). Master's Theses.Paper 3934.
[149] Spangler, M. B. (1984). Policy issues related to worst case risk analyses and the establishment of acceptable standards of de minimis risk. In V. T. Covello, L. B. Lave, A. Moghissi, & V. R. R. Uppuluri (Eds.), Uncertainty in risk assessment, risk management and decision making (Advances in risk analysis) (Vol. 4). New York: Plenum Press.
[150] Botterill, L, Mazur N. 2004. Risk and risk perception: A literature review. A Report for the Rural Industries Research and Development Corporation.
[151] Covello, V. T., von Winterfeldt, D., &Slovic, P. (1984). Communicating scientific information about health and environmental risks: Problems and opportunities from a social and behavioral perspective. In V. T. Covello, L. B. Lave, A. Moghissi, & V. R. R. Uppuluri (Eds.), Uncertainty in risk assessment, risk management and decision making (Advances in risk analysis) (Vol. 4). New York: Plenum Press.
[152] MacCrimmon, K. R., &Wehrung, D. A. (1986).Taking risks: The management of uncertainty. New York: The Free Press.

Consumer risk relative to certain events or activities is closely linked to education. "The ultimate aim of education is to shape human behavior" (Hungerford & Volk, 1990, p. 8)[153]. Hungerford and Volk (1990) explain the traditional definition of environmental education (EE) as the ability to change behavior through educating humans about the environment and related issues.

Research has assumed that there is a relationship between knowledge, attitudes, behavioral intentions, and actual behaviors (Darner, 2009[154]; Hines, Hungerford, & Tomera, 1987[155]; Hungerford & Volk, 1990; Ramsey &Rickson, 1976[156]). Such research has examined multiple psychological variables thought to influence pro-environmental behaviors; however, a consensus has not been reached on the best model for predicting what influences result in pro-environmental actions (Cottrell & Graefe, 1997[157]; Darner, 2009; Hines et al., 1987).

According to (Kaitlin Keith, 2011) one of the most obvious sources for EE is school. According to her, children and adults can and should be educated about the environment in a school setting. At the university level, students can earn a degree in Environmental Studies which is largely focused on EE. EE in the classroom setting is heavily dependent on the educator (Kaitlin Keith, 2011). Riordan and Klien's (2010)[158] study of professional development in EE revealed teachers should be supported in their EE practices and encourage their students to participate in active investigations of real problems as opposed to abstract ones with a focus on problem solving and decision-making. The bottom line being, professional development in EE should inspire curiosity, participation, and be practice-based (Riordan & Klien, 2010). EE programs nationwide are successfully integrating student interest and participation, for example, through political activism, environmental action, and recycling and restoration programs (Paterson, 2010)[159]. Such integration can be applied to design education for professionals through measures such as conferences.

[153]Hungerford, H. R., & Volk, T. L. (1990).Changing learner behavior through environmental education.Journal of Environmental Education, 21, 8-21.
[154]Darner, R. (2009).Self-determination theory as a guide to fostering environmental motivation.The Journal of Environmental Education, 40(2), 39-49.
[155]Hines, J. M., Hungerford, H. R., &Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. Journal of Environmental Education, 18(2), 1-8.
[156]Ramsey, C., &Rickson, R. (1976).Environmental knowledge and attitudes. The Journal of Environmental Education, 8(1), 10-18.
[157]Cottrell, S. P. &Graefe, A. (1997).Testing a conceptual framework of responsible environmental behavior. The Journal of Environmental Education, 29(1), 17-27.
[158]Riordan, M., & Klein, E. (2010). Environmental education in action: How expeditionary learning schools support classroom teachers in tackling issues of sustainability. Teacher Education Quarterly, 37, 119-137.
[159] Paterson, J. (2010). Integrating environmental education.Educational Digest,75(7), 38-42.

Another factor influencing consumer behavior is the source of information. According to Cox (2010), environmental communication (EC) mediates our understanding of the environment, through multiple sources, such as popular culture, news, scientific reports, films, and political debates, which each have their own opinions and attitudes about environmental issues. Wagner (2008)[160] states that one of the most common sources of environmental information for the public comes from the news sources, which do not relay objective information but a bias presentation of events and issues from the perspective of reporters, editors, and selected sources. This bias results in a poor relay of information which consequently impacts action. EC aims to provide the facts and remove a bias as much as possible. Cox (2010) defines environmental communication as an action that is practical, educates alerts, persuades, mobilizes, and helps people solve environmental problems. Cox (2007)[161] advocates that environmental communication seeks to improve how the general public responds to environmental signs relative to the health of humans and the earth.

People gain information about environmental issues, such as toxins in the home, through many different sources. Importance and meaning is then decided upon. Awareness and importance can be deciding factors for how and if they interact with the environment. The Life-World Approach proposed by Finger (1994)[162] focuses on information, knowledge, and learning play for an individual. Theoretically, people create meaning related to certain events from their own life and experiences. Meaning is always socio-cultural and collective in nature, which determines how people approach a specified issue or problem (Finger, 1994). Three other significant building blocks of the Life-World Approach are significant life experiences, worldviews, and behavior (Finger, 1994). According to this approach, significant life experiences related to the environment, key elements of one's worldviews, the meaning nature has for the individual, and environmental information and knowledge acquisition are the key building blocks of a person's life-world.

[160]Wagner, T. (2008). Reframing ecotage as ecoterrorism: News and the discourse of fear. Environmental Communication: A Journal of Nature and Culture,2(1), 25-39.
[161] Cox, T. (2007) Advances in theory, methodology and practice in risk management for work-related stress. Keynote to Health & Safety Canada IAPA 2007.
[162] Finger, M. (1994). From knowledge to action?Exploring the relationships between environmental experiences, learning, and behavior.Journal of Social Issues, 50(3), 141-160.

2.4.3 Consumer Knowledge and Awareness

The Awareness-Appraisal Model suggests that many people do not respond to negative life events or change their actions because they are not aware of these events' impact on them; thus, the importance of action is not present (Forsyth, Garcia, Zyzniewski, Story, & Kerr, 2004)[163]. The model also suggests that awareness alone is not enough for individuals to take action; they must believe there is a significant risk associated with the environmental problem. Risk assessment and proper EE are two important factors in determining the significance of an issue. Awareness-Appraisal uses four factors to determine intention, appraisal, importance, behavioral intentions, and knowledge (Forsyth et al., 2004). Barr and Gilg (2006)[164] also found that environmental behavior can be changed by enhancing knowledge and awareness about environmental problems. The result of this new knowledge encourages individuals to change their consumption behavior. Consumer knowledge assessment is comprised of two factors: objective knowledge and self-assessed knowledge (Park, Mothersbaugh, &Feick, 1994)[165].

Park et al. (1994) defines objective knowledge "as accurate information about the product stored in long-term memory" (p. 71). Self-assessed knowledge is defined as "people's perception of what they know or how much they know about a product" (p. 71). Park et al. (1994) states, "knowledge assessment is viewed as a judgment process in which individuals scan their memory for cues that help them evaluate their own level of product class knowledge" (p. 72). Features associated with the memory scan include, but is not limited to, product attributes and features, usage procedures, and brand names (Park et al., 1994). Memory of relationships between the self and the product in terms of information search, product usage, and purchase experience is another way for individuals to judge a product class. For example, consumers might infer that since they have used a certain product many times, or spent a lot of time searching for information, they are knowledgeable about the product (Park et al., 1994). Nisbett & Ross (1980)[166] state, "personal experiences with products

[163] Forsyth, D., Garcia, M., Zyzniewski, L., Story, P., & Kerr, N. (2004). Watershed pollution and preservation: The awareness-appraisal model of environmentally positive intentions and behaviors. Analyses of Social Issues and Public Policy, 4, 115-128.
[164] Barr, S. and Gilg, A.W. (2006). Sustainable Lifestyles: framing environmental action in and around the home. Geoforum, 37 (6): 906-920.
[165] Park, C. W., Mothersbaugh, D. L., &Feick, L. (1994). Consumer knowledge assessment.Journal of Consumer Research, 21, 71-82.
[166] Nisbett, R., & Ross, L. (1980).Human inference: Strategies and shortcomings of social judgment. New York: Prentice Hall.

may also lead to an increase in perceived validity of information and an increase in the personal relevance of the information" (as cited in Park et al., 1994 p. 73).

2.4.4 Environmental Action

Dr. Krishna Kumar Veluri (February, 2012)[167] examined consumer beliefs and attitude on environment protection and their purchasing behavior of eco-friendly products. He has also focused on the success of efforts put by marketers in bringing green brands awareness in consumer mind. His report further reviews consumer behaviour and impact of marketing communication to identify how consumers are persuaded to opt for greener products. It reports the results of a consumer product survey using a questionnaire based on the Dunlap and van Liere HEP-NEP environmental survey and the Roper Starch Worldwide environmental behaviour survey. This paper identifies that consumers are not exposed enough to green product marketing communication and suggests the greater use of marketing and brands to promote and sell products that are environmentally friendly and function effectively. The paper suggests that the Indian market for greener products could be exploited more within consumer groups that have pro-environmental values.

The literature suggests a model that can determine if a person is likely to be involved with environmental action. The Environmental Citizenship Behavior Model is a version of environmental education research developed by Hines et al. (1987). Responsible environmental behavior is the steppingstone towards the environmental citizenship behavior model. Responsible environmental behavior is comprised of attitudes, locus of control, personal responsibility, action skills, knowledge of action strategies, knowledge of issues, and personality factors. The model argues a person must possess three categories of variables – entry-level variables, ownership, and empowerment variables – to express environmental citizenship behavior. Entry-level variables enhance a person's decision making through an empathetic perspective toward the environment (environmental sensitivity), variables associated with psychologically androgynous individuals active in helping resolve environmental issues (androgyny), ecological knowledge, and attitudes towards general concerns such as pollution/technology/economics. Ownership variables make

[167]Veluri, K.,(2012),"Green marketing: Indian consumer awareness and marketing influence on buying decision", International Journal of Research in Commerce and Management, Volume no. 3 (2012), Issue no. 2 (February), EBSCO Publishing, USA.

environmental issues extremely personal through in-depth knowledge of crucial issues which, makes people more likely to become responsible citizens and personally invested. In other words, the individual identifies strongly with the issue because he/she might have personal interest in it. Lastly, empowerment variables give humans a sense that they can make a change and help resolve environmental issues through environmental action strategies, knowledge of environmental action strategies, locus of control (a person will/will not be reinforced for doing/not doing something), and intention to act (Hungerford & Volk, 1990).

Psychological and cultural factors influencing eco-friendly behavior are key determinants of which people or groups actually purchase healthy and environmentally friendly products. Chan (2001)[168] outlines the top determinants for consumers as a value-attitude-behavior hierarchy using the environment (ecological knowledge), attitude (ecological affect), commitment level (verbal commitment or intention), and what commitment they do make (actual commitment) as measures. Studies have found that increased ecological knowledge has been linked to increased ecological behavior (Park et al., 1994), however, adverse results have also been found in the research (Arbuthnot & Lingg, 1975[169]; Geller, 1981[170]; Schahn & Holzer, 1990[171]). Chan (2001) suggests that "ecological knowledge might act as a mediating variable for ecological attitudes and behavior" (p. 394). Determinants of environmental consciousness are very different from ecological knowledge factors. Ecological knowledge factors determine people's knowledge of the environment (Chan, 2001) whereas environmental consciousness is influenced by two sets of determinants: external determinants (media, family, culture) and extrinsic determinants (demographics and psychological variables) (Mida, 2009)[172].

Volatile organic compounds (VOCs) are a common component of interior paint as well as some household furniture. VOCs include any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate that partake in

[168]Chan, Ricky Y. K. (2001). Determinants of Chinese consumers' green purchase behavior. Psychology & Marketing, 18 (4), 389-413.
[169] Arbuthnot, J., &Lingg, S. (1975). A comparison of French and American environmental behaviors, knowledge, and attitudes. International Journal of Psychology, 10 (4), 275-281.
[170]Geller, E. (1981). Evaluating energy conservation programs: Is verbal report enough? Journal of Consumer Research, 9, 10-19.
[171]Schahn, J., &Holzer, E. (1990). Studies of individual environmental concern: The role of knowledge, gender, and background variables. Environment andBehavior, 22, 767-786.
[172]Mida, S. (2009).Factors contributing in the formation of consumers' environmental consciousness and shaping green purchasing decisions. CIE 39 2009 International Conference on Computers & Industrial Engineering: Troyes, 6-8 July.

photochemical reactions (EPA, 2010)[173]. VOCs can be 1. Very volatile, 2. Volatile, and 3. Semi volatile. Examples include 1. Propane, butane, 2. Formaldehyde, acetone, 3. Fire retardants, and phthalates. The U.S. EPA controls outdoor air quality and consequently has set VOC standards for outdoor air but does not have authority for indoor, non-industrial spaces. The U.S. Occupational Safety and Hazard Administration (OSHA) regulates formaldehyde and has mandated a permissible exposure level (PEL) of 0.75 parts per million (ppm) and the U.S. Department of Housing and Urban Development (HUD) has founded a level of 0.4 ppm for mobile homes (EPA, 2010). In the past, consumers have been notified of the consequences of a few harsh chemicals previously used in structural elements of homes, such as lead paint. Heavy media attention and highly publicized health consequences of living in lead contaminated spaces has made the public very aware of this toxin. For example, the Ad Council facilitated the lead poisoning prevention public service announcements, the lead prevention website, designated a 1-800 phone number for the public to access information, supports television, radio, print, web banners, outdoor ads, and press releases that inform the public of the hazards of lead, and provides sponsoring agencies and their contact information. The sponsors are the Environmental Protection Agency, U.S. Department of Housing and Urban Development, and the Coalition to End Childhood Lead Poisoning (Ad Council, n.d.).

In addition, the Lead Safe Practices Law was passed in 2010, which requires mandatory testing by licensed, certified professionals working on residential structures, child care centers, and schools built prior to 1978 (EPA, 2011)[174]. If materials, such as walls or floors, are disturbed, a certified lead examiner must determine if there is lead present in any paint or other building materials in a home. If lead is present, lead-safe practices must be used by all trades working on the home, and every contractor must have the Lead Safe Practices Certification from the EPA (EPA, 2011)[175]. However, very little attention has been given to other indoor components, such as paint and furniture, which are health hazards as well.

[173]U.S. Environmental Protection Agency (EPA). (2010). An introduction to indoor air quality. Retrieved from http://www.epa.gov/iaq/voc.html
[174]U.S. Environmental Protection Agency (EPA). (2011). Renovation, repair, and paint (RRP). Retrieved from http://www.epa.gov/lead/pubs/renovation.htm
[175]U.S. Environmental Protection Agency (EPA).(n.d.).Paint and coatings. Retrieved from http://www.epa.gov/ispd/sectorinfo/sectorprofiles/paint.html

Consumers are not often notified of the chemicals included in furniture products. Instead, it is up to the shopper to ask sales representatives or take the time to independently research contents of items. Tags on furniture products rarely include chemicals incorporated in the manufacturing process; rather, the eco-friendly aspects and main components such as wood or metal are provided. Conversely, VOCs are labeled on paint cans in scientific terms. The average person cannot identify words such as benzene or toluene as harmful chemicals. Paint cans are labeled with the components of paint in addition to advertising the lead warning, proposition warning, and irritant warnings.

2.4.5 Green Indian Consumer according to Greendex Report, 2012[176]

Consumer Choice and the Environment, by the National Geographic Society and the international polling firm GlobeScan has ranked Indian Consumers as the "Greenest" in the world in its latest survey. However, American consumers' behavior still ranks as the least sustainable of all countries surveyed, followed by Canadian, French and British consumers. Covering 17000 consumers across 17 nations, the quantitative consumer study asked about such behavior as energy usage and conservation, transportation choices, food resources, the relative use of green products versus traditional products, attitude towards the environment and sustainability and knowledge of environmental issues. Overall, the study found that environmentally friendly behavior among consumers in 10 out of 17 countries has increased over the past year. For instance, the study found that majority of consumers in 15 out of 17 countries surveyed indicated that they prefer to repair something when it is broken rather than to replace it.

In Indian context, the study found that the percentage of consumers who said that the environment is the single most important issue facing their country has increased notably. Indian consumers were also most likely to cite environment concerns for the decisions they take. The study also found that consumers who were most likely to buy environmentally friendly products were most common in emerging economies, particularly India and China. Living habits also give Indian consumers a green edge. There is growing market among consumers worldwide for sustainable and socially responsible products and service today. India have green industries, green appliances,

[176]Greendex 2012: Consumer Choice and the Environment – A Worldwide Tracking Survey, National Geography Team. Available at: http://www.nationalgeographic.com/greendex/assets

green buildings, green computing, green fuels, and so on. It is, therefore, indeed remarkable for this study that a global survey has found Indian consumers to be the greenest.

2.5 Theories and Evidences

Before discussing Theory of Reasoned Action (TRA), following is quoted from Ajzen and Fishbein (1980)[177] to be influential in the understanding of the relationship between attitudes and behaviors, "In 1929 Thurston L. L.[178] developed methods for measuring attitudes using interval scales. Following Thurston's scale, came the famous, more specific and easier to use Likert-scale. This scale is widely used today. In 1935, Gordon W. Allport[179] theorized that the attitude-behavior relationship was not uni-dimensional as previously thought, but multi-dimensional. Attitudes were viewed as complex systems made up of the person's beliefs about the object, his feelings toward the object, and his action tendencies with respect to the object.

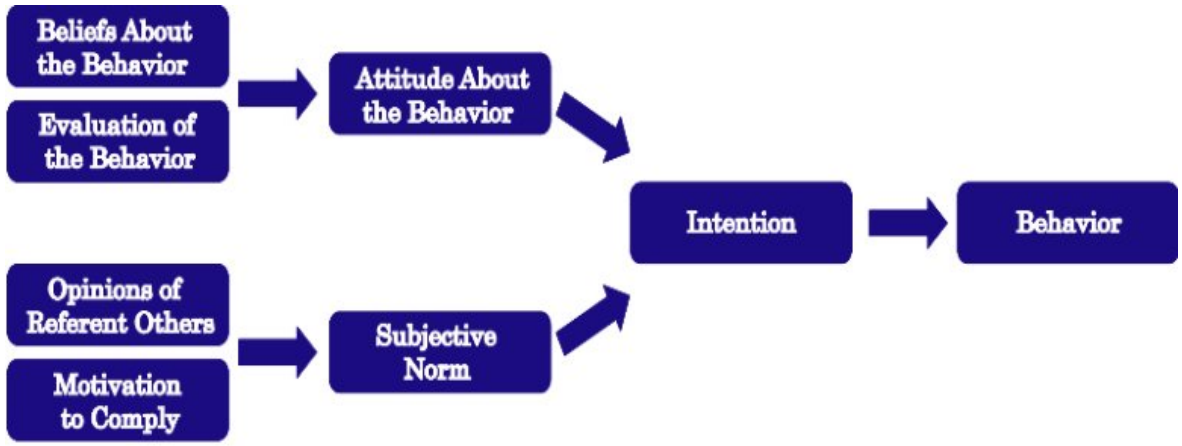
In 1944, Louis Guttman[180] developed the scalogram analysis to measure beliefs about the object. Doob in 1947[181] adopted the idea of Thurstone that attitude is not directly related to behavior but it can tell us something about the overall pattern of behavior. In the 1950's, this point of view that attitude is multi-dimensional became universal. Rosenberg and Hovland in 1960[182] theorized that a person's attitude toward an object is filtered by their affect, cognition and actual behavior. In 1969, Wicker[183] conducted an extensive survey and literature review on the subject and he determined that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitude will be closely related to actions.

[177] Ajzen, I., &Fishbein, M. (1980).Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice Hall.
[178]Thurstone, L. L. Chave, E. J. , (1929). The measurement of attitude: A psychophysical method and some experiments with a scale for measuring attitude toward the Church., (pp. 1-97). Chicago, IL, US: University of Chicago Press, xii, 97 pp. http://psycnet.apa.org/books/11574/
[179]Allport, G.W. (1935). Attitudes. In C. Murchison (Ed) Handbook of Social Psychology, Worcester, Mass: Clark University Press.
[180]Guttman, L.A. (1944). A basis for scaling qualitative data.American Sociological Review, 91, 139{150.
[181]Doob, L. W., 1947, The behavior of attitudes, Psychological Review, 54, 135-156.
[182]Rosenberg, M. J. &Hovland, C. I. 1960, 'Cognitive, affective, and behavioural components of attitudes', in Hovland, C. I. & Rosenberg, M. J. (Ed.).Attitude Organisation and Change: An Analysis of Consistency Among Attitude Components (pp.1-14), New Haven, CT: Yale University Press.
[183]Wicker A W. (1969), Attitudes versus actions: the relationship of verbal and overt behavioral responses to attitude objects. J. Soc. Issues 25:41-78. [University of Wisconsin, Milwaukee, WI]

2.5.1 The theory of reasoned action

As a result of above said developments, Fishbein and Ajzen joined together to explore ways to predict behaviors and outcomes. They assumed, "individuals are usually quite rational and make systematic use of information available to them. People consider the implications of their actual behaviors before they decide to engage or not engage in a given behavior" (p. 5). After reviewing all the studies they developed a theory that could predict and understand behavior and attitudes.

Figure 2.5.1: Theory of Reasoned Action (Fishbein & Ajzen, 1975)



Fishbein-Aizen Theory of Reasoned Action

Their framework (figure 2.5.1), which has become known as the Theory of Reasoned Action takes into account behavioral intentions rather than attitudes as the main predictors of actual behaviors. The Theory of Reasoned Action (TRA) was developed in 1967. During the early 1970s the theory was revised and expanded by Ajzen and Fishbein. By 1980 the theory was used to study human behavior and develop appropriate interventions. TRA is a widely studied model from social psychology, which is concerned with the determinants of consciously intended behaviors (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975[184]).

[184]Fishbein, M., &Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

Specific purposes of this theory are as follows:

- To predict and understand motivational influences on actual behavior that is not under the individual's volitional control.
- To identify how and where to target strategies for changing actual behavior.
- To explain virtually any human behavior such as acceptance of internet shopping, why a person buys a new car, votes against a certain candidate, is absent from work.

Looking to the future of green marketing, Robert D. Straughan and James A. Roberts (1999)[185] examined the dynamic nature of ecologically conscious consumer behavior. The study also provides a method of profiling and segmenting college students based upon ecologically conscious consumer behavior. Findings indicate that, despite a significant amount of past research attention, demographic criteria are not as useful a profiling method as psychographic criteria. Consistent with past findings, the study indicates that perceived consumer effectiveness (PCE) provides the greatest insight into ecologically conscious consumer behavior. Further, the inclusion of altruism to the profile appears to add significantly to past efforts. Additional constructs examined suggest that environmental segmentation alternatives are more stable than past profiles that have relied primarily on demographic criteria.

T Rehman, K McKemey, C Garforth, R Huggins, CM Yates, RJ Cook, RB Tranter, JR Park and PT Dorward (International Farm Management Congress, 2003)[186]analysed the behavioural intentions of a sample of livestock farmers in the south-west of England towards new technologies within a Theory of Reasoned Action (TORA) framework, in order to explore reasons for the apparently low rate at which research-based knowledge is being transferred to the livestock industry. Correlations between components of attitudes (outcome beliefs and evaluations), subjective norms (normative beliefs and motivation to comply) and behavioural intentions were integrated with Positivistic Mathematical Programming (PosMP) to create a set of farm type models, which can predict the potential rate and equilibrium level of uptake of different kinds of

[185]Straughan, Robert D. and James A. Roberts (1999), "Environmental Segmentation Alternatives: A Look at Green Consumer Behavior in the New Millenium," Journal of Consumer Marketing, 16 (6), pp. 558-73.

[186]Rehman, T., McKemey, K., Garforth, C., Huggins, R., Yates, C. M., Cooke, R.J., Tranter, R. B., Park, J. R. and Dorward, P.T. (2003) Theory of reasoned Action and its integration with economic reasoning in linking farmers' attitudes and adoption behaviour - an illustration from the analysis of the uptake of livestock technologies in the South-West of England. In: International Farm Management Association Conference, Perth, Australia.

technologies. Data relating to techniques for estrus detection in dairy cows are used to illustrate the analysis and to show how this approach can help improve the targeting of knowledge and technology transfer strategies. Linking the Theory of Reasoned Action findings with the Positivistic Mathematical Programming approach identified where there is a realistic prospect for increasing or accelerating the uptake of a technology, thus helping an agency charged with knowledge and technology transfer to decide where investment in communication is likely to pay off. In the case of MDC observation times, even a 20% change in attitude score among hill and upland dairy farmers would have minimal impact on the numbers adopting; while a similar change among mixed farms would lead to a greater increase. Targeting mixed farms with this particular technology would make more sense than promoting it among upland farmers. The overall findings reinforce the importance of understanding and addressing the prevailing beliefs and values within the objective population.

Joshi Pradeep (2004)[187] had done factor analysis of environmental friendly behavioral intentions taken from an earlier study, to study the effect of environmental concern & social norms on these intentions. The results indicate that these intentions can be grouped into "active" intentions & "passive" intentions. The environmental concern plays significant role in active intentions while social norms plays significant role in passive intentions. Implications of these results for consumer researchers, marketing managers & public policy makers are outlined.

Mehdi Taghian and Clare D'Souza (2007)[188] investigated for two cultures differences in consumers' purchase intention formation and their association with planned behaviour using the model of reasoned action. It also seeks evidence of exposure to a new dominant culture influencing change in behavioural intentions. Australian and Malaysian students are used as participants in the study. The results indicate that there is an association between intention and planned behaviour for Australian students, while no association exists for the Malaysian students. Additionally, the

[187]Pradeep J., (2004), Effect of Environmental Concern & Social Norms on Environmental Friendly Behavioral Intention, Business Intelligence Journal - January, 2012 Vol.5 No. Available at: http://www.saycocorporativo.com/saycoUK/BIJ/journal/Vol5No1/Article_18.pdf

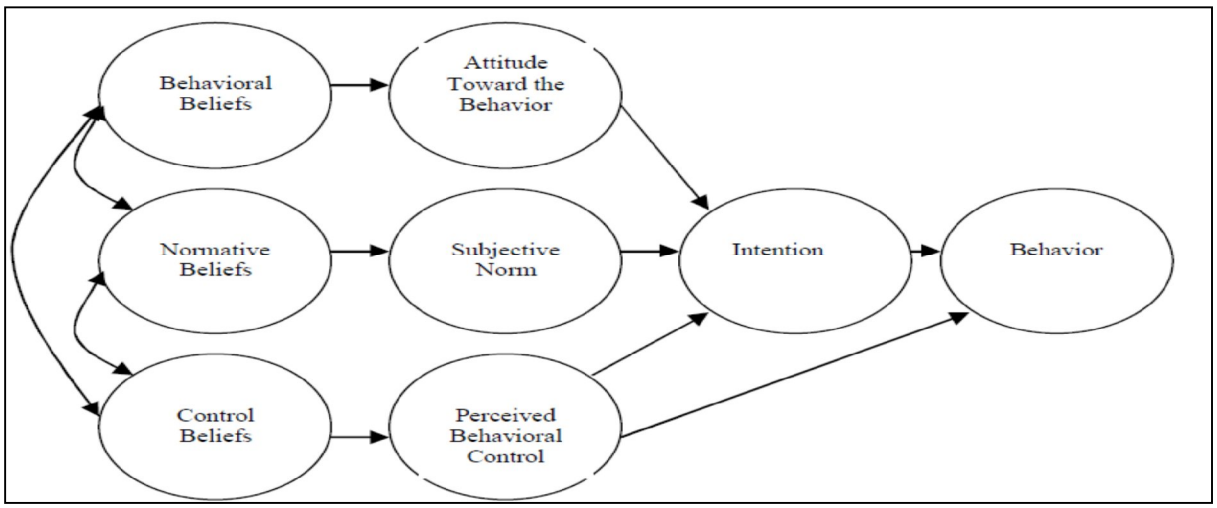
[188]Taghian, Mehdi and D'Souza, Clare* (2007) A cross-cultural study of consumer purchase intention and planned behaviour, in Thyne, Maree; Deans, Kenneth and Gnoth, Juergen (eds), ANZMAC 2007 : 3Rs, reputation responsibility relevance, pp. 2009-2015, University of Otago, School of Business, Dept. of Marketing, Dunedin, New Zealand

Malaysian students living in Australia for more than two years do not show a tendency to adopt the Australian students' intention formation in an 'individualistic' culture.

2.5.2 Theory of Planned Behavior

The theory of planned behavior is an extension of the theory of reasoned action (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975, Ajzen, 1991[189]) made necessary by the original model's limitations in dealing with actual behaviors over which people have incomplete volitional control. TRA works most successfully when applied to actual behaviors that are under a person's volitional control. If actual behaviors are not fully under volitional control, even though a person may be highly motivated by her own attitudes and subjective norm, he/she may not actually perform the actual behavior due to intervening environmental conditions. The Theory of Planned Behavior (TPB) was developed to predict behaviors in which individuals have incomplete volitional control. Figure 2.5.2 depicts the theory in the form of a structural diagram.

Figure 2.5.2: Theory of Planned Behaviour (Ajzen I., 1991)



According to Ajzen and Fishbein (1980) behavioral beliefs link the actual behavior of interest to expected outcomes. A behavioral belief is subjective probability that the behavior will produce a given outcome. Although a person may hold many behavioral beliefs with respect to any behavior, only a relatively small number are readily accessible at a given moment. It is assumed that these

[189]Ajzen, I. (1991). The Theory of Planned Behaviour. Organizational Behaviour and Human decision processes, 50: 179-21.

accessible beliefs determine the prevailing attitude toward the behavior. Attitude toward a behavior is the degree to which performance of the behavior is positively or negatively valued. Attitude toward a behavior is determined by the total set of accessible behavioral beliefs linking the behavior to various outcomes and other attributes. It is also interesting to point out that how the attitude towards behavior is formed if there are no previous experiences and that way expectation. Attitude towards behavior consists of those beliefs and new experiences, which either strengthens or weakens beliefs. Thus it is reasonable to say that researching attitudes towards behavior have justification to find out intentions to behave in a particular manner.

Normative beliefs refer to the perceived behavioral expectations of such important referent individuals or groups as the person's spouse, family and friends. It is assumed that these normative beliefs, in combination with the person's motivation to comply with the different referents, determine the prevailing subjective norm. Subjective norm is the perceived social pressure to engage or not to engage in actual behavior. It is assumed that subjective norm is determined by the total set of accessible normative beliefs concerning the expectations of important referents (Ajzen and Fishbein, 1980). Emphasis on social pressure is more accurate when it comes to customers doing something for the first time or doing something that is not their specialty. Also it is presumable that there are different effects on reference groups when it is the case of leisure services than if the individual is forced to use new services like in the workplace.

Control beliefs have to do with the perceived presence of factors that may facilitate or impede performance of actual behavior. It is assumed that these control beliefs determine the prevailing perceived behavioral control. Perceptions concerning ability may be different than actual control.

Although the feeling of control, is especially important when it comes to adapting new things. In recent studies there have been corrections to a view that overarching concept of perceived behavioral control, is comprised of two components: self-efficacy (dealing largely with the ease or difficulty of performing actual behavior) and controllability (the extent to which performance

is up to the actor). This is a hierarchical model of perceived behavioral control, which was introduced by Bandura, 1977[190] and Ajzen (2002)[191].

Intention is the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior. The intention is based on attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest. Behavioral intention has long been recognized as an important mediator in the relationship between behavior and other factors such as attitude, subjective and perceived behavioral control (Ajzen and Fishbein, 1980).

According to the theory of planned behavior, perceived behavioral control, together with behavioral intention, can be used directly to predict behavioral achievement. At least two rationales can be offered for this hypothesis. First, holding intention constant, the effort expended to bring a course of behavior to a successful conclusion is likely to increase with perceived behavioral control. For instance, even if two individuals have equally strong intentions to learn to ski, and both try to do so, the person who is confident that he can master this activity is more likely to persevere than is the person who doubts his ability. The second reason for expecting a direct link between perceived behavioral control and behavioral achievement is that perceived behavioral control can often be used as a substitute for a measure of actual control. Whether a measure of perceived behavioral control can substitute for a measure of actual control depends, of course, on the accuracy of the perceptions. Perceived behavioral control may not be particularly realistic when a person has relatively little information about the behavior, when requirements or available resources have changed, or when new and unfamiliar elements have entered into the situation. Under those conditions, a measure of perceived behavioral control may add little to accuracy of behavioral prediction. However, to the extent that perceived control is realistic, it can be used to predict the probability of a successful behavioral attempt (Ajzen, 1985)[192].

Perceived behavioral control: The importance of *actual* behavioral control is self-evident: The resources and opportunities available to a person must to some extent dictate the likelihood of

[190] Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.
[191] Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. Journal of Applied Social Psychology, 32, 665-683.
[192] Ajzen, I. (1985) 'From intentions to actions: A theory of planned behavior', in J. Kuhl& J. Beckmann (eds), Action-control: From cognition to behavior, Springer, Heidelberg, pp. 11-39.

behavioral achievement. Of greater psychological interest than actual control, however, is the *perception* of behavioral control and is impact on intentions and actions. Perceived behavioral control plays an important part in the theory of planned behavior. In fact, the theory of planned behavior differs from the theory of reasoned action in its addition of perceived behavioral control. Before considering the place of perceived behavioral control in the prediction of intentions and actions, it is instructive to compare this construct to other conceptions of control. Perceived behavioral control can be defined as 'a person's perception of how easy or difficult it would be to carry out a behavior (Ajzen, 1991, Pavlou and Fygenson, 2006, p. 119[193]). This is affected by the perception of one's own skills but also by the eventual constraints or facilitators in the context. Many contextual factors may facilitate or constrain environmental behavior and influence individual motivations (Ölander and Thøgersen, 1995[194]; Stern, 1999[195]; Thørgersen, 2005[196], Van Raaij, 2002[197]).

Another approach to perceived control can be found in Atkinson's (1964)[198] theory of achievement motivation. An important factor in this theory is the expectancy of success, defined as the perceived probability of succeeding at a given task. Clearly, this view is quite similar to perceived behavioral control in that it refers to a specific behavioral context and not to a generalized predisposition. Somewhat paradoxically, the *motive* to achieve success is defined not as a motive to succeed at a given task but in terms of a general disposition which the individual carries about him from one situation to another. (Atkinson, 1964, p. 242). This general achievement motivation was assumed to combine multiplicatively with the situational expectancy of success as well as with another situation-specific factor, the incentive value of success.

Among the beliefs that ultimately determine intention and action there is, according to the theory of planned behavior, a set that deals with the presence or absence of requisite resources and

[193]Pavlou, P. A., &Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior. Management Information Systems Quarterly, 30(1), 115-143.
[194]Olander F. and J. Thøgersen, 1995.Understanding of consumer behaviour as a prerequisite for environmental protection. Journal of Consumer Policy, 18:345-385. 19
[195]Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A. &Kalof, L. (1999). A value belief norm theory of support for social movements: the case of environmentalism. Human Ecology Review, 6, 81-97.
[196]Thøgersen, J. (2005), How many consumer policy empower consumers for sustainable lifestyles? Journal of consumer Policy, 28, 143-178.
[197] Van Raaij, W.F. (2002). Stages of behavioural change: motivation, ability and opportunity. In G. Bartels & W. Nelissen 5eds.), Marketing for sustainability; towards transactional policy-making (pp. 321-333). Amsterdam (Neth.): IOS Press
[198] Atkinson, J. W. (1964). An introduction to motivation. Princeton, NJ: Van Nostrand

opportunities. These control beliefs may be based in part on past experience with the behavior, but they will usually also be influenced by second-hand information about the behavior, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the behavior in question. The more resources and opportunities individuals believe they possess, and the fewer obstacles or impediments they anticipate, the greater should be their perceived control over the behavior or now we can say motivation to behave. So, based on above literatures, I propose to substitute motivation to behave as an antecedent of Purchase Intention in place of perceived behavioral control.

The Theory of Planned Behavior (TPB) as described by Ajzen (1991) is a theoretical approach that has been used to predict a variety of health behaviors (Glanz, Rimer, & Lewis, 2002[199]; Armitage& Conner, 2001[200]; Hardeman et al., 2002[201]; Godin &Kok, 1996[202]). This theory states that perceived behavioral control, along with subjective norms and attitude, impacts a person's behavioral intention.

The intention of an individual then influences their behavior. Attitude toward the behavior is a person's overall positive or negative evaluation of the behavior. Attitude is determined by behavioral beliefs, belief that behavioral performance is associated with certain outcomes, as well as evaluation of behavioral outcomes, which is the value placed on a behavioral outcome.

The subjective norm reflects a person's belief about whether most people would approve or disapprove of the behavior. This is established by normative beliefs, the belief or view of the behavior by the people they associate with, and by the individual's motivation to comply with these expectations.

Perceived behavioral control is the measure of perceived control over the behavior; how easy or difficult displaying this behavior will be. Perceived behavioral control is determined by control beliefs, which consist of the barriers or facilitators to the behavior, along with perceived power, or

[199]Glanz, K., Rimer, B. K., & Lewis, F. M. (Eds.), (2002), Health Behavior and Health Education (3rd ed.), San Fransisco: Jossey-Bass

[200]Armitage, C. J., & Conner, M. (2001).Social cognitive determinants of blood donation. Journal of Applied Social Psychology, 31, 1431-1457.

[201]Hardeman, W., Johnston, M., Johnston, D.W., Bonetti, D., Wareham, N.J., &Kinmoth, A.L. (2002). Application of the theory of planned behavior in behavior change interventions: a systematic review. Psychology and Health, 17(2), 123-158.

[202]Godin, G., &Kok, G. (1996). The theory of planned behavior: A review of its applications in health-related behaviors. American Journal of Health Promotion, 11, 87-98.

the impact each factor has on the behavior, whether it be in a positive or negative way. Perceived behavioral control can also have a direct impact on behavior.

Performance of a behavior not only depends on motivation, but also the individual's control of the behavior. If a person has limited to no control over a behavior, the behavior might not be implemented, even in the presence of strong motivational factors.

2.5.3 The sufficiency of the Theory of Planned Behavior

The theory of planned behavior distinguishes between three types of beliefs, behavioral, normative, and control and between the related constructs of attitude, subjective norm, and perceived behavioral control. The necessity of these distinctions, especially the distinction between behavioral and normative beliefs (and between attitudes and subjective norms) has sometimes been questioned (e.g., Miniard & Cohen, 1981[203]). It can reasonably be argued that all beliefs associate the behavior of interest with an attribute of some kind, be it an outcome, a normative expectation, or a resource needed to perform the behavior. It should thus be possible to integrate all beliefs about a given behavior under a single summation to obtain a measure of the overall behavioral disposition. The primary objection to such an approach is that it blurs distinctions that are of interest, both from a theoretical and from a practical point of view. Theoretically, personal evaluation of a behavior (attitude), socially expected mode of conduct (subjective norm), and self-efficacy with respect to the behavior (perceived behavioral control) are very different concepts each of which has an important place in social and behavioral research. Moreover, the large numbers of studies on the theory of reasoned action and on the theory of planned behavior have clearly established the utility of the distinctions by showing that the different constructs stand in predictable relations to intentions and behavior.

Perhaps of greater importance is the possibility of making further distinctions among additional kinds of beliefs and related dispositions. The theory of planned behavior is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables have been taken into account. The theory of planned behavior in fact expanded the original theory of reasoned action

[203]Miniard, Paul W. and Joel B. Cohen (1981), "An Examination of the Fishbein-Ajzen Behavioral Intentions Model's Concepts and Measures," Journal of Experimental Social Psychology, 1 7, 309-339

by adding the concept of perceived behavioral control. In addition to this, as supportive reviews, let us discuss some research works published in renowned journals.

According to Mark Conner and Christophe JrArmitage (1998)[204], one of the advantages of the TRA/TPB is the parsimonious account they provide of the determinants of behavior. Hence, as well as empirical evidence, they argued that a theoretical description of the role of additional variables within the TPB is required if a theoretically coherent model is to result. This theoretical description should specify the process by which the new variable influences intentions and behavior, its relationship to existing components of the TPB, and the range of conditions over which such a variable might be expected to have an impact. I here review the evidence supporting six such extensions to the TPB: belief salience, past behavior, habit, perceived behavioral control versus self-efficacy, moral norms, self-identity, and affective beliefs.

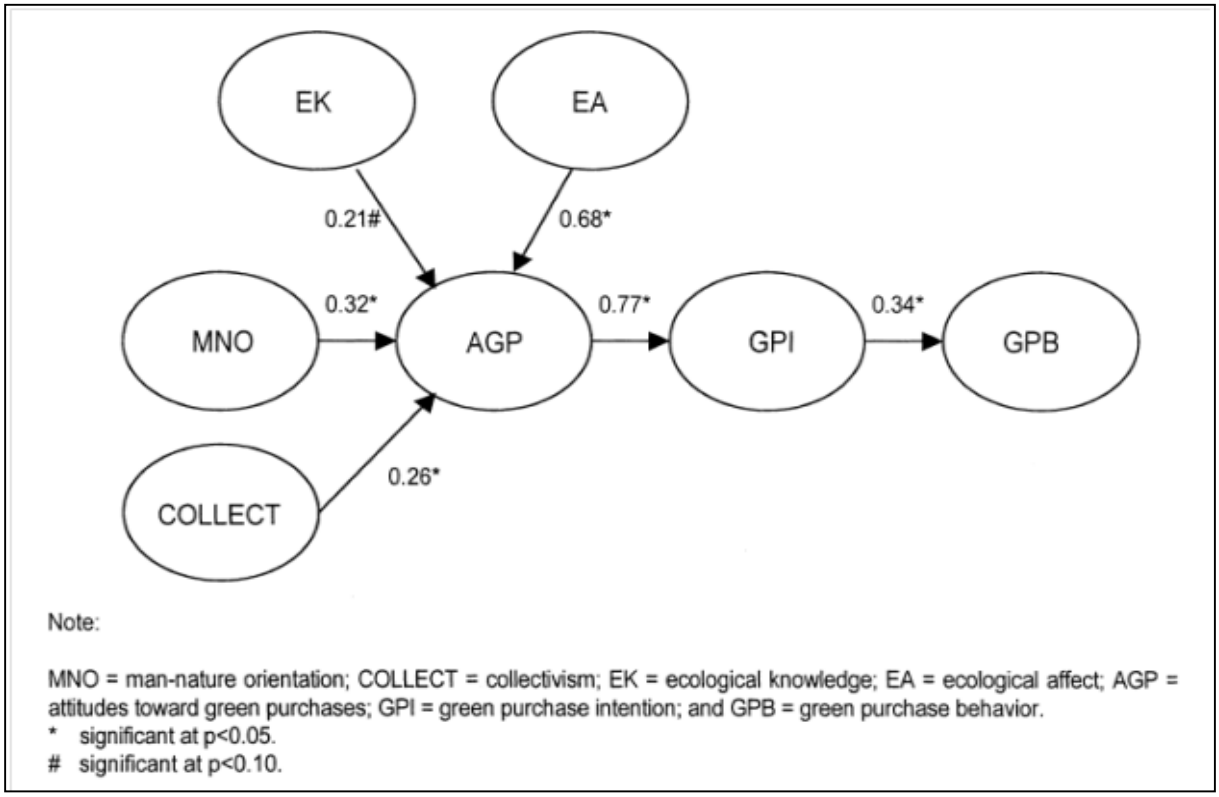
Stavros P. Kalafatis, Michael Pollard, Robert East and Markos H. Tsogas (1999)[205] examined the determinants that influence consumers' intention to buy environmentally friendly products. Ajzen's theory of planned behaviour (TPB) provides the conceptual framework of the research and the appropriateness of the theory and is tested in two distinct market conditions (UK and Greece). Although the findings offer considerable support for the robustness of the TPB in explaining intention in both samples, there is some indication that the theory is more appropriate in well established markets that are characterised by clearly formulated behavioural patterns (i.e. the model fitting elements of the UK sample are superior to the corresponding ones obtained from the Greek sample). The results are consistent with previous research on moral behaviour.

Ricky Chan (April, 2001) examined the influence of various cultural and psychological factors (as shown in figure 2.5.3) on the green purchase behavior of Chinese consumers. To this end, a conceptual model has been proposed and subjected to empirical verification with the use of a survey. The survey results obtained in two major Chinese cities provide reasonable support for the validity of the proposed model.

[204]Conner, M., &Armitage, C. J. (1998).Extending the theory of planned behavior: A review and avenues for further research.Journal of Applied Social Psychology, 28, 1429-1464.

[205] Stavros P. Kalafatis, Michael Pollard, Robert East, Markos H. Tsogas, (1999) "Green marketing and Ajzen's theory of planned behaviour: a cross-market examination", Journal of Consumer Marketing, Vol. 16 Iss: 5, pp.441 - 460

Figure 2.5.3: Theoretical framework in study of Chan R.[206] (TPB with various cultural and psychological factors)



Specifically, the findings from the structural-equation modeling confirm the influence of the subjects' man–nature orientation, degree of collectivism, ecological affect, and marginally, ecological knowledge, on their attitudes toward green purchases. Their attitudes toward green purchases, in turn, are also seen to affect their green purchase behavior via the mediator of green purchase intention. Although the present findings provide a better understanding of the process and significant antecedents of green purchasing, they also highlight two areas for more thorough investigation. These are the exact role of ecological knowledge in Chinese consumers' green purchasing process and the underlying factors that account for their low level of green purchase.

Ainsworth A. Bailey (2006) believed that it was possible to apply the theory of planned behavior (TPB) to the employee theft and it could shine some light on the problem and possibly offer some assistance to retailers. One area of concern for retailers was the impact of employee theft on

[206] Chan, Ricky Y. K. (2001). Determinants of Chinese consumers' green purchase behavior. Psychology & Marketing, 18 (4), 389-413.

retailing profit margins and operations[207]. The purpose of this paper was to apply TPB to this phenomenon.

Figure 2.5.4: Theory of Planned Behaviour used in retail theft study of Bailey A. A.

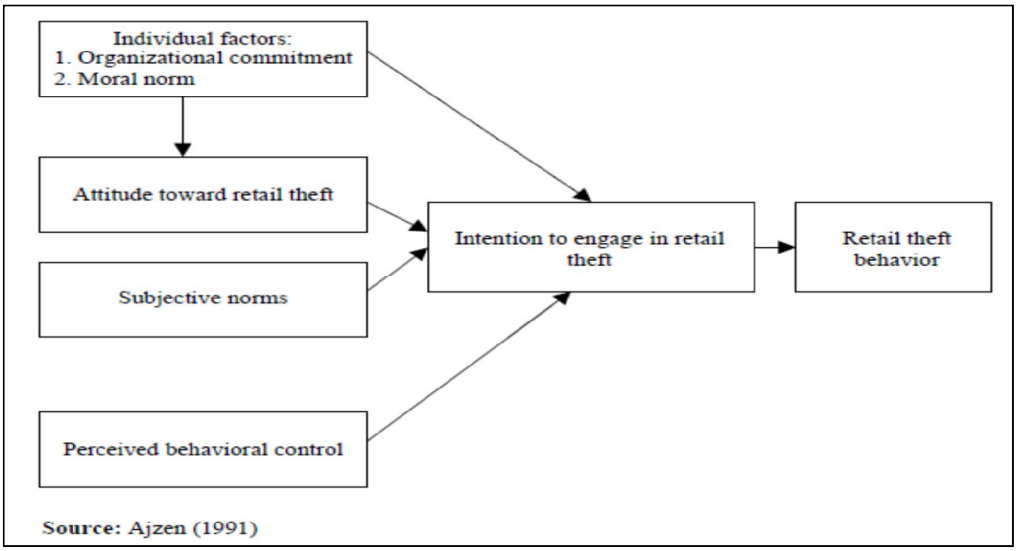


Figure 2.5.4 shows the model of TPB applied to retail employee theft. Consistent with earlier applications of TPB to other behaviors, this model posits that employee intention to engage in retail theft is predictive of the actual behavior, retail theft. The employee's attitude toward retail theft, subjective norms, and the perceived ease or difficulty of engaging in retail theft will have an impact on intentions. TPB also allows for additional variables in the model. In this case, an employee's organizational commitment and moral norm have been added as individual difference factors that are likely to impact attitudes toward, and the intentions to engage in, retail theft. (Ajzen, 1991; Peace et al., 2003[208]; Shaw and Shiu,2002[209]; Tonglet, 2002[210])

[207] Bailey A. A., (2006), "Retail employee theft: a theory of planned behavior perspective", International Journal of Retail & Distribution Management, Vol. 34 No. 11, 2006, pp. 802-816.
[208] Peace, A.G., Galletta, D.F. and Thong, J.Y.L. (2003), "Software piracy in the workplace: a model and empirical test", Journal of Management Information Systems, Vol. 20 No. 1, pp. 153-77.
[209] Shaw, D. and Shiu, E. (2002), "The role of ethical obligation and self-identity in ethical consumer choice", International Journal of Consumer Studies, Vol. 26 No. 2, pp. 109-16.
[210] Tonglet, M. (2002), "Consumer misbehavior: an exploratory study of shoplifting", Journal of Consumer Behavior, Vol. 1 No. 4, pp. 336-54.

Josephine Pickett-Baker and Ritsuko Ozaki (2008)[211] investigated that if marketing and branding techniques can help establish green brands and introduce greener patterns of consumption into contemporary lifestyles in the current context where environmentally friendly products are increasingly available. This paper reviews consumer behaviour and advertising to identify how consumers are persuaded to opt for greener products. It reports the results of a consumer product survey using a questionnaire based on the Dunlap and van Liere HEP-NEP environmental survey and the Roper Starch Worldwide environmental behaviour survey. The respondents were 52 mothers who shop at supermarkets. The results show a correlation between consumer confidence in the performance of green products and their pro-environmental beliefs in general. The findings suggest that most consumers cannot easily identify greener products (apart from cleaning products) although they would favor products manufactured by greener companies, and they do not find the current product marketing particularly relevant or engaging. The paper suggests that the market for greener products could be exploited more within consumer groups that have pro-environmental values.

Gabriela Topa and Juan Antonio Moriano (2010)[212] examined that if the theory of planned behavior (TPB) predicts smoking behavior, 35 data sets (N = 267,977) have been synthesized, containing 219 effect sizes between the model variables, using a meta-analytic structural equation modeling approach (MASEM). Consistent with the TPB's predictions, 1) smoking behavior was related to smoking intentions (weighted mean r = 0.30), 2) intentions were based on attitudes (weighted mean r = 0.16), and subjective norms (weighted mean r = 0.20). Consistent with TPB's hypotheses, perceived behavioral control was related to smoking intentions (weighted mean r = −0.24) and behaviors (weighted mean r = −0.20) and it contributes significantly to cigarette consumption. The strength of the associations, however, was influenced by the characteristics of the studies and participants.

[211] Pickett-Baker, Josephine and Ritsuko Ozaki (2008), "Pro-environmental Products: Marketing Influence on Consumer Purchase Decision," Journal of Consumer Marketing, 25 (5), 281-93.
[212] Gabriela Topa and Juan Antonio Moriano, (2010), "Theory of planned behavior and smoking: meta-analysis and SEM model", Journal of Substance Abuse and Rehabilitation, 1(1), 23-33.

2.5.4 Comparison of TRA and TPB and Hybrid Model Development

According to Elizabeth L. Jackson, Mohammed Quaddus, Nazrul Islam and John Stanton (2006)[213], motives, values and attitudes are key components of the decision-making process. Behavioural studies in agribusiness focus on using these three components to understand the decision-making processes of farmers (Morris & Potter 1995)[214]. Literature on three behavioural theories is reviewed with the aim of concluding if the theories can be combined for agribusiness research. Fishbein and Ajzen's Theory of Reasoned Action (1975), Ajzen's Theory of Planned Behaviour (1991) and Rogers' Diffusion of Innovations Theory (1995)[215] are empirically described and their application to agribusiness research is discussed. Findings suggest that although these behavioural theories lost popularity in applied research in the 1980s, they still have application to current rural sociology research. Research is also reviewed to show that the strengths of each behavioural theory can be "hybridised" to construct new valid and reliable theoretical frameworks.

GökhanÖzer and Emine Yilmaz (2010)[216] investigated the reasons behind accountants' IT usage and in this context, compare two social psychology based theories; the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB). The data, obtained through a questionnaire that was responded to by 437 accountants, shows that if an accountant has a positive attitude and Subjective Norms (SN) towards IT usage, his/her intention towards IT usage is also positive, and the degree of intention is in proportion to the degree of perceived behavioral control. According to the stepwise regression analysis, TPB has higher predictive power than TRA.

Subsequent facts with reference to above evidences would provide proper background for the use of consumer belief and environmental knowledge as antecedents of theory of planned behavior in our study.

[213] Elizabeth L. J., Mohammed Q., Nazrul I. and John S., (2006), "Behavioural factors affecting the adoption of forward contracts by Australian wool producers", International Farm Management Association Congress 16, 2007, theme 5 – Education and training, pg 826-50, http://www.ifmaonline.org/pdf/congress/07Jackson_etal.pdf

[214] Morris, C. and Potter, C. (1995) Recruiting the new conservationists: adoption of agri-environmental schemes in the UK. Journal of Rural Studies 11, 51-63.

[215] Rogers, E.M. (1995). Diffusion of innovations (4th edition).The Free Press. New York.

[216]Özer, G., and Yilmaz, E., (August 24, 2010), Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior: An Application on Accountants' Information Technology Usage, African Journal of Business Management, Vol. 5, No. 1, pp. 50-58. Available at SSRN: http://ssrn.com/abstract=1923022

2.5.5 Consumer beliefs and behaviour

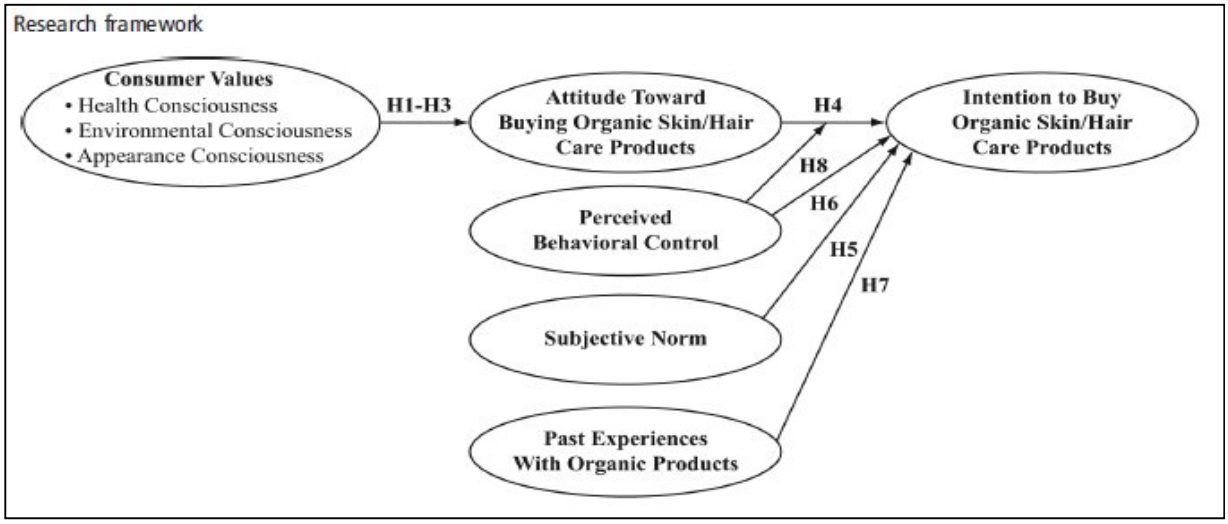
Hoyer and MacInnis (2004)[217] state that consumers' values and beliefs need to be considered when examining the influences that affect purchasing decisions. Values are enduring beliefs that a given behaviour is desirable or good and include valuing the environment. Environmental values play a primary role in pro-environmental behaviour: values affect people's beliefs, which then have influences on personal norms that lead to consumers' pro-environmental behaviours (Reser and Bentrupperbaumer, 2005[218]; Stern, 2000[219]). Similarly, Ajzen's (1991) Theory of Planned Behavior shows that (environmental) beliefs form attitudes towards behaviour, which is then translated into intention of behaviour. The Global Environmental Survey (GOES) finds a gradual intergenerational value shift in the post-war generation towards post-materialist priorities, likely to result in more pro-environmental behaviour (Bennulf and Holmberg, 1990[220]; Betz, 1990[221]; Hoffmann-Martinot, 1991[222]; Inglehart, 1990[223]). So, although pro-environmental values do not guarantee pro-environmental behaviour, it is likely that pro-environmental values lead to pro-environmental behaviour.

HeeYeon Kim and Jae-Eun Chung (2011)[224] proposed model to examine US consumers' purchasing behavior of organic personal care products base on the theory of planned behavior (TPB) by Ajzen (1985). Specifically, this study considers consumer values as an antecedent of attitude and consumers' past experiences as a predictor of purchase intention. Additionally, the moderating influence of perceived behavioral control on the attitude-purchase intention relationship is examined. Specifically, this study considers consumer values as an antecedent of

[217]Hoyer, W., &MacInnis, D. (2004). Consumer behavior (3rd ed.). Boston, MA: Houghton Mifflin Company
[218]Resera, J.P., Bentrupperbaumer, J.M. 2005. "What and where are environmental values? Assessing the impacts of current diversity of use of 'environmental' and 'World Heritage' values."Journal of Environmental Psychology 25: 125–146
[219] Stern, P. C. (2000). "Psychology, Sustainablity, and science of human-environment interaction." American Psychoogist55: 523-530.
[220]Bennulf, M. and Holmberg, S. (1990), "The green breakthrough in Sweden", Scandinavian Political Studies, Vol. 13 No. 2, pp. 165-84.
[221] Betz, H.G. (1990), "Value change in postmaterialist politics: the case of West Germany", Comparative Political Studies, Vol. 23 No. 2, pp. 239-56.
[222] Hoffmann-Martinot, V. (1991), "Gru¨ne and verts: two faces of European ecologism", West European Politics, Vol. 14 No. 4, pp. 70-95.
[223]Inglehart, R. (1990), Culture Shift in Advanced Industrial Society, Princeton University Press, Princeton, NJ.
[224]Kim, Y. H., Chung, F. E., (2011), Consumer purchase intention for organic personal care products Journal of Consumer Marketing 28/1 (2011) 40–47, Emerald Group Publishing Limited [ISSN 0736-3761].

attitude, consumers' past experiences as a predictor of purchase intention, and perceived behavioral control as a moderator of the attitude-purchase intention relationship (see Figure 2.5.5).

Figure 2.5.5: Theoretical framework in study of Kim & Chung



Several definitions of "value" exist in various contexts. In one instance, value is considered "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14)[225], which focuses on consumer benefits or the worth of using a product. In another instance, value is defined as a belief about desirable end states (Feather, 1990[226]; Rokeach, 1973[227]; Schwartz and Blisky, 1987[228]), which focuses on a psychological aspect. The term "value" in this study reflects the latter, which is viewed as the most fundamental element of an individual's belief system (Vaske and Donnelly, 1999[229]). So, based on above literatures, I propose the consumer belief as an antecedent of attitude and perceived behavioral control.

[225]Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. Journal of Marketing, XX, 2-22
[226] Feather N. T. (1990) The Psychological Impact of Unemployment. New York: Springer-Verlag.
[227]Rokeach, M. (1973). The Nature of Human Values, The Free Press, New York, NY
[228]Schwartz, S. H., and Bilsky, W. (1987)."Toward a Universal Psychological Structure of Human Values".Journal of Personality and Social Psychology, 53: 550-62.
[229]Vaske, J. J., and Donnelly, M. P. (1999). A value–attitude–behavior model predicting Wild land preservation voting intentions, Society and Natural Resources, Vol.12, pp. 523– 537.

2.5.6 Environmental Knowledge and Behavior

Schahn & Holzer (1990) have analyzed the interplay of environmentally relevant knowledge, attitudes, and behavior along with gender differences in predicting behavior. Unlike what Arbuthnot & Lingg (1975) found, their study results demonstrated that knowledge and gender moderated the relationship between attitude and behavior. However, in the second step of 105 respondents who are active in conservation movements, the effect of gender and knowledge were somehow not clear. They found that women were more environmentally concerned in those topical areas that refer to household behavior, while men were more knowledgeable about environmental problems.

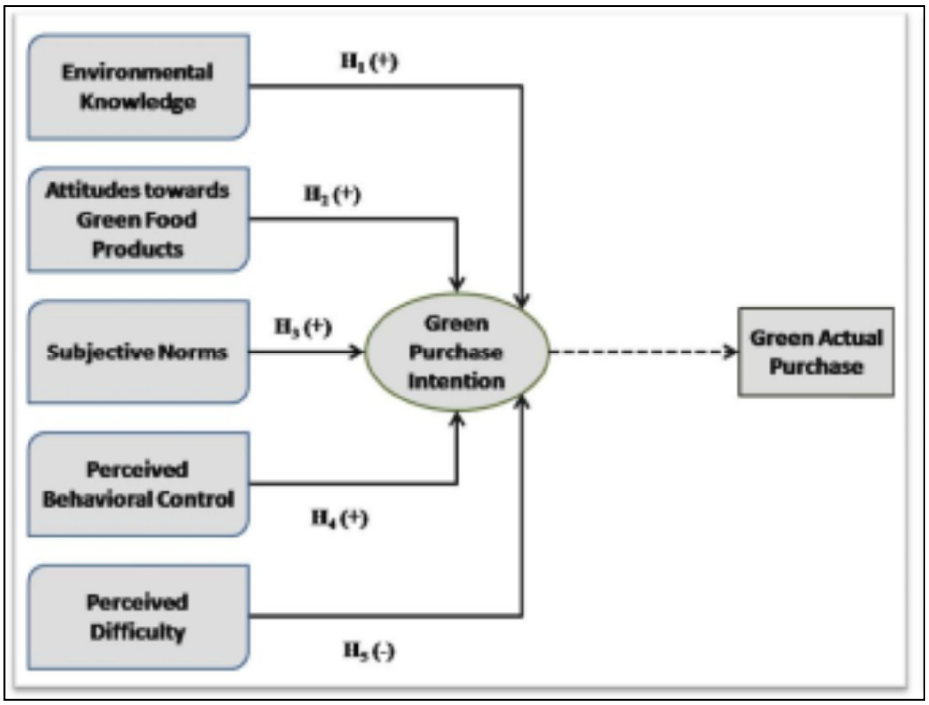
Taking a closer look into specific food brands, Laroche et al. (1996)[230] have done an empirical study to observe the relationship between attitude, knowledge confidence, brand familiarity, and purchase intention. They argued that when individuals approach the level of motivational equilibrium with respect to information search, they will need less product information and thus more likely to be ready to act. They expected that at low levels of knowledge confidence, the purchase intention will also be low. Hence, one of their hypotheses then stated that a consumer's knowledge confidence about a specific brand will positively influence his or her intention to buy. Using structural equation modeling in testing the causal relationships among those variables, the result concerning the confidence knowledge indicated that the confidence knowledge-purchase intention link was positively and highly significant and supporting the hypothesis. Thus, the result provides evidence that confidence knowledge in product evaluation is one of the determinants of purchase intention.

Furthermore, in examining the antecedents of green purchases in China, Chan & Lau (2000)[231] have developed a conceptual model in which ecological affect, ecological knowledge, and intention to engage in green purchase are relating. To be more specific, the model postulated that a person's ecological affect and ecological knowledge will significantly influence his or her intention to engage in green purchase. They argue that this postulation is in line with a general

[230]Laroche, M., Kim, C. & Zhou, L., 1996, Brand familiarity and confidence as determinants of purchase intention: An empirical test in a multiple brand context, Journal of Business Research, 37: 115–120.
[231]Chan, Ricky Y. K. & LAU, Lorett B. Y. (2000). Antecedents of green purchases: A survey in China. Journal of Consumer Marketing, 17 (4), 338-357.

belief that a person's affective response (ecological affective) and cognitive evaluation (knowledge) are the major determinants of his or her intention to act. For this reason, they proposed that people with knowledge about ecological issues will have a stronger intention to involve in green purchase. Data collection for the study was carried out through personal interviews in Beijing and Guangzhou, China and involved 274 respondents in total. On the whole, the reliability of the collected data was performed well with the test provided alpha values between .62 and .81. Thus, these results provide a minimum safeguard for the reliability of the constructs under investigation. The study also expressed that both ecological affective and ecological knowledge exerted a similar degree of highly positive influence on purchase intention towards the green products (.70 and .73).

Figure 2.5.6: Theoretical framework in study of Sudayanti S[232].

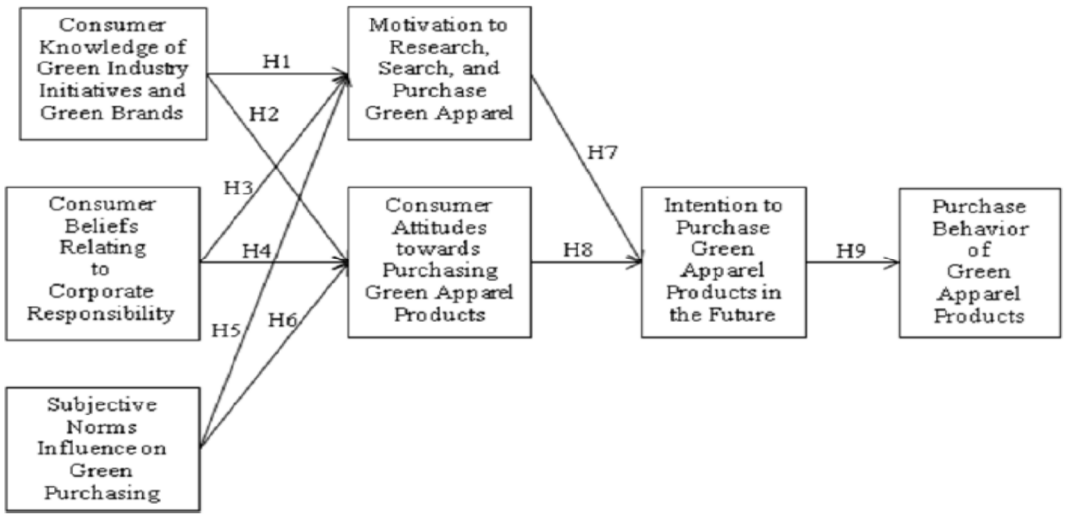


According to S. Sudiyanti (2009) (Figure 2.5.6), Education and media publications play significant roles in propelling and lifting ecological issues and as result enhancing consumers' environmental knowledge. Environmental knowledge deals with people's understanding about the environment,

[232] Sudayanti, S., (2009). "Predicting Women Purchase Intention for Green Food Products in Indonesia"

key relationship leading to environmental aspects or impacts, an appreciation of 'whole systems', and also collective responsibilities necessary for sustainable development (Mostafa, 2007a)[233]. Several consumer behavior researches came up with various approaches and findings. For instance, a study comparison has done in evaluating consumers' environmental behaviors, knowledge, and attitude (Arbuthnot &Lingg, 1975). The study took France and United States as research setting. The result concerning environmental knowledge indicated that this variable plays a mediating role between attitudes and behavior. This finding brings us to the argument that given individuals' attitude, the more knowledgeable they are about the environment, and the more they know about the effects of the human actions towards the environment, the more we expect them to perform the pro-environmental behaviors. So, based on above literatures, I propose the environmental knowledge as antecedent of attitude and perceived behavioral control.

Figure 2.5.7: Theoretical framework in study of Sampson, L. K.



According to the literature review of Sampson, Laura Kathryn (2009)[234], the TPB has been successfully used to predict environmental behavior and implies that environmental buying behavior of consumers is influenced by the individual's view on the personal opportunity for

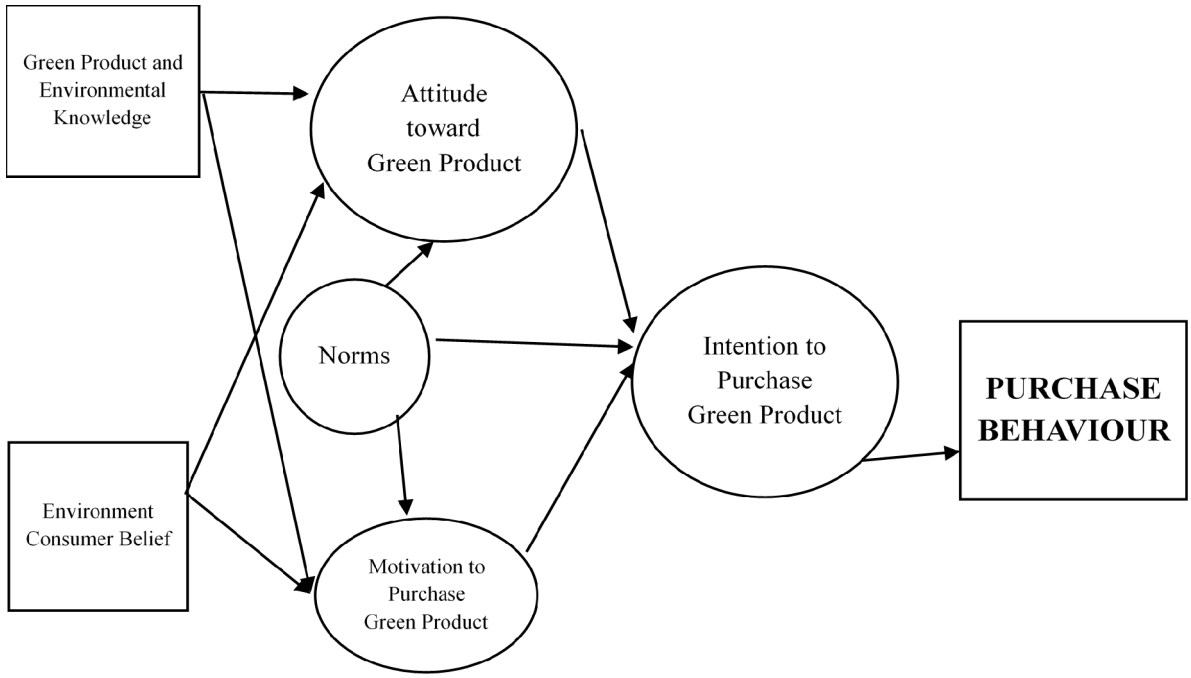
[233]Mostafa, M. M., 2007a, Gender differences in Egyptian consumers' green purchase behavior: The effects of environmental knowledge, concern and attitude, International Journal of Consumer Studies, 31: 220–229.
[234] Sampson, L. K., (2009). "Consumer analysis of purchasing behavior for green apparel", Master Thesis, North Carolina State University, Raleigh, NC

contributing toward a solution, in addition to awareness, attitudes and social pressure (Birgelen, Semeijn, &Keicher, 2009)[235]. The research design for study of Sampson, Laura Kathryn is depicted in the operational model presented in the figure 2.5.7.

2.5.7 Proposed Model

According to the given evidences and literature reviewed, here I propose the following model taking The Theory of Planned Behavior model introduced by Ajzen (2002b)[236] as the basis for the conceptual framework to investigate consumers' intention to purchase green paints. The proposed model in this study is presented in following figure, which illustrates the hypothesized relationships between independent variables and dependent variable. According to Saunders et al. (2007)[237], independent variable is a variable that causes changes in dependent variables, while dependent variable is viewed as a variable that changes in response to changes in other variables.

Figure 2.5.8: The proposed model of the study



[235] van Birgelen, M., Semeijn, J., & Keicher, M. (2009). Packaging and proenvironmental consumption behaviour: investigating purchase and disposal decisions for beverages. Environment and Behavior, 41(1), 125-146.
[236]Ajzen, I. (2002b). *Constructing a TpB questionnaire: Conceptual and methodological considerations*. Boston: UMASS Retrieved from http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf
[237]Saunders, M., Lewis, P. and Thornhill, A. 2007.Research methods for business students.4th ed. London: Prentice Hall.

The proposed model mainly includes the Theory of Planned Behavior's components as the independent variables, which are attitude, subjective norm, and perceived behavioral control. In the other words, the pure similarity between the proposed model and the Theory of Planned Behavior here is that the three main elements of the Theory of Planned Behavior are being adopted as the determinants of behavioral intention. Even the Theory of Planned Behavior puts the relationship between purchase intention and the actual purchase into consideration.

The purpose of this research was to study the effect of environmental concern & norms (injunctive & personal) on environmental friendly behavioral intentions. This study is a partial replication of the work of Sampson, Laura Kathryn (2009) in the Indian context, as it discussed the effects of environmental concern, motivational factors, attitudinal factors& social norms on environmental friendly purchase intentions. Also it extends the above study by carrying out regression analysis of environmental friendly behavioral intentions & then studying the effect of environmental friendly purchase intentions on actual purchase. Demographic assessment on each factor wills also an addition to this study.

2.6 Summary of Literature Reviewed

Following table is a brief summary of the literature in the field of consumer buying behavior, theory of planned behavior and theory of reasoned action –

Table 2.6.1: Summary of Literature in the field of consumer buying behavior, theory of reasoned action and theory of planned behavior

Sr. No.	Year of Publication	Author / Researcher	Title of the study	Contribution
1	1928	L L Thurston	Attitude can be measured	The objective of this study is to devise a method where by the distribution of attitude of a group on specified issue may be represented in form of a frequency distribution
2	1935	Allport gordon W.	"Attitude" in a handbook of social psychology	Gordon W. Allport theorized that the attitude-behavior relationship was not uni-dimensional as previously thought, but multi-dimensional
3	1944	Louis Guttmann	Guttmann scalogram	Louis Guttman developed the scalogram analysis to measure beliefs about the object
4	1947	Doob L W	The behavior of attitudes	Doob in 1947 adopted the idea of Thurstone that attitude is not directly related to behavior but it can tell us something about the overall pattern of behavior
5	1960	Rosenberg M. and Hovland C I	Cognitive, affective, and behavioral components of attitudes	Rosenberg and Hovland in 1960 theorized that a person's attitude toward an object is filtered by their affect, cognition and actual behavior
6	1969	Wicker A W	Attitude versus actions	Wicker conducted an extensive survey and literature review (42 experimental studies)on the subject and he determined that it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitude will be closely related to actions
7	1972	W. Thomas Anderson, Jr. and William H. Cunningham	The socially conscious consumer	Who are the socially conscious consumers? This article typologically classifies socially conscious consumers and evaluates the relative sensitivity of demographic and socio-psychological variables in discriminating degree of social consciousness.
8	1975	David T. Wilson, H. Lee Mathews, James W. Harvey	An empirical test of the fishbein behavioral intention model	The theoretical antecedents and predictive validity of the Fishbein Behavioral Intention Model are examined with housewives' responses to a questionnaire and one measure of actual behavior in the context of nationally-advertised brands of toothpaste as the data base.

9	1977	Icek Ajzen Martin Fishbein	Attitude-behavior relations: a theoretical analysis and review of empirical research	Research on the relation between attitude and behavior is examined in light of the correspondence between attitudinal and behavioral entities. Such entities are defined by their target, action, context, and time elements. A review of available empirical research supports the contention that strong attitude-behavior relations are obtained only under high correspondence between at least the target and action elements of the attitudinal and behavioral entities.
10	1980	I Ajzen, M Fishbein	Understanding attitudes and predicting social behavior	Behavior based on intentions, intentions on attitudes toward the behaviour and subjective norms, these again on beliefs. the theory described here is designed to explain virtually any human behavior
11	1982	Chris T. Allen Roger J. Calantone Charles D. Schewe	Consumers' attitudes about energy conservation in Sweden, Canada, and the united states, with implications for policymakers	This study examined differences in the attitudes of Swedes, Canadians, and Americans about energy conservation as a vehicle for evaluating the energy policies of these nation
12	1991	ICEK AJZEN	The theory of planned behavior	The theory is found to be well supported by empirical evidence. Intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, subjective norms, and perceived behavioral control; and these intentions, together with perceptions of behavioral control, account for considerable variance in actual behavior
13	1991	Pam Scholder Ellen, Joshua Lyle Wiener, Cathy Cobb-Walgren	The role of perceived consumer effectiveness in motivating environmentally conscious behaviors	This research demonstrates that PCE is distinct from environmental concern and contributes uniquely to the prediction of certain pro-ecological behaviors. In addition, differences in PCE are shown to be associated with differences in demographics and political affiliation
14	1991	Chol Lee and Robert T. Green	Cross-cultural examination of the fishbein behavioral intentions model	The study reported in this paper is a cross-cultural examination of the applicability of the Fishbein behavioral intentions model in Korea and the United States
15	1992	ICEK AJZEN & B. L. Driver	Application of the theory of planned behaviour to leisure choice	The objectives of the research were as follows. 1. Tlie theory of planned behaviour as a model of leisure behaviour. 2. Instrumentality versus affect. 3. Contingent valuation

16	1992	Ida E. Berger and Ruth M. Corbin	Perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviors	The authors use a 1989 environmental opinion poll of the Canadian population to examine the influence of perceived consumer effectiveness (PCE) and faith in the efficacy of others (FIO) on the relationship between environmental attitudes and consumer behaviors. The results indicate that PCE moderates both the strength and form of the attitude-personal consumer behavior relationship while F IO moderates the strength and form of the attitude support for regulatory action relationship. Implications of these results for consumer researchers, marketing managers, and policymakers are outline
17	1998	Thomas Dietz, Paul C. Stern and Gergory A. Guagnano	Social structural and social psychological bases of environmental concern.	Efforts to explain environmental concern as a function of social structure have revealed some weak but reliable associations. Stronger associations have been found between environmental concern and social psychological variables including attitudes, beliefs, and worldviews.
18	1998	Mark Conner Christophe jr. Armitage	Extending the theory of planned behavior: a review and avenues for further research	This paper describes and reviews the theory of planned behavior (TPB). The focus is on evidence supporting the further extension of the TPB in various ways. Empirical and theoretical evidence to support the addition of 6 variables to the TPB is reviewed: belief salience measures, past behavior habit, perceived behavioral control (PBC) vs. self-efficacy, moral norms, self-identity, and affective beliefs.
19	1999	Shultz, C.J. II and Holbrook, M.B.	Marketing and tragedy of the commons: a synthesis, commentary and analysis for action	The authors contend that solutions to the most pressing environmental challenges will result from understanding and solving social traps such as the commons dilemma. They propose a synthesis for analysis and action to suggest that marketing's stakeholders can cooperate to contribute solutions and ultimately develop programs that help ameliorate the tragedy of the commons.
20	1999	Robert D. Straughan and James A. Roberts	Environmental segmentation alternatives: a look at green consumer behavior in the new millennium	Looking to the future of green marketing, examines the dynamic nature of ecologically conscious consumer behavior. The study also provides a method of profiling and segmenting college students based upon ecologically conscious consumer behavior.
21	1999	Stavros P. Kalafatis, Michael Pollard, Robert East, Markos H. Tsogas	Green marketing and ajzen's theory of planned behaviour: a cross-market examination	Examines the determinants that influence consumers' intention to buy environmentally friendly products. Ajzen's theory of planned behaviour (TPB) provides the conceptual framework of the research and the appropriateness of the theory and is tested in two distinct market conditions (UK and Greece).

22	1999	Florian g. Kaiser , Sybille wolfing and urs fuhrer	Environmental attitude and ecological behaviour	This paper establishes environmental attitude as a powerful predictor of ecological behaviour. Past studies have failed in this enterprise because they did not consider three shortcomings that limit the predictive power of environmental attitude concepts: 1. the lack of a unified concept of attitude, 2. the lack of measurement correspondence between attitude and behaviour on a general level, and 3. the lack of consideration of behaviour constraints beyond people's control
23	2000	Chan R. Y. K	Examines the influence of cultural values, ecological affect and ecological knowledge on the green purchasing behavior of chinese consumers.	Examines the influence of cultural values, ecological affect and ecological knowledge on the green purchasing behavior of Chinese consumers.
24	2000	Bagozzi, Richard P.; Wong, Nancy; Abe, Shuzo; Bergami, Massimo	Cultural and situational contingencies and the theory of reasoned action: application to fast food restaurant consumption.	Investigated the usefulness of the theory of reasoned action (TRA) for fast food restaurant patronage decisions. The authors examined issues of generalizability of the TRA for consumption acts, looked at how 2 situational conditions related to subjective normative influences, tested the TRA while controlling for past behavior, and looked at behavioral expectations as criteria, along with intentions.
25	2001	Siferd, S. P. & Zsidisin, G. A	Environmental purchasing: a framework for theory development	This paper examines environmental research in the supply chain management literature in order to establish a framework for current and future development of environmental purchasing theory.
26	2001	Michel Laroche, Jasmin Bergeron and Guido Barbaro-Forleo	Targeting consumers who are willing to pay more for environmentally friendly products	Concerns related to the environment are evident in the increasingly ecologically conscious marketplace. Using various statistical analyses, investigats the demographic, psychological and behavioral profiles of consumers who are willing to pay more for environmentally friendly products.
27	2003	Fryxell and Lo	The influence of environmental knowledge and values on managerial behaviors on behalf of the environment: an empirical examination of managers in china	This study explores linkages between what Chinese managers generally know about environmental issues, how strongly they value environmental protection, and different types of behaviors/actions they may take within their organizations on behalf of the environment.

28	2003	Cheryl burke Jarvis Scott b. Mackenzie Philip m. Podsakoff	A Critical Review of Construct Indicators and Measurement Model misspecification in Marketing and Consumer Research	The purpose of this research is to (a) discuss the distinction between formative and reflective measurement models, (b) develop a set of conceptual criteria that can be used to determine whether a construct should be modeled as having formative or reflective indicators, (c) review the marketing literature to obtain an estimate of the extent of measurement model misspecification in the field, (d) Estimate the extent to which measurement model misspecification biases estimates of the relationships between constructs using a Monte Carlo simulation, and (e) provide re+F58commendations for modeling formative indicator constructs.
29	2003	T Rehman, K McKemey, C Garforth, R Huggins, CM Yates, RJ Cook, RB Tranter, JR Park and PT Dorward	Theory of reasoned action and its integration with economic modelling in linking farmers' attitudes and adoption behaviour – an illustration from the analysis of the uptake of livestock technologies in the south west of England	Findings of this study reinforce the importance of understanding and addressing the prevailing beliefs and values within the objective population.
30	2004	Joey F. George	The theory of planned behavior and Internet purchasing	Several opinion polls have found that many consumers resist making purchases via the Internet because of their concerns about the privacy of the personal information they provide to Internet merchants. Using the theory of planned behavior as its basis, this study investigated the relationships among beliefs about Internet privacy and trustworthiness, along with beliefs about perceived behavioral control and the expectations of important others, and online purchasing behavior.

31	2005	Mark Cleveland, Maria Kalamas and Michel Laroche	Shades of green: linking environmental locus of control and pro-environmental behaviors	The purpose of this research was to examine the impact of various attitudes and personality characteristics on environmentally-friendly behaviors, from a locus of control (LOC) perspective. Specifically, they developed and tested a model linking a related construct, environmental locus of control (ELOC), to a series of pro-environmental behaviors.
32	2005	Peter Dobers and Lars Strannegård	Design, Lifestyles and Sustainability. Aesthetic Consumption in a World of Abundance	This paper strives for a conceptualization of sustainability, design and contemporary consumption. By sketching out how effective production systems have created an abundance of products, the paper links this development to the aestheticization of society and an increased interest in design.
33	2005	Anja Schaefer and Andrew Crane	Addressing Sustainability and Consumption	This article examines issues of sustainability in relation to consumption. The authors first discuss the notion of sustainable consumption and the link between individual consumer behavior and the macro concerns of understanding and influencing aggregate consumption levels
34	2006	Hustvedt G.	Consumer Preferences in Blended Organic Cotton Apparel	The purpose of this study was twofold. One goal was to identify the groups of consumers who might be interested in buying blended organic cotton clothes and find out what kind of labeling they preferred. The second goal was to find out more about the consumer's attitudes and interest in purchasing the organic cotton clothing.
35	2006	Ainsworth A. Bailey	Retail employee theft: a theory of planned behavior perspective	One area of concern for retailers is the impact of employee theft on retailing profit margins and operations. It is possible that the application of the theory of planned behavior (TPB) to the employee theft could shine some light on the problem and possibly offer some assistance to retailers. The purpose of this paper is to apply TPB to this phenomenon.
36	2006	Clare D'Souza, Mehdi Taghian, Peter Lamb and Roman Peretiatkos	Green products and corporate strategy: an empirical investigation	The purpose of the study is to examine the influence of multiple factors on the green purchase intention of customers in Australia.
37	2006	Elena Fraj and Eva Martinez	Environmental values and lifestyles as determining factors of ecological consumer behaviour: an empirical analysis	The aim of this study is to identify what values and lifestyles best explain environmentally friendly behaviours. The results of this study might interest consumer behaviour researchers and those firms that care about the ecological consumers.

38	2006	Yun Wang	A Cross-Cultural Study of Consumer Attitudes and Emotional Responses of Apparel Purchase Behavior	This research utilized the Triandis behavioral model and Fishbein and Ajzen's Theory of Reasoned Action as a framework to exam consumers' apparel purchase behavior. Triandis's model treats attitude toward the act and social-normative considerations as determinants of intentions.
39	2006	Elizabeth L. Jackson , Mohammed Quaddus, Nazrul Islam and John Stanton	Hybrid vigour of behavioural theories in the agribusiness research domain. Is it possible?	Findings of the study suggest that although these behavioural theories lost popularity in applied research in the 1980s, they still have application to current rural sociology research. Research is also reviewed to show that the strengths of each behavioural theory can be "hybridised" to construct new valid and reliable theoretical frameworks.
40	2007	Clare D'Souza, Mehdi Taghian and Rajiv Khosla	Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention	Research indicates that the environment has had a definite impact on consumer behaviour whereby suggesting to target consumers according to their environmental beliefs. This study investigated the consumers' green purchase behaviour using price and quality attributes as contributors to the formation of purchase intention.
41	2007	Dee K. Knight and Eun Young Kim	Japanese consumers' need for uniqueness: Effects on brand perceptions and purchase intention	This study sets out to examine the causal relationships among consumers' need for uniqueness, brand perceptions, and purchase intention of a US apparel brand among Japanese Generation Y consumers
42	2007	Florian G. Kaisera, Britta Oerkeb, and Franz X. Bognerb	Behavior-based environmental attitude: Development of an instrument for adolescents	Due to the omnipresent attitude–behavior gap, conservation psychologists have ceased to believe that attitudes are traceable from people's behavioral records. In contrast to this conventional wisdom and to the current state of the art in attitude measurement, authors developed a behavior-based attitude scale for adolescents, which is based on people's recall of their past behavior
43	2007	Taghian, Mehdi and D'Souza, Clare	A Cross-Cultural Study of Consumer Purchase Intention and Planned Behaviour	This study investigates for two cultures differences in consumers' purchase intention formation and their association with planned behaviour using the model of reasoned action. It also seeks evidence of exposure to a new dominant culture influencing change in behavioural intentions.
44	2008	Umberson, K.	Environmentally friendly purchase intentions debunking the misconception behind apathetic consumer attitude	By measuring intentions to purchase, this research gives insight into environmental attitudes, pressures to purchase environmentally friendly apparel, factors that inhibit environmentally friendly apparel purchasing, awareness of environmentally friendly apparel purchase options, and marketing insight into the eco-friendly consumer

45	2008	Josephine Pickett-Baker and Ritsuko Ozaki	Pro-environmental products: marketing influence on consumer purchase decision	The objective of this paper is to investigate if marketing and branding techniques can help establish green brands and introduce greener patterns of consumption into contemporary lifestyles in the current context where environmentally friendly products are increasingly available.
46	2009	Marsha A. Dickson	Personal Values, Beliefs, Knowledge, and Attitudes Relating to Intentions to Purchase Apparel from Socially Responsible Businesses	The purpose of the study was to provide initial understanding of female consumers' decisions to purchase from socially responsible apparel businesses, operationally defined as the U.S. Department of Labor's Trendsetters. The relationships between three major groupings of variables were explored including the following: (a) consumers' personal values, beliefs, and knowledge, (b) attitudes relating to socially responsible apparel business practices, as well as product-specific attitudes, and (c) intentions to purchase apparel from socially responsible businesses
47	2009	Sampson, L. K	Consumer analysis of purchasing behavior for green app	the study examines the impact of consumer knowledge of green industry initiatives and green textile brands, consumer beliefs related to the general environment, subjective norms influencing green apparel purchasing, the motivation to purchase green apparel, consumer attitudes towards green products on the intention to purchase green apparel products and actual purchase behavior.
48	2009	Sudiyanti, S.	Predicting Women Purchase Intention for Green Food Products in Indonesia	This study investigated the applicability of the Theory of Planned Behavior in predicting women consumers on their intention towards purchasing green food products among 406 participants. Despite the supporting evidence for the original Theory of Planned Behavior, Environmental Knowledge, additionally, has been found to be the immediate predictor of Purchase Intention. It also has been demonstrated that among the predictors, Subjective Norm was found to be the most considerably factor in predicting purchase intention.
49	2010	Pankaew P., Tobé M.	Consumer Buying Behavior in Green Supply Chain Management Context – A study in Dutch electronics Industry	The main purpose of this study is to determine how green supply chain practices influence consumer buying behaviour in the Dutch electronics industry

50	2010	Gabriela Topa and Juan Antonio Moriano	Theory of planned behavior and smoking: meta-analysis and SEM model	To examine if the theory of planned behavior (TPB) predicts smoking behavior, 35 data sets (N = 67,977) have been synthesized, containing 219 effect sizes between the model variables, using a meta-analytic structural equation modeling approach (MASEM). Consistent with the TPB's predictions, 1) smoking behavior was related to smoking intentions (weighted mean r = 0.30), 2) intentions were based on attitudes (weighted mean r = 0.16), and subjective norms (weighted mean r = 0.20). Consistent with TPB's hypotheses, perceived behavioral control was related to smoking intentions (weighted mean r = −0.24) and behaviors weighted mean r = −0.20) and it contributes significantly to cigarette consumption. The strength of the associations, however, was influenced by the characteristics of the studies and participants.
51	2010	Gökhan Özer and Emine Yilmaz	Comparison of the theory of reasoned action and the theory of planned behavior: An application on accountants' information technology usage	The purpose of this study is to investigate the reasons behind accountants' IT usage and in this context, compare two social psychology based theories; the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB).
52	2012	Joshi Pradeep	Effect of environmental concern & social norms on environmental friendly behavioral intentions	The author has done factor analysis of environmental friendly behavioral intentions taken from an earlier study, to study the effect of environmental concern & social norms on these intentions. The results indicate that these intentions can be grouped into "active" intentions & "passive" intentions.

Following table is a brief summary of the literature in the field of green supply chain management practices and consumers–

Table 2.6.2: Summary of Literature in the field of green supply chain management practices and consumers

Sr. No.	Year of Publication	Author / Researcher	Title of the study	Contribution
1	1975	Banbury, J. G.	Distribution – the final link in the electricity– supply chain	First use of the word "Supply Chain"
2	1982	Oliver, R. K., & Webber, M. D.	Supply chain management: Logistics catches up with strategy	Oliver and Webber (1982) discussed the potential benefits of integrating internal business functions of purchasing, manufacturing, sales and distribution into one cohesive framework.
3	1989	Stevens G C	Integrating the supply chain	Stevens (1989) has defined supply chain management as the integration of business functions involving the flow of materials and information from inbound to outbound ends of the business.
4	1991	Slack N	The manufacturing advantage	Reasons given to need of globalized marketplace
5	1992	Christopher M G	Logistics and supply chain management	Reasons given to need of globalized marketplace
6	1995	Sarkis J.	Manufacturing strategy and environmental consciousness	In this paper the environmental consciousness issues pertaining to manufacturing and operations management are presented. A general strategic framework on how to manage environmentally conscious programs and projects in a manufacturing enterprise is also developed and discussed.
8	1996	Harland C M	Supply chain management: Relationships, chains and networks	Dyadic or party relationships between suppliers are becoming part of the supply chain process
9	1998	Walton V S, Hadfield R B, Melnyk S A	The green supply chain: integrating suppliers into environmental management process	The experiences of surveyed companies illustrate the types of environmentally-friendly practices used in each of these five areas, and “rules of thumb” which purchasing and supply chain managers can apply. Two additional themes which emerge from this research are the importance of management's commitment to supply chain EFP, and the need to move beyond environmental compliance to achieve a proactive environmentally-friendly supply chain.

10	1999	Benita M. Beamon	Designing the Green Supply Chain	This research: (1) investigates the environmental factors leading to the development of an extended environmental supply chain; (2) describes the elemental differences between the extended supply chain and the traditional supply chain; (3) describes the additional challenges presented by the extension; (4) presents performance measures appropriate for the extended supply chain; and (5) develops a general procedure towards achieving and maintaining the green supply chain.
11	1999	Steve Lippmann	Supply Chain Environmental Management: Elements for Success	n this article, Steve Lippman, the program manager in the Business and Environmental Program at Business for Social Responsibility (BSR), reports on the latest thingking in supply chain environmental management. The article shares the lessons that BSR has learned from leading firms about the types of activities companies are undertaking to influence their suppliers, the characteristics of effective supply chain environmental management programs, and the key steps for initiating or expanding these activities.
12	1999	US AEP	Supply Chain Environmental Management-Lessons for Leader in the Electronic Industry, Clean Technology Environmental Management (CTEM) Program	The study is based on a survey of seven international electronics firms and draws on other available industry-wide studies and data. It is hoped that this report will contribute to the growing body of knowledge on clean technologies and sustainable economic development.
13	1999	Lee, J. A. and Holden, S. J. S.	Understanding the determinants of environmentally conscious behavior	A correlational study finds support for two independent determinants of environmental behavior, the first being motivation based on internal responses of distress, the second being motivation based on empathy. The advantage of motivating environmental behavior through distress and empathy, over the more standard approaches based on attitudes and rewards or punishments, are discussed.
14	2000	Skjoett-larsen T.	European Logistics Beyond 2000	The implications for European companies are discussed and illustrated by examples from advanced companies. Asserts that it is employees and not the systems and processes that would ensure solutions to the logitstics tasks and provide companies with the necessary competitiveness

15	2000	Van Hock, R. I. & Erasmus	From reversed logistics to green supply chains	This research note looks at challenges for research on green steps to take, and green supply chains to make in practice, as a step up to lowering the ecologic footprint of supply chains.
18	2001	Sarkis J.	Manufacturing's role in corporate environmental sustainability: concerns for the new millennium	The issues facing manufacturing organizations, in general, and the manufacturing function in particular, are discussed in this paper. Some of the current practices and future requirements for an environmentally sustainable manufacturing enterprise are included in this discussion.
19	2002	Rao P.	Greening the supply chain: A new initiative in South East Asia	The objective of this paper is to present the findings of South East Asia region survey research, expecting to bring outsights in this greening process and inspire business, government and communities in this region to create an atmosphere conductive to the process.
20	2003	Marshall, R. Scott, Brown, Darrell	The strategy of sustainability: A systems perspective on environment initiatives	The two strategic environmental sustainability initiatives implemented by Norm Thompson Outfitters are analyzed by employing a systems dynamics approach. The results of the analysis assist in the identification and implementation of environmental sustainability initiatives.
21	2003	Sarkis J.	A strategic decision making framework for green supply chain management	The focus of this paper was on the components and elements of green supply chain management and how they serve as a foundation for the decision framework. Author explored the applicability of a dynamic non-linear multi attribute decision model, defined as the analytical network process, for decision making within the green supply chain. Issues facing the modeling approach are also discussed.
22	2004	Sarkis, J. & Zhu, Q	Relationship Between Operational Practices and Performance Among Early Adopters of Green Supply Chain Management Practices in Chinese Manufacturing Enterprises	Using empirical results from 186 respondents on GSCM practice in Chinese manufacturing enterprises, authors examined the relationships between GSCM practice and environmental and economic performance. Using moderated hierarchical regression analysis, they evaluated the general relationships between specific GSCM practices and performance.
23	2004	Clare D'Souza	Ecolabel programmes: a stakeholder (consumer) perspective	This paper proposes that consumers can be grouped using a matrix of four different environmental positions. The results of these grouping are more likely to provide an effective profile of a green consumer based on a clear understanding of consumer behaviour.

24	2005	Handfield, R., Sroufe, R. and Walton, S.	Integrating environmental management and supply chain strategies	In this paper author reviewed how companies develop environmental supply chain strategies. Our interviews with companies from The United States, The United Kingdom, Japan and Korea, along with prior research, were used to develop a framework for environmental supply chain strategy decision-making. They then use this framework to suggest guidelines for how companies might change their current supply chain practices to successfully integrate environmental issues into their supply chain strategy
25	2005	Jones, P., Hiller, D., Comfort, D., & Eastwood, I.	Sustainable retailing and consumerism	This short article looks to explore some of the tensions between consumerism and sustainable retailing. It begins by providing a basic outline of sustainable development and consumerism and of the role of retailing in linking production and consumption and it then examines some of the ways in which UK based retailers are looking to address sustainability agendas.
26	2005	Paquette, J	The supply chain response to Environmental Pressures Discussion	A framework of supply chain environment excellence is presented to illustrate how corporations may integrate environmental operating models, operational objectives, and new supply chain processes into a comprehensive corporate strategy
27	2005	Zhu, O., Sarkis, J. and Geng, Y.	Green supply chain management in china: pressures, practices and performance	This paper aims to evaluate and describe GSCM drivers, practices and performance among various Chinese manufacturing organizations. The investigation and its findings are still relatively exploratory. Future research can investigate relationships identified in this work, as well as tease out mediating and moderating relationships.
28	2006	Klassen, R. D. & Vachon, S.	Extending Green Practices Across the Supply Chain. The Impact of Upstream and Downstream Integration	This research aims to extend the "collaborative paradigm" proposed by others in prior research beyond a supply chain's core operations. To date, this paradigm has generated relatively little empirical research on peripheral, non-core areas such the natural environment. Antecedents (both plant-level and supply chain characteristics) of green supply chain practices (GSCP) are examined.
29	2006	Yong, T., Wang, N., Zhu, Y	The Research Actuality and Direction of Green Supply Chain Management	This article conclude that Green supply chain management (GSCM) is an effective maneuver to improve the efficiency of environmental management. The research actuality of GSCM is reviewed in detail. The shortage of current research on GSCM and the new field to lucubrate are put out in this paper.

30	2007	Srivastava, S. K.	Green Supply-Chain Management: A-State-of-the-Art Literature Review	This paper takes an integrated and fresh look into the area of GrSCM. The literature on GrSCM is covered exhaustively from its conceptualization, primarily taking a 'reverse logistics angle'. Using the rich body of available literature, including earlier reviews that had relatively limited perspectives, the literature on GrSCM is classified on the basis of the problem context in supply chain's major influential areas. It is also classified on the basis of methodology and approach adopted.
32	2008	Mintel , 2008 - Feb	Green Living	General survey results of each industry
33	2008	Müller, M. & Seurling, S.	From a Literature Review to a Conceptual Framework for Sustainable Supply Chain Management.	To establish the field of GSCM further, the purpose of this paper is twofold. First, it offers a literature review on sustainable supply chain management taking 191 papers published from 1994 to 2007 into account. Second, it offers a conceptual framework to summarize the research in this field comprising three parts.
34	2008	Sheila Bonini & Jeremy Oppenheim	Cultivating the Green Consumer	Consumers say they want to buy ecologically friendly products and to reduce their impact on the environment. But when they get to the cash register, their Earth-minded sentiments die on the vine. Although individual quirks underlie some of this hypocrisy, businesses can do a lot more to help would-be green consumers turn their talk into walk.
36	2009	Delmas, M. & Montiel, I.	Greening the supply chain – when is consumer pressure effective	This paper investigates the rationale for suppliers to comply with or resist the mandate of their customers to adopt the international environmental management standard ISO 14001 in the North American automotive industry.
37	2009	Tello, S. & Yoon, E.	Corporate Social Responsibility as a Driver of Sustainable Innovation: Greening Initiatives of Leading Global Brands	This paper explores the views and driving forces of sustainable innovation and proposes a future research program that examines the relative importance and interaction of the drivers of sustainable innovation.
38	2010	Woolley, Trisha D.	Sustainable Supply Chains: Multicriteria Decision-Making and Policy Analysis for the Environment	Author presented five essays in this dissertation. For each model author utilized the theory of variational inequalities, derive the formulation, present qualitative properties, and provide numerical examples.