



**SUBSTITUTION OF PLASTIC BAG BY JUTE BAG-
CASE COMPANY REDQ
Support on Sustainable Environment**

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Abstract

Sustainable development is one of the most important issues in the world today. People can play an important role in the sustainable development in different ways regardless of their own position. This study focuses on finding out how plastic bags could be substituted by jute bags and how it would contribute to the sustainable development. In addition, the study focuses on answering the question if the idea of substituting plastic bags by jute bags would be a profitable business innovation. For the study, it was examined how some Finnish customers liked the jute bag as a shopping bag and what was their attitude towards sustainable issues. The information collected in connection with this thesis work will be provided to the case company so that the company can utilise it in their business operations in the future.

The case company is redQ, which is a Swedish company and has a production unit for jute carpets and decorative items in Bangladesh. The company's market area is Europe and specially Sweden. In the research, 20 pieces of jute bags were given to consumers in Varkaus for testing. After a couple of months, feedback was collected by questionnaires. In addition, interviews were carried out with the superstore manager and the owner of the case company. This thesis work determines different aspects of sustainable development and environment. The study examines sustainable environment vs. global warming, the strategies of different organisations, the consumer behaviour, the situation of the jute sector in Bangladesh and its possibilities, the different patterns of cross-cultural business behavior and communication between three countries, Bangladesh, Sweden and Finland.

The results of this thesis show that the test group liked to use the jute bags instead of plastic bags. The members of the test group completely agreed that the jute is a more environmentally friendly material than plastic. The people think that they can use the jute bag for various purposes and that it is a durable bag. In addition, based on the results it can be stated that the jute bag is a good business idea, but cannot be regarded as a business innovation. The case company could start producing jute bags, but they would need to pay attention on designing a more customer-friendly model. It would be advisable to concentrate on the marketing and providing the consumers more information about the jute bag.

Keywords

Sustainable development, new innovation in business idea, life cycle, business culture, research implementation, product testing.

Note

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1 INTRODUCTION

Sustainable development is one of the most important issues in the world today. People can play an important role in the sustainable development in different ways regardless of their own position. This study focuses on finding out how plastic bags could be substituted by jute bags and how it would contribute to the sustainable development. In addition, the study focuses on answering the question if the idea of substituting plastic bags by jute bags would be a profitable business innovation. For the study, it was examined how some Finnish customers liked the jute bag as a shopping bag and what was their attitude towards sustainable issues. The information collected in connection with this thesis work will be provided to the Swedish case company so that the company can utilize the information in their business operations in the future.

There are different temperatures in different places in the world. For example, there is one place named in Oymyako, East Siberia in Russia, at 7 o'clock in the morning the temperature is -53 degrees Celsius and it can be even -71 Degrees Celsius as well. Therefore special fuel for cars is needed and even a microphone can be broken if it is held outside in the air. Djibouti in East Africa is the hottest place in the world. The temperature is 55 degrees Celsius which makes it really difficult for the inhabitants to be outside. World temperature is changing day by day because of global warming. It can be even more difficult in the near future. (BBC world news 2010.)

The researcher was present in International Conference on Bangladesh Environment (ICBEN 2010) which was held in 3rd-4th January, 2010 in Bangladesh. On the conference, the effect of global warming in Bangladesh was discussed and it was determined what kind of steps should be taken towards sustainable issues. In the conference, the speaker's said that Bangladesh will be one of the most vulnerable countries because of global warming. One third of the country could be covered by water. The researcher chose the jute bag from Bangladesh and the shopping bag from Finland which in turn could open new business opportunities between Bangladesh and Finland.

Step by step process followed on this study is given below in figure 1.

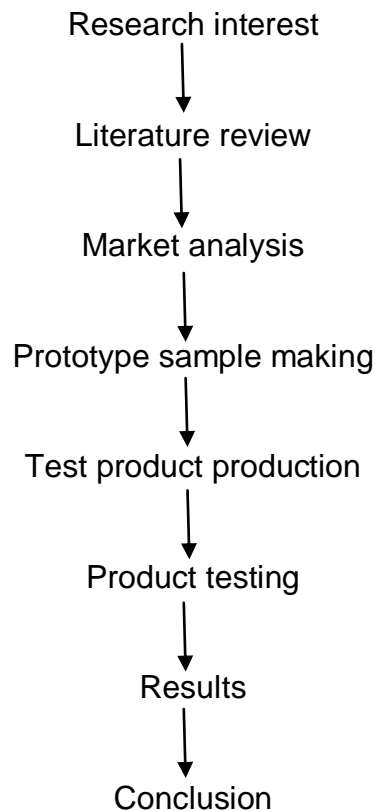


Figure 1. Own process followed on this study

According to the worst, a plastic shopping bag is considered hazardous for the environment, because it takes too long for the bag to mix with nature and the bag will not deplete in the soil and so it damages the marine organism in oceans. Disposable shopping bags are banned or is imposed a tax on them in many countries. In Bangladesh it is forbidden to use plastic bags. In Finland, there are mainly five different kinds of shopping bags used by grocery shops. They are plastic (low density polyethylene, LDPE), 60 percent recycled plastic, biodegradable plastic (thermoplastic starch with additives), bleached paper and cotton. According to retail sales statistics of the year 2007, Finnish households bought about 100 shopping bags in a year and the main bags were polyethylene bags which were used as bin liners later. Plastic bags are normally used in supermarkets, food packaging, fast food restaurants, service stations, convenience stores, liquor stores and other shops. (Mattila et al. 2009, 4.)

The study aims to help producers to make the decision of future planning about jute bag production in bulk quantity. The case company redQ is a Swedish company which has a production unit in Bangladesh for manufacturing jute carpets and some other decorative items. For the study 20 jute bags were given to consumers in Varkaus for testing. After a couple of months, feedback was collected by a questionnaire. There were a personal interview with the superstore manager was carried out and the owner of the case company was also interviewed. Through this thesis work some consumers already have got used to the jute bag and the case company will receive information about the consumers' opinions on the jute bag and its impact on sustainability.

After the introduction Chapter 2 deals with sustainable development and Chapter 3 handles with life cycle thinking, innovation and consumer behavior. Chapter 4 deals with case company introduction, jute sector in Bangladesh and business culture between three countries. Jute bag testing in Varkaus and analysis of collected data is described in Chapter 5. At the end, conclusion is presented in Chapter 6.

2 SUSTAINABLE DEVELOPMENT

If we consider all the countries in the world are under the one shed, then the effect of climate change is affecting one part to another part of the world considerably. Air pollution of North America affects air quality in Asia. The decision is taken today will be affected the world together. The decisions our grandparents made about farming the land continue to affect agricultural practice today and the economic policies taken today will have an impact on urban poverty when our children are adults. It is really important for today and tomorrow to gain a pollution free world. (EU, IISD and UNDCCC 2010.)

The main focus area for Sustainable development is on improving the quality of life for all of the Earth's citizens without increasing the use of natural resources beyond the capacity of the environment to supply them indefinitely. It will not gain in a day and it needs certain practice from individual to International level. For gaining suitable structure needs innovation in business structure, types of business and way to human thinking. Sustainable development thinking is between the local and global, the developing and the developed, and the need for cooperation within all those. It is needed to adopt different principle of eco-efficiency such as reducing the use of materials and energy, minimizing toxic dispersion and service intensity, recycling materials and increasing product durability. (EU, IISD and UNDCCC 2010.)

Sustainable development is defined in different ways. The most important thing is to be able to see the world together in one system which can connect the space and time. According to International Institution of Sustainable Development, the idea of sustainable development was improved from numerous environmental movements in earlier decades and was defined in 1987 by the World Commission on Environment and Development. (IISD 2010.)

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission 1987).

According to IISD, three major aspects of sustainable development are environment, economy and community. The United Nations 2005 world summit outcome document refers to the "interdependent and mutually reinforcing pillars of sustainable development as economic development, social development, and environmental protection." (IISD 2010.)



Figure 2. Interdependency and mutually reinforcing figure of 3 dimension of sustainable development. (IISD 2010.)

Figure 2 indicates how three dimensions of sustainable development are related to each other. According to Commission, Corporate Social Responsibility (CSR) is also an opportunity for enterprises to combine economic, social and environmental objectives in sustainable development strategy and the EU has also made progress in mainstreaming the Sustainable Development Strategy (SDS) agenda into its external policies, for example through Sustainability Impact Assessments carried out in the context of the preparation of Free Trade Agreements and work on climate change. (IISD 2010 and EU 2010.)

Sustainable Development vs. Global Warming

There is interconnection between sustainable development and global warming. Today's world is facing problem because of global warming. If we can ensure environmental protection for sustainable development, it will play vital role for

reducing global warming. According to the website of United Nations Framework Convention on Climate Change (UNFCCC) 2010, if global climate change policies are not applied quickly, global greenhouse gas emissions will be in 2020 at least 60 percent higher than in 1990. According to Copenhagen accord, *“the key points include the objective to keep the temperature rise to below 2°C; the commitment to list developed country emissions reduction targets and mitigation action by developing countries for 2020; immediate US\$ 30 billion short-term funding until 2012 and US\$ 100 billion annually by 2020 in long-term financing; as well as mechanisms to support technology transfer and forestry”* (UNFCCC 2010).

The Kyoto Protocol signed in 1997, was aimed to reduce the developed world's greenhouse gas (GHG) emissions by 5.2 percent below 1990 levels by 2012. The first commitment period in the Kyoto Protocol expires in 2012. The major greenhouse gas is Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and Sulphur hexafluoride (SF₆). (UNFCCC 2010.)

2.1 Strategy for Sustainable Development in European Union

According to European Sustainable Development Network (ESDN) 2010, basics of Sustainable development strategies are according to Agenda 21 (Chapter 8.7), a National Strategy for Sustainable Development *“should build upon and harmonize the various sectorial economic, social, and environmental policies and plans that are operating in the country”*.

According to the European Commission 2010, the slogan for sustainable development in European Union is “Together for tomorrow”. It means to ensure better life for present and future, visioning economic development, protection of the environment and social justice. Its values are recognized by democratic governments and political movements all over the world. For this purpose all the European Institutions promote their own activities in support of Sustainable Development in Europe. (European commission and Commission of European Communities 2010.)

Table 1. Sustainable development strategies (European Sustainable Development Network 2010)

Principle	Governance challenges of SD strategies
Common vision and strategic objectives	There should be long-term vision for sustainable development with specific objectives which is SMART meaning specific, measurable, achievable, realistic and mentioning time period.
High-level commitment	The commitment should be from high level of the leading organization and entire Government and co-operating organization as well.
Horizontal integration	As there are three dimensions of sustainable development such as economic, environmental and social, there should be horizontal integration between these three dimensions. It means in case of business, these three dimensions should be followed in case of documentation (e.g. by highlighting links and trade-offs between the three dimensions of SD); and also inter-ministerial bodies who are concern about SD strategy.
Vertical integration	It means it should follow the line. The main idea can come from world leaders, then that idea will be co-operated by organization like EU, Norden etc., then the objective of the idea will be followed by regional level such like Finland and Finland should follow the basic concept while implementing business and staffs like this. So, the main concept will be follows in a line.
Participation	There should be different stakeholder groups involved in the development and implementation of an SD strategy such as different kinds of organizations who are working with sustainable environment such as Institute of Sustainable development IISD, European sustainable development network etc.
Implementation mechanism and capacity building	The objectives of a SD strategy should be addressed with provisions and mechanisms of implementation in any new steps further for future.
Monitoring, evaluation and strategy renewal	The effectiveness of a SD strategy depends on Monitoring continuously with a set of SD indicators (mostly quantitatively); and Reviewed/evaluated in regular intervals (mostly qualitatively); If needed, important to renewal of SD strategy as well.

The Sustainable Development Indicators (SDIs) are published by European Commission and are used to monitor the EU's Sustainable Development Strategy in a report published by Eurostat every two years. There are more than 100 indicators, among them 11 is defined as headline indicators such as Socioeconomic development, Sustainable consumption and production, Social inclusion, Demographic changes, Public health, Climate change and energy, Sustainable transport, Natural resources, Good governance and Global partnership. The statistics are provided in Eurostat's web-pages. (European commission and Commission of European Communities 2010.)

The Key strategy adopted by the European Council in June 2006 mentions how we can meet the needs of present generations without compromising the ability of future generations to meet their needs. At the Commission's web-page, the strategy is stated as follows: "*The Sustainable Development Strategy deals in an integrated way with economic, environmental and social issues and lists seven key challenges which are climate change and clean energy, sustainable transport, sustainable consumption and production, conservation and management of natural resources, public health, social inclusion, demography, migration and global poverty* (European commission and Commission of European Communities 2010)".

International climate agreement was made in Copenhagen in December 2009. The EU committed itself unilaterally to reducing its overall emissions by 20 percent below 1990 levels by 2020, and to upgrading this effort to a 30 percent emissions reduction in the event of a comprehensive international climate agreement in Copenhagen in December 2009. The European Strategic Energy Technology Plan¹⁵ (SET-Plan) accelerates the development and deployment of cost-effective low-carbon Technologies in EU. As part of the Climate and Energy Package²⁰, the EU is committed to sourcing 10 per cent of its transport fuel consumption from renewable energy sources by 2020 (incl. biofuels, renewable electricity and hydrogen) for enhancing sustainable development. (European commission and Commission of European Communities 2010.)

The revised Waste Framework Directive⁴⁸ is also important stepping stone to help the EU move towards better management of material resources and improved resource efficiency meaning waste hierarchy, the prevention of waste, and the

incorporation of life-cycle thinking. The Directive sets important targets for the recycling of waste for the year 2020. 50 per cent of household waste and 70 per cent of construction and demolition waste should be recycled to improve the condition. It also maintains a sustainable high level of animal and public health standards. At the year of 2009, the Commission launched a Youth Health Initiative focused on to improve the health and well-being of young people. (European commission and Commission of European Communities 2010.)

According to the meeting of the CSD in May 2009 it was agreed to achieve long-term food security, future policies are really concerning areas such as water demand in agriculture, deforestation, soil degradation and climate change adaptation needs, employing science-based approaches and local indigenous knowledge. To achieve the goal, regional cooperation has been reinforced through the Union for the Mediterranean, the Black Sea Synergy and the Eastern Partnership. (European commission and Commission of European Communities 2010.)

Education and training build the critical foundation for sustainable development. One of the key objectives of the Seventh Framework Program for Research and Technological Development for the period of 2007-2013 (FP7) is to contribute to sustainable development. "Clean Sky" and the "Hydrogen and Fuel Cells", are also linked to sustainability. The Commission is striving to ensure that the whole European Research Area is responsive to sustainable development objectives and concern about it all the time. (European commission and Commission of European Communities 2010.)

Strategy for Sustainable Development in Finland

According to the web-page of Ministry of Environment 2010, Finnish National Commission on Sustainable Development adopted in June 2006 a national strategy towards a nationally and globally sustainable development in Finland. The aim of Finland strategy is continuing the consistency of EU aim. People's well-being with protection, management and sustainable use of natural capital is the main focus of this strategy. It ensured to make Finland be able to use its strengths in a

sustainable way. The biggest challenges concerning sustainable development from the Finland's point of view are the climate change, adaptation to global economic changes and demographical changes. (Ministry of Environment 2010)

The strategy of Finland consist the Citizens and society's capacity to innovation and change management. It is important for Finland that the renewable resources should be used in economic activities and it should be made sure that these resources are available for future generation. Non-renewable natural resources should be used minimum level and in eco-efficient way. Innovation in new business idea is really important for future policy maker and for future business. (Ministry of Environment 2010)

According to the website of Environment of Finland 2010, there were some key strategies. Among them the independent commitment is 20 percent GHG (green house gas) reduction compared to 1990, in the context of an international agreement 30 percent GHG reduction compared to 1990, 20 percent renewable share of final energy consumption and 10 percent biofuels in transport, with production being sustainable, second generation biofuels commercially available. (Environment of Finland 2010)

2.2 Critical Action for Gaining Sustainable Development

According to sustainable development communication network website 2010, recycling and reusing of material is needed for sustainable development. Eco-efficient companies and industries must have competitively priced goods and the attitude of buying eco-friendly thing is depending on human behavior. So, the attitude about sustainable development is also a concerning matter. One useful tool for measuring the extent of our consumption is the ecological footprint. It shows how much productive land and water we need to produce all the resources we consume and to absorb all the waste we make. It is mention in this website that already humanity's ecological footprint may be over 30 percent larger than the ecological space the world has to offer. (Sustainable development communication network 2010.)

The ranking of ecological footprints shows which countries are ecologically most sustainable compared to other. The average American has an ecological footprint 1.7 times larger than a person in Sweden, 3.8 times that of someone in Hungary or Costa Rica, and more than 9 times that of an individual in India. Policies should be developed such a way that promote consumption patterns which reduce our ecological footprint while meeting the needs of all people to enjoy a good quality of life meaning basic food, shelter and clothing needs. (Sustainable development communication network 2010.)

3 INNOVATION, LIFE CYCLE THINKING AND CONSUMER BEHAVIOR

New product and innovation is needed in business because consumer behavior is changing day by day. Life cycle includes extraction of natural resources; production of raw materials; processing, manufacturing, and fabrication of the product; transportation or distribution of the product; and the disposal or recovery of the product after its useful life. *“A life cycle assessment (LCA) provides a framework and methods for identifying and evaluating environmental impacts associated with the complete life cycle of products and services, i.e. from the product cradle to the grave”* (Hyder Consulting Pty Ltd 2007, 5).

3.1 Product and New Product Development

In figure 3, it explains that the product is a multidimensional concept which consists with tangible or intangible features. Newness is a relative term. Product idea or the product itself can be new for the market or for the company etc. If the company do not produce the product before then it is new for the company, but it may not be new for the market. Other company may make it before. On the other hand, if the product was not before in the market, then it is new for the market. The technology can be new as well. Company can try to modify the product by changing characteristics like quality, features, style, performance, durability, speed, taste, to attract new users and to inspire more usage. According to Ulrich and Eppinger 2008, 2, a product is something which the organization sold to its customer. (Ulrich and Eppinger 2008, 2 and Paul Trott 2002, 207-211.)

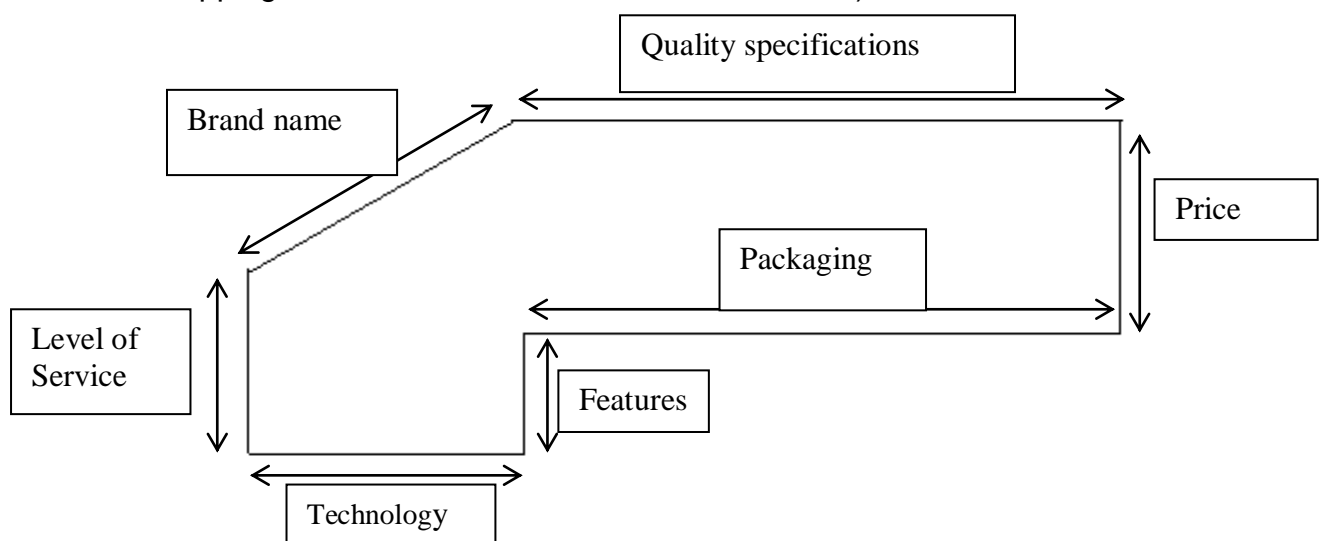


Figure 3. A product is multidimensional (Trott 2002, 208).

Classification of new product can be in several ways. New product line means new product for the company, but not new for the market. Addition to existing lines refers the subset of new product line. Picture shooting or internet access from the mobile phone was addition to existing line which was an improvement. As for example, digital camera is improving version in camera's business field. Cost reductions may not be directly as new product improvement. But the company needs to improve process and the use of different material for reducing the cost. Repositioning means the discovery of new applications for existing products. This is more with the consumer perception rather than technical development. (Trott 2002, 207-211.)

According to the classification of new products, this thesis work are belongs to repositioning. The concept of using the product can be new as well. Jute bag already exists in the market. Citymarket in Varkaus are selling jute bags. But they are selling it as a bag. But this thesis work, the concept of using jute bag is different. The concepts of using jute bag wider, not like a bag, but like a substitution of shopping poly bag. So, in this thesis work, the product itself is old, but the concept of using the product is new.

Product Development and its Characteristics

According to Ulrich and Eppinger 2008, 2,

“Product development is a set of activities beginning with the perception of a market opportunity and ending in the production, sale and delivery of a product.”

There are five dimensions of product characteristics. Product quality is the first dimension which includes the information about quality of the product, its reliability, robust, selling price etc. Another dimension product cost determines how much profit accrues to the firm for a particular sales volume and a particular sale price. It includes the manufacturing cost. The third dimension development time refers how quickly the product can be produced. Next dimension, development cost defines the cost to develop the product. It is important to achieve the profit. The last dimension, development capability means how effectively and economically the product can be developed in future by the development project. It means the ability to produce the product. Maintain high performance in each performance is required. (Ulrich and Eppinger 2008, 2-3.)

New product Development

New product does not mean completely new, they serve a variety of purposes depending on what is seen to be in strategic imperative. New product can introduce or appeal for the existing customers or for new customers. But there need to be marketing and technical research development and testing. The firm needs knowledge and skills to develop new product. Assessment of the present situation is needed to forecast the future development. New product should have its own characteristics, comparable with competitor's products, and it should be perceived to be beneficial by the prospective buyers. It should be distinctive and attractive. New product could be based on superior quality, which means better materials, better performance, new features, uncommon availability and better service. (Trott 2002, 169-178.)

According to Kotler et al 2008, 551 New product development is *"the development of the original products, product improvements, product modifications and new brands the firm's own R & D efforts."*

According to Levitt's idea retrieved from book by Paul Trott 2002, 178, there are four levels on which a new product can be considered and here those are described based on jute product: The core product needs to have essential basic needs which compete in the market. In case of jute bag in this thesis work, the main function is to carry goods. As there is the comparison between the jute bag and poly bag in this thesis work, so here the jute bag's functions of carrying well should be better than poly bag. It should fulfill the accustomed to as normal in its existing market. It means the poly bag has certain acceptance from the customer, it will carry certain amount of goods, it will easy to carry etc. In case of jute bad, there should be included those basic accustomed quality. (Trott 2002, 178.)

The augmented product offers feature that go beyond normal expectations meaning something more than normal characteristics. In case of jute bag, it is not using only daily life shopping; people can use it as different purpose as well. The potential product should envisage all the features and services which is beneficial for the customers. Jute bag fulfill those required feature fully. (Trott 2002, 178.)

3.2 New Innovation in Business

Modern world is changing rapidly regarding customer taste, technology and competition. The innovation today is old after a year, existing product are declining after a certain period of time. So, it is really challenging to be in the market and innovation is needed in the business. Business cannot be depended on the same product over year after year. Business needs to grow through innovation of new business or new product idea. Companies need it to hold their market position and profitability. It is important to create the vision for future. In business, this is important to develop innovation of existing products to increase new users for success. Many new product ideas can come from existing product idea, but the way of presenting or service operation may differ. (Trott 2002, 11-12.)

Innovations can be an idea, service, product or technology that has been developed and marketed to customers who perceive it as new for market. It is a process of identifying, creating, new way of doing thing and delivering new product or service values that did not exist before in the market place. Jute bag is not a new product innovation, but using jute bag as a substitution for poly bag is new innovation in business idea. In this sense, it is new product innovation as well. (Kettunen, Ilomäki. Kalliokoski 2007, 31.)

According to Belliveau et al. 2002 *“Innovation involves an act of creating a new product or process. The act includes invention as well as the work required to bring a new idea or concept into the final form”* (Kettunen, Ilomäki. Kalliokoski 2007, 34).

Innovation vs. Invention

Innovation and invention are confusing sometimes. But they are not the same, they have their own definition. Innovation includes the conception of new idea, invention of new device and development of new products. Thus the meaning conclude, *“Innovation=Theoretical conception+technical invention+commercial exploitation”* Conception of new idea is the first step. When this new idea is intellectually interesting, then the process of converting this thought into a tangible product or process is called invention. So, it means that innovation depends on inventions and inventions need to be harnessed to commercial activities before they can play role in the growth of organization. (Trott 2002, 11-12.)

Innovation process

Innovation process includes a sequence of activities. There are different phases of innovation shows in figure 4. There is identification of dependencies between different phases and specification. For new product development or innovation of new product idea, company needs to go through all the process. (Kettunen, Ilomäki. Kalliokoski 2007, 89-91.)

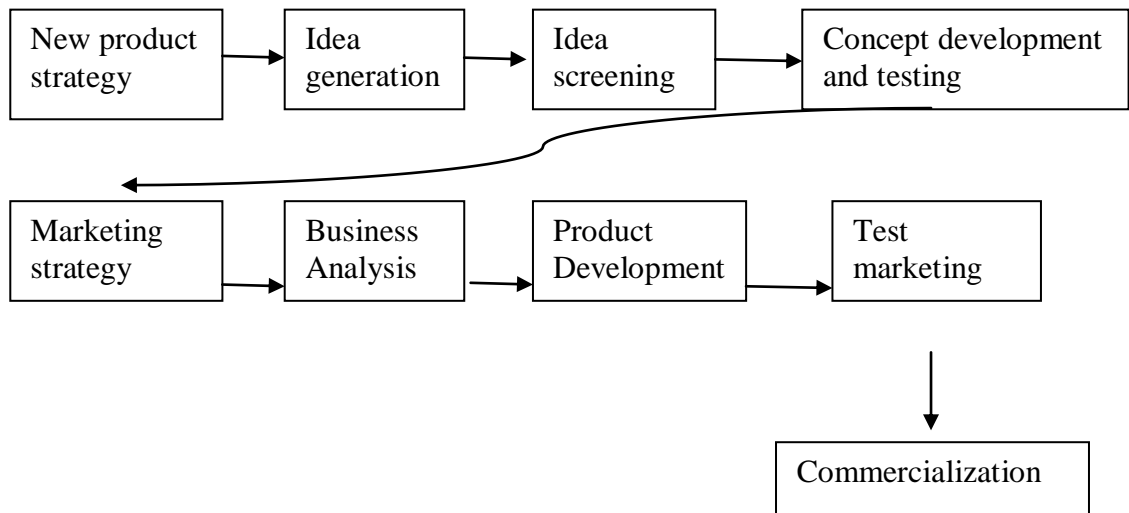


Figure 4. Steps in new product development (Trott 2002, 212.)

New product strategy is the first step of innovation process. Goals and objectives, market share, cash flow, profitability, guidelines are established from the team work. Idea generation, idea screening, concept development and concept testing represent the formation and development of an idea prior to its taking any physical form. These stages begin to make decisions about manufacturing system of the product, materials, possible design and the potential market evaluations. (Trott 2002, 212-214.)

For idea generation, it is needed to know the systematic search for new product ideas, internal sources, customers, competitors, distributors and suppliers etc. Screening is needed in every stage. For idea screening, need to screen new product ideas in order to spot good ideas and drop poor ones as soon as possible. Brain storming and proceed with good ideas only. Some companies use new-product committee where they see the usefulness of the product, future appeal from the product to the company, matching new product with the existing product line,

resources to fulfill the require production in the base of material and labor, usefulness etc. Commercialization is the final stage of the process where company is launching the new products to the market. Company needs to take four decisions in this stage. They are: when, where, to whom and how. Then company needs to monitor and evaluate as well. (Trott 2002, 212-214.)

Innovation as a management process

Innovation is not a single process, but a series of activities. According to Kelly and Kranzberg, (1978), this is a process which involves a response to either a need or an opportunity that is context dependent, a creative effort that if successful results in the introduction of novelty, the need for further changes. It identifies three major factors, such as marketing, research and manufacturing and business planning (Figure 5). There are different functions among those factors. There is needed to be interaction and communication in all those factors and functions. (Trott 2002, 20-22; Ulrich and Eppinger 2008, 2.)

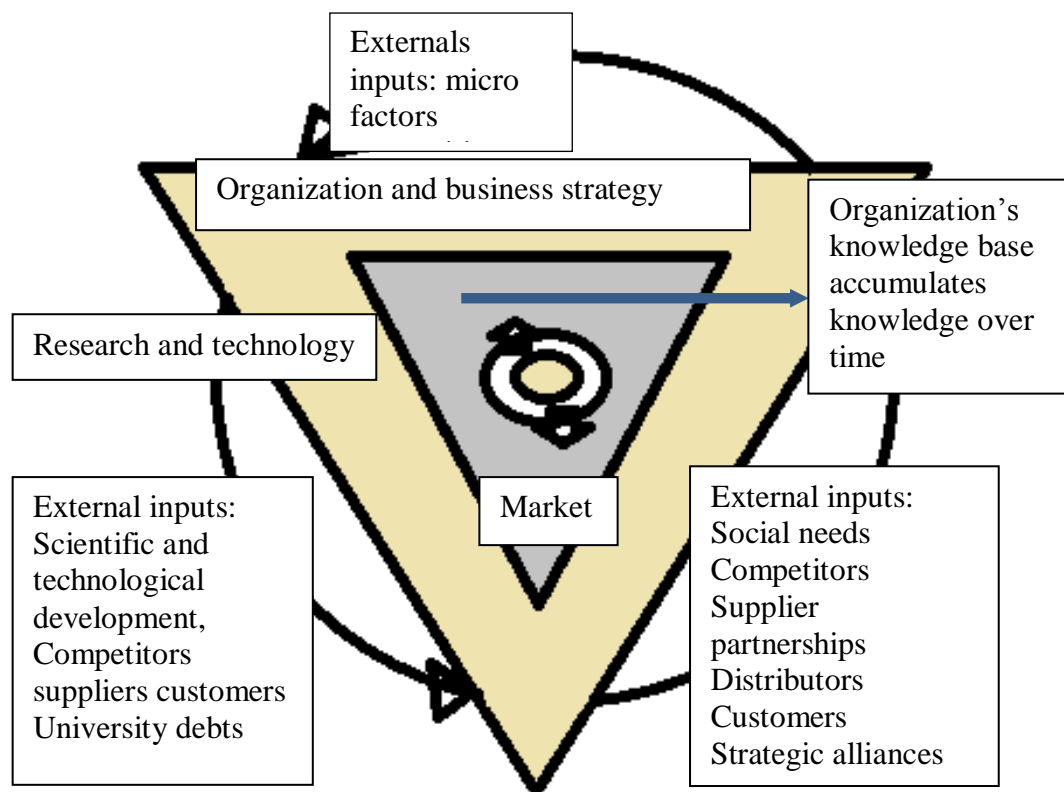


Figure 5. Innovation management framework (Paul Trott 2002, 21).

3.3 Life Cycle of Plastic Shopping Bag

In the year 1970, plastic bag came as an alternative to the paper bag and it was popular for its durability, light-weight, high strength and re-usability. It is popular for being thin and waterproof. According to Reuseit.com, about one million plastic bags are used every minute. According to the Wall Street Journal Americans go through 100 billion bags annually which required 12 million barrels of oil. The life span of a single bag is anywhere from 15 to 1,000 years to be broken down and re-introduced into the environment, and the little plastic bags having begun to litter beaches, parks, and even our oceans. The Environment impacts of plastic bags are devastating. About 1 percent of all trash in landfills is from plastics bags. Plastic bag do not biodegrade and it is expensive to recycle. (Jones 2008 and Jackson 2009.)

Plastic bags are created through the polymerization of ethylene, a gaseous hydrocarbon found in petroleum. While there are different types of polyethylene, all used as different kinds of plastic, the most commonly used for plastic retail bags is high density polyethylene, or HDPE. This is manufactured from ethylene, a by-product of gas or oil refining. (Herbert 2010 and Hyder Consulting Pty Ltd 2007, 3.)

About five trillion carrier bags produced each year start life as crude oil. HDPE which refers high density polyethylene is a strong, light, rigid plastic. This petroleum is heated to produce ethylene gas which is then converted to polyethylene, which looks like porridge. After that it is forced through holes into strings, which are cut into granules. These are then heated, stretched and cooled to make bags. When producing polybag, the higher the avoided emissions, the lower the carbon footprint. Plastic is also very strong material and supermarket bags can hold at least 40 liter. Some of them can be hold twice of that. (This is money 2008 and Mattila et al. 2009, 13.)

People are using plastic bag as a bin liners and some of them are re-used for shopping. But eventually, more than 98 percent end up in landfill and about 200 million litter the countryside. Scientists estimate that plastic bags can take 400 to 1,000 years to vanish. Some of them are designed to turn into carbon dioxide, water and compost within a month or two - but only in a composter. If the bag consists chemicals particularly the inks used in printing, can leak and cause

poisoning or turn into noxious compounds if burned. There was a recent Greenpeace report found that one remote area, called the Pacific Gyre, a whirling current, contained more than a million items of plastic micro debris in every square kilometer of ocean surface. Plastic bags and other waste can kill a million sea birds and 100,000 animals such as whales, dolphins, turtles and seals, each year in the oceans. (This is money 2008 and Mattila et al. 2009, 13.)

Recycled is expensive and only 2 percent are recycled. The method is that they are shredded, melted and turned into plastic beads. If the bag contains dyes and inks, they do not make them harder to recycle - but they turn the plastic grey or black. These beads can be used to make new bags for use, pallets, containers, crates, and pipe. Now a day there is recycling drop off Centre or retailers and municipalities that provide designated plastic bag recycling bins in U.S. People can through clean, dry, empty plastic bags to recycling drop off centers for recycling. (This is money 2008 and Plastic bag recycling organization 2010.)

Example

Action is taken already by IKEA®, awareness has risen and there are many stores which were supplied plastic bags on a large scale before, now they are concentrating about alternatives such as bags made out of cloth, hemp or cotton as another alternative to plastic bags and jute bag can be other effective alternatives as well. IKEA which are providing solution for home furnishings and accessories have major value is “life at home”. In U.S, IKEA has now stopped providing any HDPE bags whatsoever and only provide reusable bags for a small cost. This action alone has cut plastic bag use in their stores by 92 percent. Customer accept theme of IKEA and they accept it. (Herbert 2010 and IKEA® 2010.)

Tesco, Global retailer giant has started outsourcing jute-made shopping bags from Bangladesh as a part of its move to promote environment-friendly products worldwide. *“It’s good that global retailers like Tesco are using jute-made shopping bags to meet the consumer demand for environment-friendly and socially responsible products,”* said Mohammed Mahbubur Rahman Patwari, director of Sonali Aansh Group that participated in the German Trade Show 2008 about the use of jute bag by Tesco. Tesco is using these bags in Poland, Japan and Korea. (The Daily Star 2008 and Ulrich and Eppinger 2008, 2.)

3.4 Life Cycle Of Jute Shopping Bag

Jute is a natural, 100 percent bio-degradable and recyclable, ecological fibre plant. It is the bark of a slender tropical plant belonging to Tiliaceae family with two species *Corchorus capsularis* and *Corchorus olitorius*. Jute fibre is golden in color and it has shine. So, it is called “Golden Fibre in Bangladesh”. It is the cheapest fibre after cotton, in terms of usage, global consumption, production, and availability etc. It helps to make the best quality industrial yarn, fabric, net, sacks and very suitable in versatile product packaging, textiles, non-textile, construction, and agricultural sectors. The use of jute product mostly still now in bags and sacks for packing almost all kinds of agricultural products, minerals, cement etc. packs for packing wool and cotton, wrapping materials / fabrics, carrier and backing fabric for carpet and linoleum, cordage and twines, webbing to cover inner springs in auto-seats and upholster furniture, cargo separator in ship, cloth for mine ventilation and partition, filling material in cable, roofing and floor covering apparel, footwear lining, wall covering and furnishing fabric, fashion accessories, soil erosion control fabric and many more. (National Jute Board 2010; Bangladesh Jute Mills Corporation 2011; Mullick and Mollah 2000, 171 and Khan 2010.)

Jute consist high tensile strength, low extensibility, and ensures better breathability of fabrics, dimension stability. It has good insulating and antistatic properties, low thermal conductivity and moderate moisture regain acoustic insulating properties and manufacture with no skin irritations. It has the gripping quality meaning that it can grip any surface it comes in contact without any risk of slippage. It has the opportunity to be blended with other fibres, both synthetic and natural as well as wool, and accepts cellulosic dye classes such as natural, basic, vat, sulfur, reactive, and pigment dyes. It can be in different form like Jute Hessian, Jute Yarn. (National Jute Board 2010; Bangladesh Jute Mills Corporation 2011; Mullick and Mollah 2000, 171 and Khan 2010.)

Bengal delta is the best producing place of jute. The cultivation of jute requires much labor and care. Jute needs a plain alluvial soil and standing water for its cultivation time. Warm and wet climate in monsoon is suitable climate for growing jute. For successful and favorable cultivation, jute plant needs temperature of ranging 20° C to 40° C and relative humidity of 70 percent–80 percent. The land is

ploughed thoroughly, harrowed repeatedly and manure properly. After rains, seeds of jute are sown in the months of April and May .In a week the seeds germinate and plants grow. In four to five months the plants attain maturity. Then mature plants are cut down and tied up into bundles. These bundles are kept under water for a fortnight or so until they are rotten. . Then the barks are peeled off, washed and dried in the sun. The fibres are then tied into bundles of jute and made ready for sale in the market. The bundles are pressed and bound into bales for export. When it is ready, the fibres are off-white to brown, and 1–4 meters (3–12 feet) long. (National Jute board 2011 and Mullick and Mollah 2000, 171)

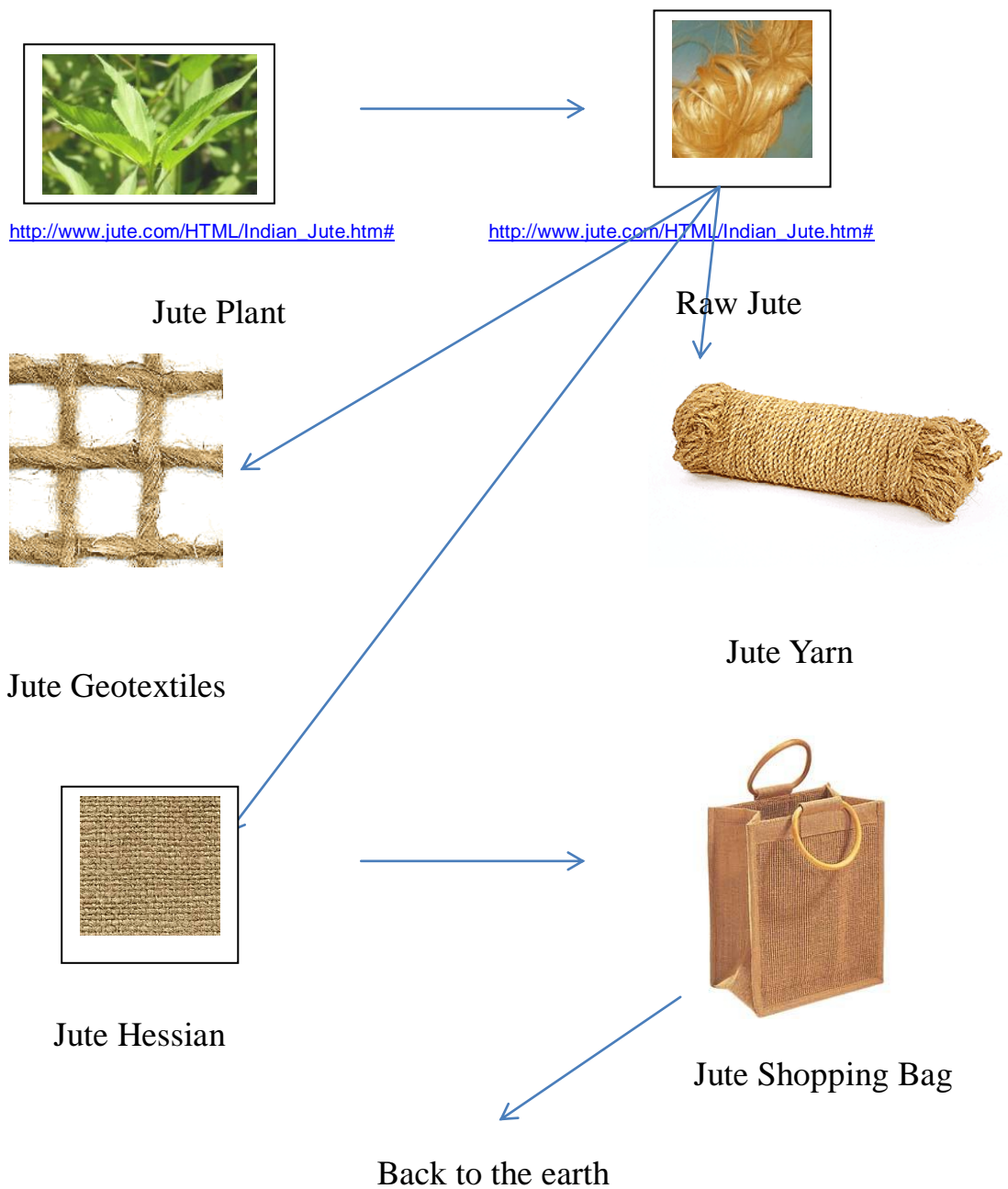


Figure 6. Life cycle of Jute Shopping Bag

While producing jute, the entire processing maneuver, the raw materials are not subjected to any extreme physico-chemical treatment which means getting the same input materials in their ultimate end products. Jute perishes naturally after doing its duty superbly. It does not cause harm to soil. Using jute product ensures that it is not harmful for nature, does not spoil the fertility of soil. It is highly hygroscopic and can suck water, breathing and humidity to the contents as well as helps consolidate soil, enhances the flexibility of soil. So, it can ensure their storage without deterioration. If burned, it is not dangerous and it emits the same fume as burning wood. Jute does not have any effect on human body and Mother Nature as a whole. At the end of its life, it goes back to nature. (Bangladesh Jute Mills Corporation 2011; National Jute board 2011; and Bangladesh Jute Research Institute 2011.)

3.5 Comparisons Between Plastic Shopping Bag And Jute Bag

When making any comparison, the base of the comparison should be same for each product category. (Hyder Consulting Pty Ltd 2007, 6.)

Table 2. Comparison between plastic shopping bag and jute bag(Mattila et al. 2009, 4-9)

No	Plastic shopping bag	Jute bag
1.	Carrying capacity of poly bag 20 kg.	Jute bad can Carry 25-28 kg.
2.	The production procedures include chemicals and have a negative effect on the environment. If there are using dye and colorants, they offset the balance in water habitats and accumulate in water living creatures. (redQ)	The production of jute bag does not need lots of chemicals for agricultural production and manufacturing.
3.	It takes less space	It takes more space
4.	Cheaper	Costlier than plastic shopping bag
5.	Less durable	More durable
6.	Do not go back to nature normally, takes long time	It can go back to nature
7.	Not properly environmental friendly	It is environmental friendly.
8.	It can be recycled and can make recycled product.	Normally people make product, use it and through it to the environment, not recycled.
9.	It can be used as bin liner	It do not have such use
10.	It can be tear or leak and spilling all the material on the floor.	It is not so easy to tear.
11.	If dirty, people just throw it.	People can wash if it is dirty
12.	It is light weight	Heavier in weight

3.6 OPTIKASSI Study

This project was a comparative study of the life cycle impacts of the shopping bags used by the Finnish retail sector, with an emphasis on greenhouse gas emissions. Five types of bags were scrutinized in this study: plastic bags made from virgin raw material, bags made of recycled plastics, paper bags, cotton bags and biodegradable plastic bags. This project study the life cycle of bags from start to end meaning material procurement, manufacture and disposal of the bags based on greenhouse gas emissions produced in each stage. It is called system-analytic life cycle assessment approach (LCA). They pay concentration of using shopping bag in different way. (Suominen 2010 and Mattila et al. 2009, 63.)

According to this project, result shows that plastic bag made from recycled material is the best alternative. This type of bag helps to reduce global warming and the increase usage of recycled material is recommended for the production of carrier bag in this project. Cotton bag is not consider good as before because its production required substantial amount of energy and irrigation water and the resulting greenhouse gas emissions. Biodegradable plastic bag is not sufficiently good, because of the fossil ingredients which are added to their material to increase the stability. (Suominen 2010 and Mattila et al. 2009, 63.)

This project was based on lifecycle information about the climate effects of the most typical shopping bag, best consumption and waste management solutions. Result of the project says that there is not necessary to have separate garbage bag because it can be replaced by plastic bags and it can be full and tight packed while putting for maximum use of the bag. Paper bag should be recycled carefully or disposed of in energy waste was another assumption as biodegradable bag contains fossil components. So, it is not sensible to compost this bag. According to the project, shopping bag should be light and durable for user friendly effect. (Mattila et al. 2009, 63.)

3.7 Consumer Behavior

The characteristics and behavior of intended customer groups are important. Customer approval is the main point of having new product in market. Product-decision of consumer-products marketers are specially affected by local behavior, tastes, attitude and tradition. Attitude towards the new product and service plays important role while having new product as well and needs to motivate consumer. (Czinkota and Ronkainen 2004, 255-258.)

Consumer subdivides their groceries according to fragile items, sophisticated item, weight, carrying comfort etc. Consumer wants to have light and durable bag which is user friendly and easy to handle. It can be good if the consumer say no to free bags, less often go for shopping and cut down of mixed waste. In general, conscious customer chooses shopping bag more ecological direction. Reducing number of shopping bag and efficient use can be an ideal idea to lower the impact on environment through this. The most efficient way to reduce the climate impact is to steer shopping customs and waste management in a more ecological way. Consumers are now aware of ecologically sound life style and they start to demand environment friendly bags. According to OPTIKASSI survey, it is shown that recycling plastics significantly helps to reduce global warming and it is advisable to use recycled material for carrier bag in production. (Mattila et al. 2009, 4-63 and Suominen 2010.)

Perceptions about the product relative to rival product from customer's side are called product positioning. It is based on how customer makes judgment of different alternative product and how they choose. There can include customer assessments about whom the product is meant for, when, where and how it is used and aspects of the brand personality' (e.g. innovative, functional, old-fashioned, exclusive etc.). Product must be perceived by the customers to be an alternative. Then a list of attribute is generated by discriminating alternative product. After that customers' perceptions and preferences are collected through structured questionnaire. Questionnaire should be based on attribute or characteristics and customers attitude towards the products. The output can be shown in map or diagram. Positioning strategy is depends on the choice of an appropriate base among the six basic bases such as product feature, benefits, use occasions, user category,

against another product or by dissociation of all other product. Success and failure depends on appropriate positioning meaning what the organization is telling to the market about the product, to whom it tells and how it tells. There can be many or single product benefit, most important thing is to find the most creative and unique one. (Trott 2002, 179-181.)

Product positioning of this thesis work is bag, more concentrating on shopping bag. There can be different possibility of shopping bag such as poly bag, cotton bag, recycled bag, jute bag etc. This thesis work is saying about the environment issues and sustainable development among the customer. Target group is normally middle age women who need to do shopping a lot. There are also some young and old people as well. The ways of telling to the customer is by using the product practically and express the feelings after using the bag a couple of months. Jute bag is still creative and unique in this field because, still it is not used as a substitution for poly bag.

Consumer can try to reduce the number of plastic bags and they can be used in the most effective way. They can reduce to use plastic bags through changes their habit a bit such as no need to take a bag when offered unless needed, no need to double the bag unnecessary, large item can be carry separately, so no need separate bag for large items. If there is less shopping, then people can carry by himself or herself in hand. No need to buy a shopping bag for fewer items. They can buy a shopping bag if they buy in bulk amount of food to reduce packaging. People can use other options provided by retailers, such as cardboard boxes, bins, or heavier reusable bags instead of plastic bags. People can reuse plastic bag. Already many Americans reuse plastic bag at least two times. (Jackson 2009.)

4 CASE COMPANY redQ, JUTE SECTOR IN BANGLADESH AND BUSINESS CULTURE

The case company redQ is a privately held Swedish company with 23 employees which production unit is in Bangladesh started in the year 2007. Main customers are designers and home decorations chains in Europe. The case company redQ takes care from the cultivation of raw material to final product. In Bangladesh, redQ works with some other organization named Clean Clothes Campaign, Save the Children, local and international union organizations and environmental NGOs. They want to establish green and ethical business in Bangladesh. (redQ 2011)

4.1 Case Company Description

Best Social and Environmental Practice to be followed locally, regionally and internationally (SAEP) - is the main aim for redQ. Now they are paying concentration on research in production method of jute for more ecological and effective way of producing jute fiber. Now they are making jute carpet and selling those to Sweden.

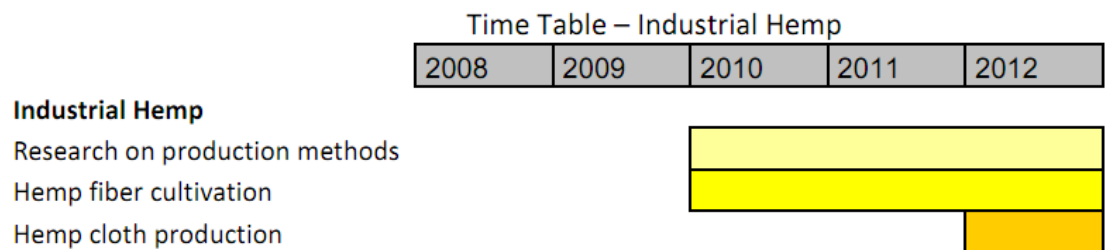


Figure 7. Future planning of redQ (redQ 2010)

Mission

The case company redQ want to spread their values to the garments and textile industry in Bangladesh by being a good example, showing that it is profitable to be responsible.

Values

Fair labor, fair wages, working hours, leaves, workers safety and child care is the main values for redQ.

The environment

The case company redQ takes care from the very beginning of the jute fiber. In case of cultivation, they are using raw materials that can be cultivated without agricultural chemicals or irrigation. Jute fiber production is free of chemicals. They pay concentration for the least polluting transport solution in every situation for less carbon footprint.

Worker development

The case company redQ feels social responsibility to help workers acquire skills that will increase their level of income and they are supporting and inspiring workers to become catalysts of change. Learning is a natural part of working at redQ.

Transparency:

The case company redQ cooperates with different unions and NGO's to increase transparency through third parties.

(E-mail by Mr. Anders Sandlund 2010)

The case company redQ Contributions

Short term

- Providing stable employment in rural Bangladesh.
- Diversifying the use of jute fiber.
- Increasing Bangladesh export.
- Increasing farming output.
- Taking an active role in promoting workers' rights.
- Reducing environmental impact from agricultural and industrial processes.
- Providing personal and professional development for workers.

Long term

- Acting as a good example for textile industries in Bangladesh
- Showing that it can be profitable to be responsible.
- Re-establish first jute fiber and later industrial hemp as an even stronger cash crop for Bangladeshi farmers.
- Builds market acceptance for jute fiber and later industrial hemp as a partial substitute for cotton.
- Increasing the economical value of jute by introducing new technology and new areas of use.
- Inspire other businesses in Bangladesh to acknowledge workers' rights by running industrial scale production of jute products and hemp textiles whilst encouraging trade union activities.
- Introduction of ecological fibers, such as industrial hemp and jute, to new areas of use.
- Help workers achieve self-fulfillment by supporting entrepreneurs and entrepreneurs.
- Help reducing Bangladesh's trade deficit by increasing export volumes.

(E-mail by Mr. Anders Sandlund 2010)

4.2 Jute in Bangladesh

Bangladesh is the natural home of the best quality jute from the very beginning and historically been cultivated in Bangladesh. Jute is one of the most important export goods in Bangladesh. Jute product is traditional and closely represented with Bangladeshi culture with its own nature of presentation.

Bangladesh exports jute goods around the world over to 85 countries including Turkey, Iran and Belgium, Canada, Japan, EU and the United States. It also exports raw jute in different countries up to 59 countries including Brazil, Vietnam Thailand, China, Germany, India, Pakistan, Spain, and the USA and UK. In the fiscal year 2008-09 the country's jute goods export was recorded at \$269.25 million and raw jute export at \$148.17million. According to Export Promotion Bureau (EPB), the country earned around \$110 million during July to January of the 2009-2010 fiscal year by exporting raw jute which was \$30 million higher from \$80 million during the same period of the previous 2008-09 fiscal year. Australia, Canada, USA, Belgium, India, Indonesia, Thailand, China, Pakistan and Philippines are showing keen interest for jute bags in the local markets. In the year of 2007-08, India was the top world's production of jute with 58 percent whereas Bangladesh was 33 percent holding second position. (National Jute Board 2011 and Bangladesh Economic news 2011.)

Bangladesh Jute research institute is working for the development of jute fibre, to promote agriculture, technological and economic research on jute and their manufacture and dissemination of results thereof. They developed fiber quality improvement division etc. In 2010, group of Bangladeshi researchers of Dhaka University's Biochemistry and Biotechnology departments have successfully done genome sequencing of jute which will contribute to improving jute fibre. They are hoping that through this discovery, it will help to improve the quality of jute fibre and help saplings to survive in adverse weather caused by climate change. (Bangladesh Jute Research Institute 2011 and bdnews24.com 2011.)

4.3 Possibility of Jute Product Business in Bangladesh

Jute is cultivated in Bangladesh meaning raw material is local. It is more economical to add value with the product where it originated. According to Bangladeshi economic news, demand of jute bag rises globally; gets inquiries from abroad and huge export order. Many countries have already imposed to ban on polythene use in a bid to keep ecological balance and also restore the soil construction. The higher demand for biodegradable fibre across the world makes the possible opportunities of Jute as people are keen for eco-friendly products replacing synthetic. As for example Australia and Italy ban polythene bags in their local market. (Islam 2009 and Bangladesh Economic news 2011.)

Bangladesh has good reputation about Jute production and getting high demand day by day in the world market. So, many countries as for example Australia are also keen about jute bag from Bangladesh. Now a day's Jute-sacking bag going to be popular abroad and it is value-added product as well. According to economic news of Bangladesh, export price of raw jute is around Tk 13,000 a tonne (Bangladeshi currency), but its price becomes Tk 35,000 (Bangladeshi currency), when it is converted to sacks, said Millers. Bangladesh high commissions expressing their interest to imports jute bag as well to abroad. (Islam 2009 and Bangladesh Economic news 2011.)

Government is taking different steps to research, development and innovations. Government is recently planned a Tk 300 crore fund for importing spare parts to renovate and modernize the existing jute mills as initiative. Bangladesh Jute Mills Association (BJMA) and Bangladesh Jute Spinners Association (BJSA) also signed an agreement with a non-government organization for skilled development in the jute industry by providing jute mills' staff with necessary trainings. The case company redQ is giving training for skill development for the farmer and worker. Jute ministry and Bangladesh Bank are taking different steps for the improvement of jute sector in Bangladesh. (Bangladesh Economic news 2011.)

4.4 Patterns of Cross-Cultural Business Behavior and Communication Between Three Countries

Cultural difference is important in case to have the best deal. Language, religion, values and attitudes, manners and customs, aesthetic, education, social institutions are the elements of culture. Understanding culture is critical and important not only in terms of getting right but also for ensuring that implementation by local operations is effective. Get to know cultural competence consider as an important management skills. There are different patterns of cross-cultural business behavior. While deal-focused (DF) people are task oriented, relationship-focused folks are people-oriented meaning they want to deal with family, friends and relatives. In relationship oriented markets, having the right contact can be just as important for buyers as it is for sellers. In relationship focused market, it takes time to get in as it is a lengthy process of building trust and developing a personal relationship. (Czinkota and Ronkainen 2004, 58-70 and Gesteland 2003, 15-43.)

Bangladesh is belongs to relationship-focused, formal, polychromic and reserved pattern of culture. Despite poverty, there is also bureaucratic red tape as well as different cultures in doing business are real barriers to trading with this country. In case of doing businesses with Bangladesh, it is extremely important to have the right local contact for success meaning Government officials and related organizations. It is important to show appropriate respect when meeting with Government officials who enjoy high status in the Bengali culture. As Bangladesh is belonging to polychromatic culture, they may receive phone call in the middle of the meeting whereas it seems to be impolite in Finland. (Gesteland 2003, 131-132.)

People should have extra patient while it is the matter of time for the meeting. All the main decision is coming from Managing Director in Bangladeshi business culture, so it is not surprising that some important mail is unanswered. Bargaining session takes long time. It is important for the foreign buyer to have smile in their face. But the most positive thing is that Bengalis are friendly and they are such a nation who really respects the meaning of hospitality. They try to do their best in every space. They like to give and receive gifts. Their weekend is in Friday because of their special prayers in Friday calls "Jumma prayer".(Gesteland 2003, 131-132.)

On the other hand, Sweden and Finland both countries are belong to deal-focused, moderately formal, and monochromic and reserved cultural pattern. Swedish behavior is the direct reflection of social value which is equality, efficiency and modesty. Management level is flat in structure meaning that top executive is not hesitate to communicate directly with junior employees where in Bangladesh it is rare to see this kind of happening. Swedish is transaction-oriented, deal-focused business culture. They like to go straight to the point in meeting only after a small talk. Direct behavior from Swedish can cause misunderstanding for relation-focused culture like Bangladesh, China etc. (Gesteland 2003, 299-303 and Lewis 2004.)

After considering the whole business cultural pattern and individual business culture, there is shown that Finnish and Swedish culture are quite close, whereas Bangladeshi culture is far different from these two. In case of doing business with Finnish and Swedish, there will not be so big conflict as they are belong to same group. But there can be conflict with Bangladeshi culture as there are quite reverse culture. In case of doing business in different culture, the entrepreneur of Sweden need to know Bangladeshi culture quite well before go for mass production.

There is possibility from redQ to do business with Bangladesh because the case company's owner's parents were in Bangladesh for long time in village and they can speak Bengali and they have personal relationship with the cooperating body in Bangladesh since 40 years. So, the most positive thing in this business is that the owner knows by heart Bangladeshi culture and every year he visited Bangladesh in his project several times. And for making the things easier for future the owner took the main cooperating person from Bangladesh and gave him training in Sweden. Bangladeshi Manger was with Swedish family for three month and learns Swedish culture and customs. So, in case of redQ, it is quite matched to have business with Bangladesh. In case of Finland and redQ, it is not a big problem as the most business culture are more or less same and also both the counties are belong to European Union, so there is not so much paper work while doing International Business with different countries besides EU. Only the currency is different, so need to pay concentration about payment while making contact. Already the case company redQ is trying to connect with different groups in Finland, but the relationship is not established yet.

5 STUDIES ON JUTE MATERIAL AND JUTE BAG TESTING IN VARKAUS

There are several steps in the research process. A research process needs to be identified. The researcher was a volunteer and she worked for the environmental issues in Bangladesh for seven years. The topic was chosen to be “sustainable development”, because she was interested about this topic. The second step is to define the research problem which should be small enough to be investigated for the study and it can be formed as research question.

Process followed on this study is given in the following figure.

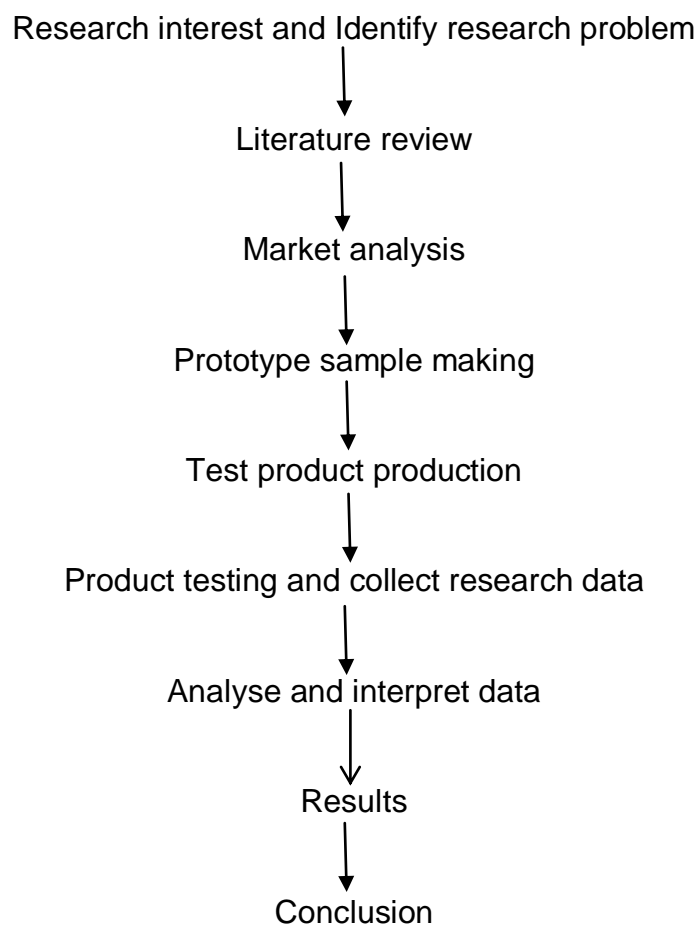


Figure 8. Own process followed on this study

This study focuses on finding out how plastic bags could be substituted by jute bags and how it would contribute to the sustainable development. In addition, the study focuses on answering the question if the idea of substituting plastic bags by jute bags would be a profitable business innovation. For the study, it was examined how

some Finnish customers liked the jute bag as a shopping bag and what was their attitude towards sustainable issues. The information collected in connection with this thesis work will be provided to the case company so that the company can utilize it in their business operations in the future.

Then the next step is to determine how to conduct the study which explains the progress of scientific practice based on people's philosophies and assumptions about the world. In a word, how the research should be conducted. The entire approach of the research study is known as research methodology which is determined by the research problem, assumptions used in the research and the way of defining the research problem. (Collis and Hussey 2003, 10-18.)

After having identified the objective, the researcher started to collect the literature review. Literature search is the process of exploring the existing literature to ascertain what has been written on the topic previously, what was the recommendation and to find out how these literatures can influence the thesis work, which is basically collected from secondary data. Secondary data means data which already exists in different sources. The theoretical framework has been collected from books, newspaper, Internet, magazines, previous research about environment, from different Government and Non-Governmental Organization (NGO), different environmental conference material about sustainable environment etc. (Collis and Hussey 2003, 56-57, 84-86.)

The next phase is to collect the research data. The research method can be qualitative or quantitative. In the quantitative methodology, the study is based on attempting to measure variables or to count occurrences of a phenomenon. On the other hand, the qualitative methodology emphasises experiences related to the phenomena. This research includes both qualitative research in the term of an interview and quantitative research in the term of a questionnaire. Afterwards, it is necessary to analyse and interpreted the research data. The tools are depending on what kind of data is collected. Then the final steps are writing the result and report it. (Collis and Hussey 2003, 10-18.)

5.1 Prototype Jute Bag

Then researcher needed to find a case company. The case company for this research is redQ which is already making jute mats in Bangladesh and selling them to Sweden. They are interested in making jute bags in the near future. In chapter four, the researcher already described the case company redQ.

A prototype is needed to confirm the product concept in future business behavior. Prototype means the approximation of the product along one or more dimensions of interest like learning, integration, communication etc. A prototype can reduce the cost of costly interaction in a sense that company can know the future of the product through prototype testing. (Ulrich and Eppinger 2008, 246-256.)

Afterwards, the company manufactured 20-50 pieces of jute shopping bag according to the researcher's requirements and offered a pilot project for the consumers. The sampling of the jute bag is done after observing the most popular shopping bag in the market at the moment. The researcher measured almost all of them for having a clear idea of her own sample bag measurement.

Table 3. Measurement of Jute shopping bag

	Jute bag	Plastic shopping bag
Height	32 cm	47 cm
Length	45 cm	31cm
Width/Gusset and bottom	16 cm	18cm
Drop length of the handle is	25 cm	Attached

The height and the length of this research sample jute bag are almost reverse to the plastic bag. It is done this way because of the material and its aesthetic appeal. One sample jute bag was made with the help of manufacturer according to plastic bag measurements, but it was not good looking. In jute bag, if the height is 47 centimetres like in a plastic shopping bag, it seems too deep. In a plastic bag, there is not any separate bottom. Bottom consists of its height. In a jute bag, there is a 16 centimetre bottom included. Because of this, it can carry more items than a plastic shopping bag. The handle's drop length is 25 cm whereas in plastic shopping the

handle is attached. The reason for this is that the consumer may not like to carry the bag all the time in hand. In this way, they can carry it over shoulder as well to have more functionality of use.

5.2 Selection of Target Group

A sample is needed for data collection. Sample is a subset of population which means any precisely defined set of people which represent the interest of the study. According to Collins and Hussey, they suggested that it is acceptable to reduce the number to a manageable size by selecting a representing sample. Judgement sampling is used where the participants are selected by researcher according to the strength of experience of the phenomenon under study and the researcher makes the decision prior to the commencement of the survey. Researcher made 20 Jute bags for testing and gave those jute bags to people by judgement sampling who are going to shopping all the time basically middle-age women, men and 2 young girls. (Collis and Hussey 2003, 10-15, 55, 56 and 150-160.)

Quantitative data is based on numerical whereas qualitative data is nominal (named) data. This thesis is carried out by a combination of qualitative and quantitative data. Data collection method used in this thesis work is combined on both questionnaire and interview. A questionnaire means carefully selected structures of questions which are chosen after considerable testing, with a view to eliciting reliable responses from a chosen sample. It should be tailored to fit the objective. Correct framing of the questionnaire is another essential success factor. It should be easy for the respondents can be easily understand and answers from a set of predetermined alternatives. Basic rule is that all questions shall be understandable and make sense. (Collis and Hussey 2003, 56, 150-160 and 167-177 and Kettunen, Ilomäki, Kalliokoski 2008, 169-171.)

On the other hand, in an interview method, selected participants are asked questions in order to find out what they do, think or feel. Interview is better in a sense that it permits the researcher to ask more complex questions and ask follow-up questions. Questionnaire covers the objective of the thesis and all the required information needed to analysis of data like how they feel about jute bag instead of

poly bag, are this bag convenient or not, what can be the lacking, also about environment issue etc. This thesis consists also interview with supermarket representative and manufacturer where both of them mention about their own point of business sector about the possibility of substitution of polybag through jute bag and their thinking about sustainable environment. (Collis and Hussey 2003, 56, 150-160 and 167-177.)

After preparing the questionnaire, the researcher tested the questionnaire among 10 people of different profession. After testing, it was needed to change the pattern of some questionnaires for better understanding of the people. In this thesis, the sample is small, so the reliability can be low. In Varkaus, there is nearly 21000 inhabitants, 20 of them may not be represent the whole inhabitants.

5.3 Analysis Of Collected Data

The research was carried out by questionnaires and by interviews (appendices). The questionnaire is taken from 20 consumers of jute bags. Two interviews were carried out. One was from administration manager of superstore and another one was from the owner of the commissioning company. There were 14 questionnaires altogether for 20 consumers. Apart from this, there were seven questionnaires for industries and seven questionnaires for superstore manager. In the questionnaire, there were handled almost all theoretical issues without cultural and life cycle thinking. In the interview, those two issues about cultural and life-cycle were discussed. The results were analyzed by Excels and SPSS.

Here is given the result analysis of each questionnaire one by one and afterwards some cross tabs analysis for more clear view which is done by SPSS. The graphs are as number of respondents (not percentages) due to the small sample. Service holder refers to employee.

- Within 20 end user of jute bag, there were 17 women and 3 men.

- Half of the customer's age ranges were more than 51 years old.

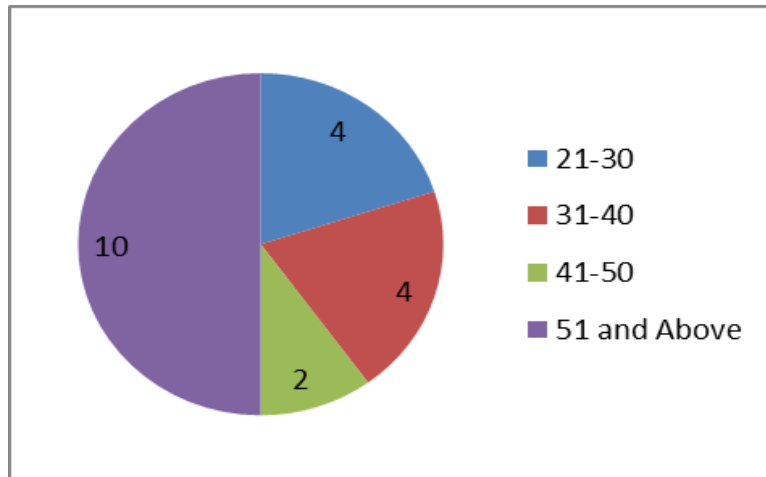


Figure 8. Age group of jute bag user (n=20)

- There were nine service holders (employee), and then pensioner and student were four of each.



Figure 9. Profession of the user (n=20)

- According to this research, it is seen that almost all the people use plastic bag. Within 20, eight people need six to ten plastic bags and seven people need one to five plastic bags in a month. Five people need more than ten bags in a month.

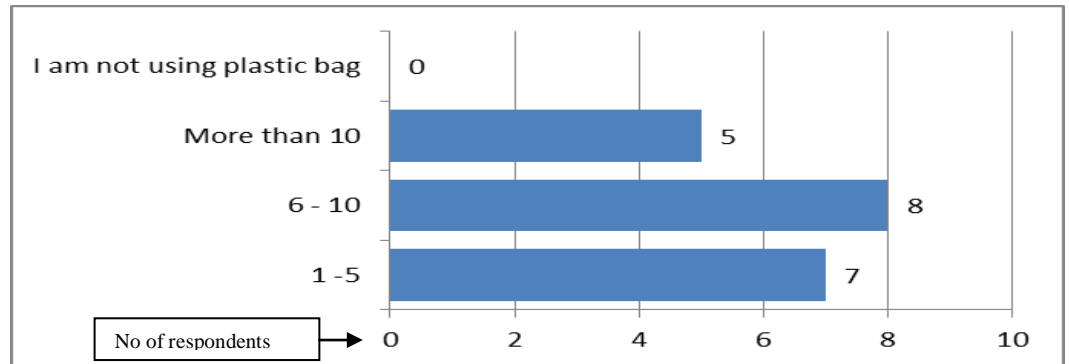


Figure 10. Numbers of plastic bag usage in a month (n=20)

- This study shows that the most important characteristics when buying a shopping bag for the user is easiness to handle, then accordingly size, carrying weight, durability, multipurpose use, environmental friendly material and so on. It is visible in this research that people are not so much concerned about environmentally friendly material while using a shopping bag. Only 30 percent of respondents think it is very important to have an environmentally friendly shopping bag. Less than 30 percent people think that quality, design and cost are important for them.

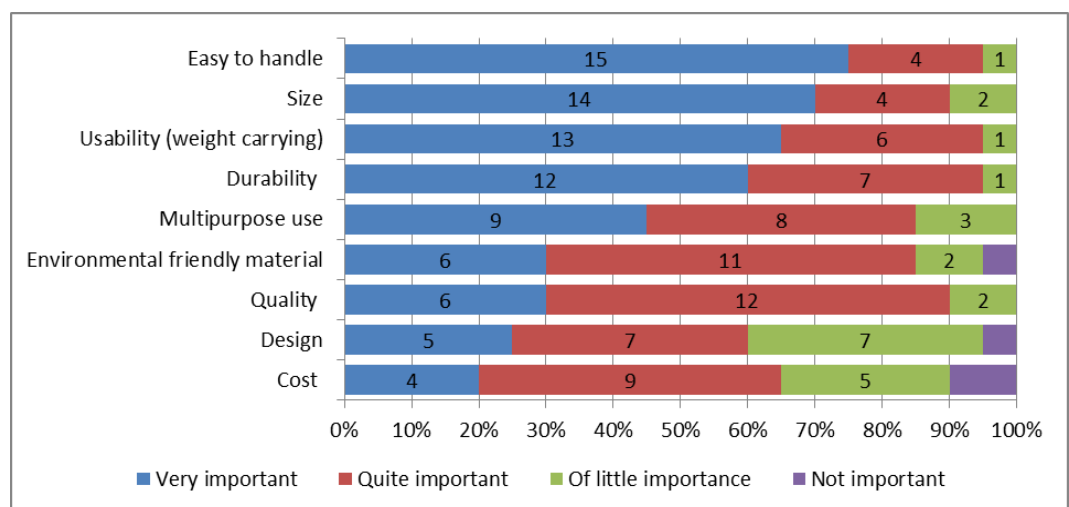


Figure 11. Most important characteristic while using shopping bag (n=20; multiple choice)

- When using a jute shopping bag, people were fully satisfied regarding the characteristic's durability, environmental friendliness, carrying weight, multipurpose use, quality and so on. In case of size, easiness to handle and design, some people were quite satisfied.

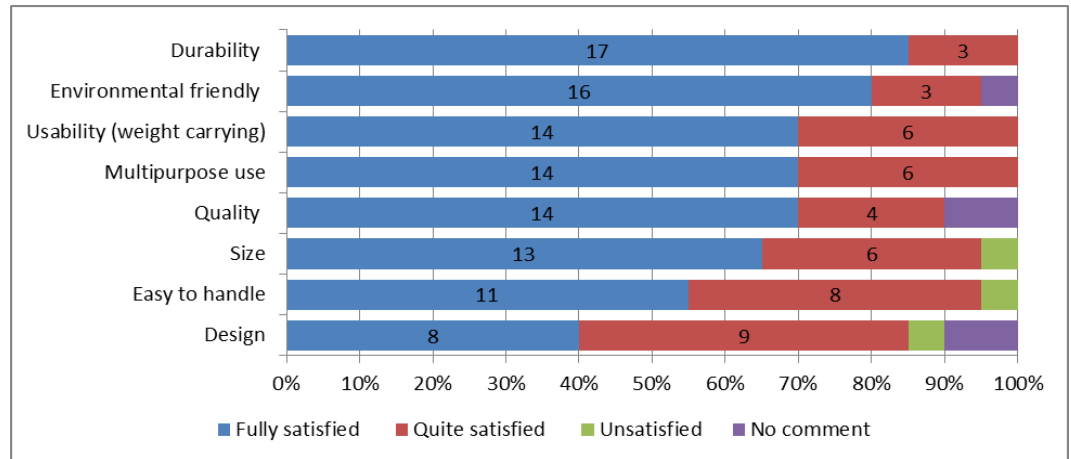


Figure 12. Satisfaction of jute bag characteristics (n=20; multiple choice)

Comparison from expectation to reality (Figure 11 and Figure 12)

No	Shopping bag	Jute bag
1.	Easy to handle	Durability
2.	Size	Environmental friendly
3.	Usability	Usability
4.	Durability	Multipurpose use
5.	Multipurpose use	Quality
6.	Environmental friendly	Size
7.	Quality	Easy to handle
8.	Design	Design

Although easy to handle and size was the most important factor while using shopping bag, but in case of using the test jute bag, these two characteristics goes down. Jute bag could not satisfy these two factors.

- Nearly half of the people had not used jute bag before which give an idea of using jute material within end user. People are not familiar with the jute material.



Figure 13. Familiarity of jute bag before (n=20)

- It was shown that cost was not the main fact for people when buying a shopping bag. In case of jute bag, 11 people think if the cost is one to two euro, they are going to buy and nine people think if the cost is more than two euro, they can afford it as well.

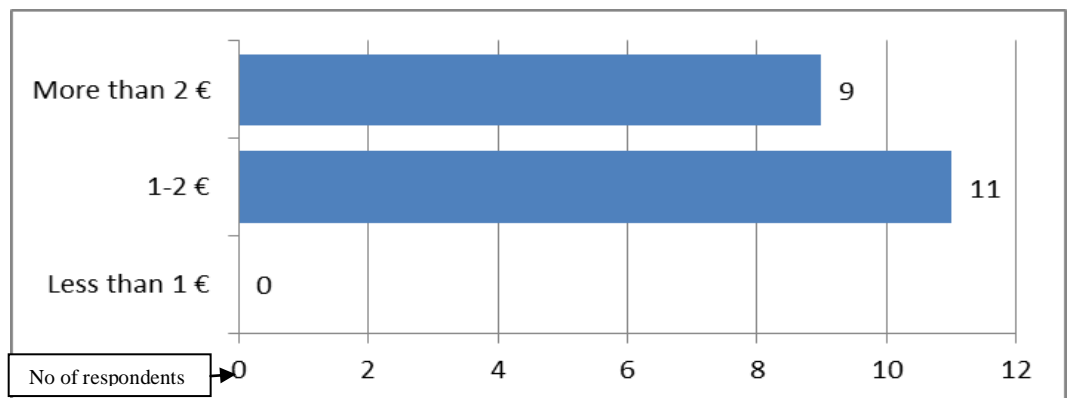


Figure 14. Importance of the price of jute bag (n=20)

- After using the plastic bag for shopping, most of the people use it as bin liner. Some of them reuse it.

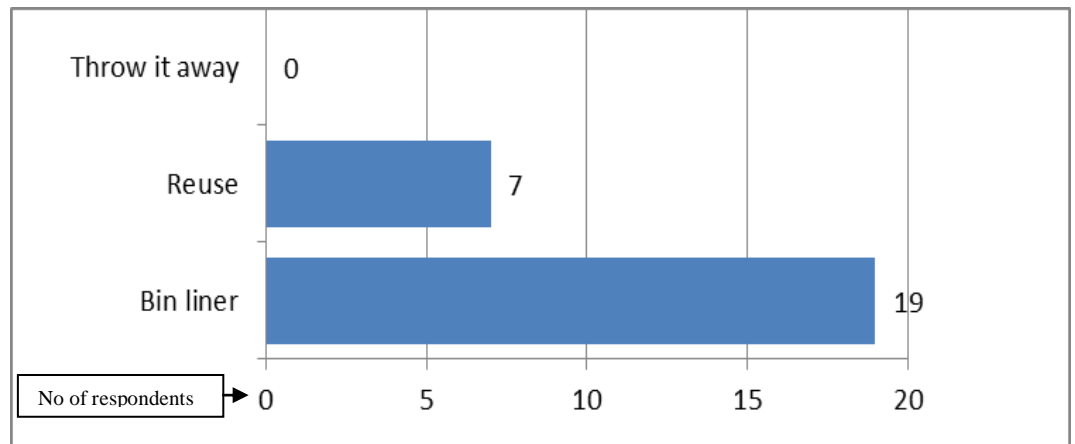


Figure 15. What people do with plastic bag after using (n=20; one can choose more than one option)

- Respondents think that jute bag can fulfill multipurpose usability like groceries, shopping etc.

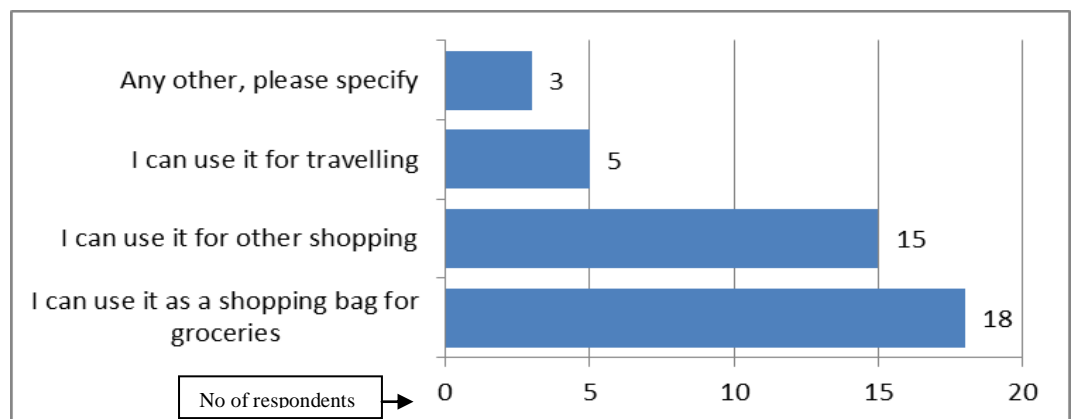


Figure 16. Multipurpose use of jute bag (n=20; one can choose more than one option)

- Between jute and plastic, respondents have no doubt that jute bag is more environmentally friendly than plastic bag.

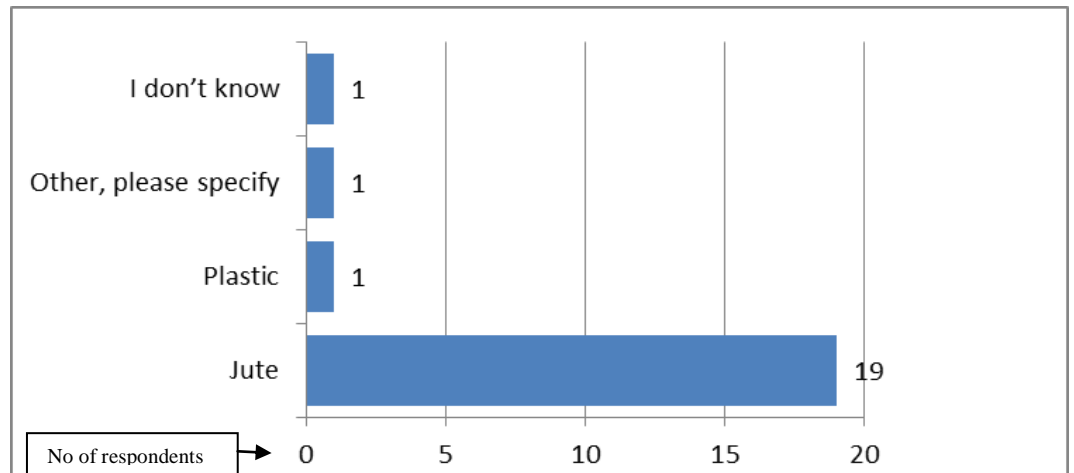


Figure 17. People's opinion about environmentally friendly material (n=20; respondents can choose more than one option)

- Among 20 respondents, nine of them completely agree that substitution of poly bag by jute bag is a good business idea. Eight of them partially agree with this idea.

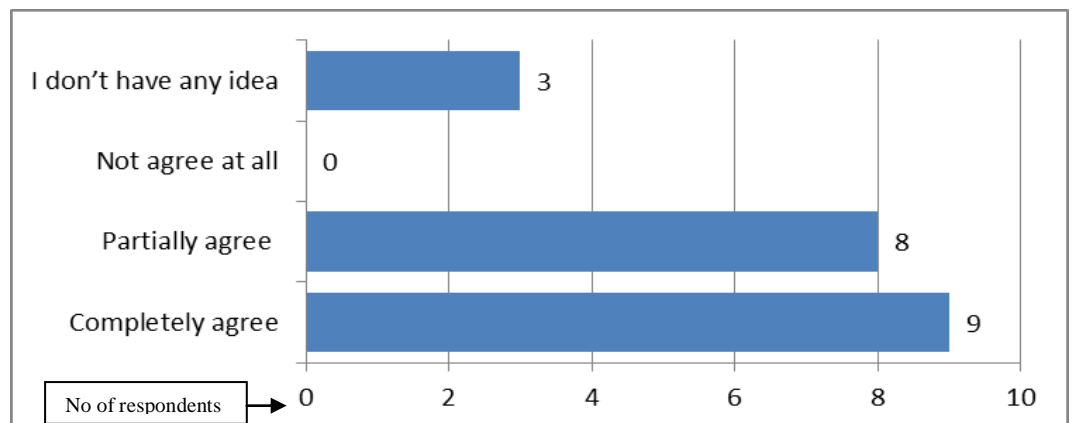


Figure 18. Substitution of poly bag by jute bag can be a good business idea (n=20)

- In case of substitution of a poly bag by a jute bag, within 20 respondents, 17 respondents are totally agreed that jute bag can satisfy them as a substitution of poly bag.

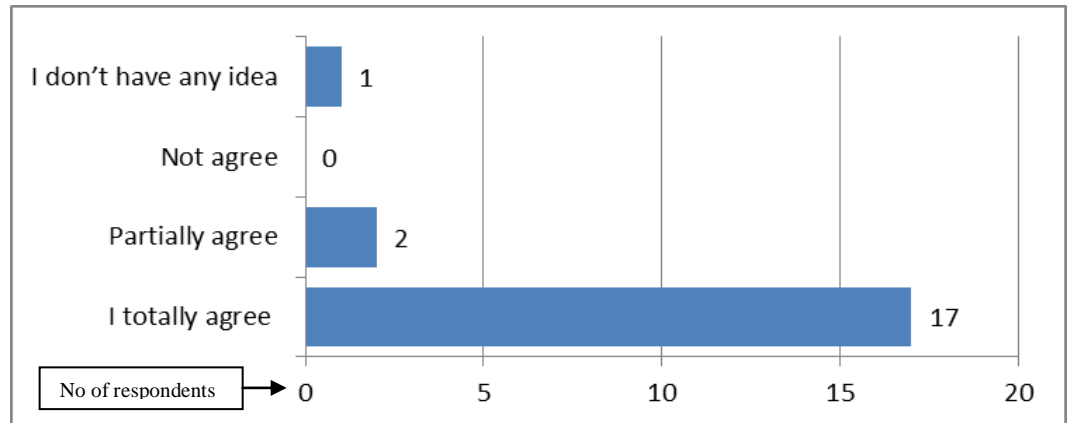


Figure 19. Jute bag satisfaction as shopping bag option (n=20)

- According to the respondents opinions', they think that jute decomposes in nature faster than plastic; this is the most important factor. Jute bag takes more space than plastic bag; it can be important, but not the most important factor. Respondents are not considering the price as most important factor in case of jute bag. They think that if the material can fulfill the required characteristics, they are willing to buy it. Cost is not a big factor if they can use the item longer. Jute bag is heavier than plastic bag, it can be somewhat important, but it is not the most important one.

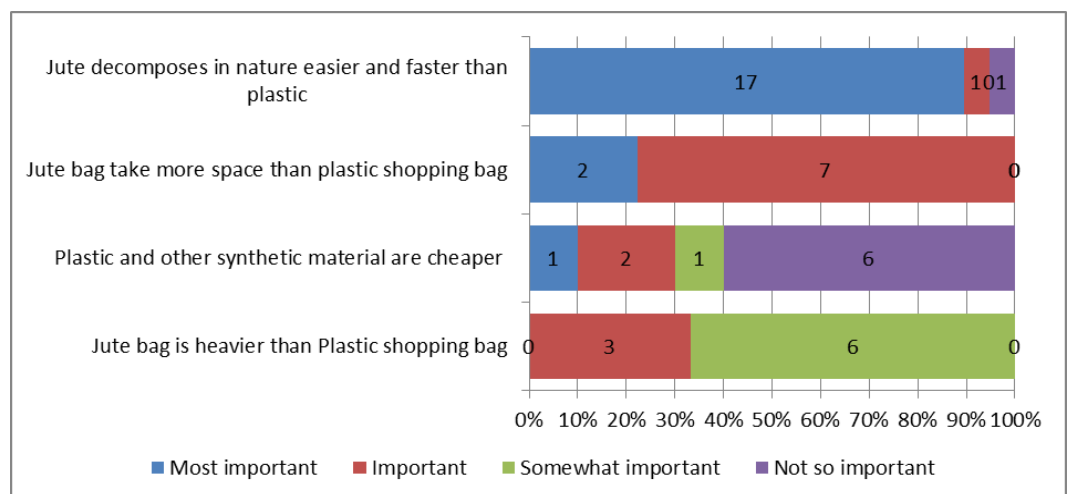


Figure 20. Most important characteristics statement for jute bag (n=20; multiple choice)

Differences in opinion based on age and profession

Cross tabulation analyses were done based on gender, age group and profession with each question. According to the results the gender does not have any influence. So, here the cross tabulation analyses are given according to age group and profession and only the most important one.

When it was asked from the consumer, which one is more environmental friendly? The possible options were plastic, jute, other and I do not know. In the age ranges 41-50, one of them think that plastic bags are better and one of them thinks that jute is better. All other think that jute is better. According to profession, about 89 percent service holder which is nine respondents thinks that jute is better, but 11 percent which is 11 respondents' thinks that plastic is better.

In case of familiarity, usefulness and opinion, it seems that respondents who are over 51 years old are quite familiar with the jute bag. Respondents in the age ranges between 21 to 30 and 31 to 40 have a similar opinion. According to their opinion, jute decomposes in nature; it is the best thing to use jute bag as a shopping bag.

Table 4. Familiarity with jute bag based on different age group

		Age Group				Total	
		21 - 30	31 - 40	41 - 50	51 and Above		
Familiar ^a	I use jute before as shopping bag	Count	1	1	0	2	4
	I use jute as decorative item	Count	1	0	0	4	5
	I use jute before as floor mat and covering items	Count	2	2	0	2	6
	Any other	Count	1	0	0	4	5
	I did not use jute products before	Count	2	2	2	3	9
Total		Count	4	4	2	10	20

Cross tabulation based on different profession

Based on profession, it can be concluded from the cross-tabs results that service holders (employees) are more conscious about sustainable development and environmental issues. Nine of them think jute bag can be used for groceries. The fact that it decomposes in nature is good characteristics according to their opinion. After that, pensioner and student are more conscious.

Table 5. Familiarity on jute bag based on different profession

Familiarity	I am a				Total
	Service holder	Entrepreneur/ Businessman	Pensioner	Student	
I use jute before as shopping bag Count	2	0	1	1	4
I use jute as decorative item Count	2	1	1	1	5
I use jute before as floor mat and covering items Count	2	1	1	2	6
Any other Count	2	0	2	1	5
I did not use jute products before Count	4	2	1	2	9
Total Count	9	3	4	4	20

According to some feedback, the respondents think that the length of the handle is not suitable for use. They think it is not long enough to be carried out on the shoulder, and if they hold it in hand, it is too long. It could be better to have two handles, one is for holding in hand and other is for shoulder. The jute material was harsh, so it was seen in dark clothes. Jute material should be smoother.

Interview Results with Superstore Manager

According to the manager of the superstore, the most important thing for them is to have different choice option for the customers. They try to offer that kind of bags which customers wish to have. Customers want a bag which is cheap, so price is one of the important factors in this case. About 90 percent of customers use plastic bag says the manager. In case of choosing bag, customer wants cheaper and different option. The officer thinks that price can be an obstacle for the customer,

because bags can be expensive. Perhaps consumers will not calculate the option of using jute bag several times. Consumers will see that the price of a jute bag is higher than that of a plastic bag and they will buy the plastic bag. They will not consider that they can use the jute bag several times and in that way it can be cheaper. (Interview with Rojo, March 2011)

Jute bag is heavier and it takes more space than plastic bag. This is not a problem for them; they think they have enough storage space. Sustainable environment is important for them and they think that it is needed for future generation. Especially in Prisma Varkaus, they did not take any special action about sustainable environment, but S-group is having different steps towards sustainable environment. Prisma Varkaus belongs to S-group. The manager of the store thinks that it is necessary to advertise the environmentally friendly bag. She thinks that people may like it, but first they need to know the objective of using jute bag. If people want to have jute bag, they are willing to have it in their superstore. Everything depends on customers' requirement. (Interview with Rojo, March 2011)

Interview Results With The Owner Of Case Company redQ

Mr. Anders Sandlund, the owner of redQ, thinks that the jute sector has a great potential, given the environmental friendly characteristics and potential diversification. He thinks that the issue of sustainable development will increase in future. Still there are a lot of challenges for Bangladesh jute industry. Although there are some challenges, but they are interested about jute sector in Bangladesh. They think it can be a good business idea to substitution of poly bag by jute bag. They think it is more related with the consumer behavior. "Implementing this business idea is a long way to go", says Mr. Anders Sandlund. (E-mail interview with Mr. Sandlund March 2011)

The aim of redQ is to start producing an environmentally friendliness products. They think they are trying to represent a way of doing business which does not harm environment or people. They want to be a role model, showing that it is possible to combine profit and responsibility. According to Mr. Anders Sandlund, this thesis research idea can be a good business idea; it is not exactly a new innovation in the field of business. Because he thinks it can be innovation if the

researcher can make it as a package, meaning how to get it out on the market. It can be a campaign like, “I’m not a plastic bag” or something like this. There can be included something more than jute bag. (E-mail interview with Mr. Sandlund March 2011)

While it is the matter of business culture differences, Mr. Anders Sandlund said, *“When doing business, we are very dependent on structure that administrative things work. What we see in Bangladesh is that these things take much longer time than in Sweden. Also, finding the right people is very hard. Of course in both countries, but the cultural setting is different in Bangladesh. Especially in our field of sustainable production, it is very important to understand our values and live up to them. In Bangladesh, it can be hard to understand sometimes the importance of this; they are used to do it in same way as before.”* (E-mail interview with Mr. Sandlund March 2011)

The owner of the case company, Mr. Anders Sandlund thinks that it can be profitable business if they can produce jute bag in future. He thinks the profitability for jute bags are dependent on the volume and good production setting, but above all, that the customers are ready to pay a premium for sustainable products. This tendency has already been seen in small scale through their carpet production.

5.4 Summary of the results

Half of the respondents’ are over 51 years old, so the result is varying according to their opinion. Researcher tries to include all the main profession in her thesis. So, it could be better to know the opinion of different professions people who is in different ages and it is helpful to know the mentality of people working in different position. People are using plastic bag often depending on the size of the family need. There was not a single respondent in this study who says that he or she is not using plastic bag. It also shows the consumer behavior of buying shopping bag.

While doing this research, the researcher noticed that there were a lot of people who do not know jute as a material. But after they got used to the jute bag, they thought that if the bag can fulfill the accepted characteristics, they are willing to buy the jute bag. Although the cost of a plastic bag is only 17 or 19 cents, respondents

are willing to pay two euro which is ten times more if we consider of using the bag only ones. It is worth considering that, although consumers pay ten times more for a jute bag, they can use it for 1 year or more, and that means it is cheaper as well. If a family needs 10 plastic bags in a month, they will need 120 bags in a year, which will cost 20.40 euros. However, if they buy a jute bag with two euros and use for a year, it is ten times cheaper. Consider the sustainable issues and environmental impacts, and then it can be more considerate to use a jute bag rather than a plastic bag.

The study shows that consumers like the usability of the jute bag in case of multipurpose use and environmentally friendly material. Respondents do not completely agree with the researcher that the substitution of a poly bag by a jute bag is a good business idea, although nearly half of them partially agreed. Respondents are willing to use the jute bag. Among 20 respondents, nine respondents were not aware of jute bag before. But while they used it, they were satisfied and they are interested to use it in the future. It seems that if the industry wants to produce jute bags in the future, consumers may like it and they may be willing to use it. It is a positive attitude towards jute bag for the industry from the consumer side. Consumer behavior can be changed if they get the right material and right information. Respondents are willing to have environmentally friendly material.

In case of cross-tabs based on age and most important environmentally friendly material, it shows that respondents between 41-50 ages are divided. Although half of them think that jute is better, the other half thinks plastic is better. Among 20 respondents, only four respondents belong to this group and two of them agree that jute is better. So, it seems from the result that most of the respondents agree that jute is more environmentally friendly than plastic.

6 CONCLUSIONS

The main focus area of this thesis is sustainable environment, the life cycle of a jute bag and a plastic bag, building innovation, business culture and consumer behavior in the theoretical framework. The thesis includes a case company description and product testing by giving 20 pieces of jute bag to the consumers. After using the jute bag for several months, feedback is gathered by means of a questionnaire from them. This study also includes an interview with superstore manager and with the owner of the case company.

In Bangladesh, the local jute industry, which employs about 150,000 workers, is the second largest export earner after clothing industry. In the years 2009 and 2010, the sector logged 76 percent higher earnings at \$736 million (Tk 5,225 crore-Bangladeshi currency) than the previous year, which remains buoyant in the current fiscal year. Kamrul Hasan, operative director of Aftab Jute Mills, said that many European countries are discouraging use of synthetic bags to protect the environment. So, petrochemicals will be exhausted over time. According to his opinion everything about jute are positive and it can produce versatile products (Bangladesh Economic news 2011)

Summary of theoretical framework

Sustainable development means to improve the quality in present life without hampering the nature for future generation to their needs. It needs practice in all stages from local to global. Economic, social and environmental factors together combine in sustainable environment and it is advisable to build strategy in this sector. The world is facing problems because of global warming. Through ensuring sustainable environment, global warming can be reduced. International climate agreement was made in Copenhagen in December 2009 where European Union committed to reduce its overall emissions by the year 2020, 20 per cent below the levels of the year 1999. Waste hierarchy, the prevention of waste, recycling, reusing of material and the incorporation of life-cycle thinking is also a part of sustainable development.

Life cycle thinking starts from raw material production to final disposal. Plastic bags are created through the polymerization of ethylene, a gaseous hydrocarbon found in petroleum or oil. There is different procedure to produce plastic bag where the main component is HDPE, which refers to high density polyethylene and it is a strong, light, rigid plastic. Plastic bags can take 400 to 1,000 years to vanish after throwing to nature. There is some other procedure to vanish plastic which are designed to turn into carbon dioxide, water and compost within a month or two - but only in a composter.

Jute is a natural fibre which is 100 percent bio-degradable and ecological fibre plant. Jute is produced from the bark of plants which is a long, soft, shiny vegetable fibre that can be spun into coarse, strong threads. After planting, it takes few months to have the jute yarn and from yarn there can be produced different articles like fabric, net, sacks and very suitable in versatile product packaging. The jute has gripping quality as well as holding capability. Jute also decomposes in nature and is not a threat to create for natural imbalances.

Companies need innovation to survive in the business. The world is changing and competitors are coming all the time with new idea and product. So, every company needs to pay concentration on new business idea and innovation. Company should follow the innovation process. Innovation is not a single process, but a series of activities where company need to follow different steps to gain its goal and for being profitable.

Classification of a new product can be explained in several ways in case of new product innovation. The idea as well as the product itself can be a new product innovation. Newness is a relative term where product is a multidimensional concept which consists with tangible or intangible features. New product does not mean all the time completely new, they serve a variety of purpose depending on what is seen to be in strategic imperative. Consumer behavior plays important role in any kind of business. Consumer is the one who takes the decision of buying. Consumer likes to separate their groceries according to the type of products and they want to have easy use bags. Now a day, some countries as for example Australia and some big companies as for example IKEA is trying to forbidden of using plastic bag.

According to data of Bangladesh's Export Promotion Bureau (EPB), the country in the first 10 months of the fiscal year 2009- 2010 (July 2009-June 2010) fetched 547.5 million U.S. dollars from exports of raw jute and jute goods. People are interested in the natural fiber made products in the global market. In Bangladesh, the land is ideal for jute production, lots of investors are interested in doing business in this sector. The case company redQ is a Swedish company and they are interested for the same reason for their future business growth.

In case of business culture, Bangladesh is a relationship-focused, formal, polychronic and reserved pattern of culture. Being late for 30 minutes is not considered as guilty or fault. People need special patience to do business in Bangladesh. There is also bureaucratic red tape; people need to have special connection with the Government officials. People in Sweden and Finland are having deal-focused, moderately formal, monochronic and reserved cultural patterns which are a bit reverse than in Bangladesh. Their behavior is the direct reflection of social values which are equality, efficiency and modesty.

Integrating theory with empirical study

Optikassi survey was a good survey, but Jute bag was not considered. The most interesting part of this research is to pay attention to jute bag. So, still there is some opportunity and still this research is new for Finland to have jute bag as a substitution of shopping bag.

In case of innovation in new business idea, the concept of using jute bag as a substitution of poly bag is a new innovation in the field of business idea. People are already familiar with jute bag as different superstores have jute bags for sale. People are using those jute bags for their shopping as well. But using the jute bag widely as a substitution of poly bag can be a new business idea. So, in this thesis work, the product itself is old, but the concept of using the product is new.

According to the manager of superstore, the consumer makes the decision. If the consumer wants to have an environmentally friendly jute bag, they are willing to have it in their shops. Because they think environmental issues are also important

for them. According to the owner of case company, the topic is not an innovation in the field of business.

Suggestions for the case company

Commissioning company should pay close attention to the “easier to handle” characteristics. Based on this study, it is shown from the feedback of the customer that it could be better to change the design a little bit with a strong bottom and a shaped bag. If people buy little items, then it turns to one side. It is needed to have some exact shape. This jute bag can take quite much space and can take lot of stuffs, but for little shopping it is not good. It could be narrower. So, some respondents want to have more sizes rather than one size. Industry may pay concentration about this easy to handle issue while producing jute bags in the future so that it can fulfill the customers’ requirement.

There is ignorance of jute as a material. Lot of people does not know about jute and its characteristics as an environmentally friendly material. So, commissioning company needs to create proper awareness and marketing. According to the opinion of the manager of the supermarket, it is needed to have proper marketing and needed to aware people to have environmental friendly jute bag as a substitution of plastic shopping bag. It is better to have more polished jute so that the fibre will not show in the dark cloth if rubbing with cloth. It is shown based on the study that the consumers are not concentrate only price, so the company can have more polished jute with fine grain.

Own Critics

It would be preferable to have a higher amount of sample bags. The researcher uses only 20 pieces for testing. The thesis is done completely on the researcher’s own funding. So, it was not possible for the researcher to have a bigger amount of bags than these 20 pieces. But it was a good idea that the researcher made the real product and tested the real product rather than having only normal survey about jute bag. It shows in this research that there were seen many people who do not know jute as a material. If there had been only a survey, people would have answered the questionnaire without knowing the real jute material. If the researcher could arrange funding for the thesis and can make at least 100 sample bags, the

research would be more reliable and fruitful. It could be more reliable and validity would be high.

The distribution of bags was not perfect, because there were 10 respondents whose ages were over 51 years. It seen in the result that all the opinion is going towards their mentality. The researcher failed to find middle age women as she mentioned in the beginning. Somehow, the result is biased in some point as half of the test group belongs to one age group and also the same professional group.

The researcher designed the bag herself, but the design was not perfect. After the research, it shows that respondents were not happier with the easy to handle characteristic, polish, shape etc. So, it could be more acceptable if the researcher pays concentration on those characteristics before doing the design. The researcher should go for a prototype product and then she should go for 20 pieces sample. If she made the prototype, than she could know those characteristics beforehand.

According to commissioning company, they think that the idea of substitution poly bag by jute bag can be a good business idea, but it is not a new innovation in business idea. If the researcher could pay concentration on some other environmental friendly material and could make them as a package, then it would be possible to new innovation in business idea. Only jute bag alone cannot be a new innovation in business idea. In this point, the idea from the researcher point of view is not the same as the company's point of view. So, the researcher idea was not exactly matching with the company's idea. Company's idea is that it can be profitable business idea of using jute bag widely and it shows responsibility of sustainable environment from both company's side and consumer's side. Besides this, the owner of the company thinks that if the consumer would really like to use jute bag, it will make the future world better. So, it is somewhat a good business idea for better future.

Through this research, the researcher was able to understand the deep meaning of the thesis. The researcher's first idea was to do something about global warming and she carried out a subject analysis also about that subject. However, afterwards while going through the procedure, the main concrete issue came out as

sustainable development. Moreover concentrating on the jute material enabled to proceed in a more arranged and practical way. Through this research the researcher learns the real way to do the research like theoretical framework, practical, combining those two and how to come with a final result.

There were some basic question in the questionnaire like gender, age and profession. While doing cross-tabs, it shows that gender did not make any difference. Making the appropriate questionnaire and analyzing it were most important issues to learn. It can also be concluded that consumers may like to use environmentally friendly jute bags based on the respondents' opinion. So, commissioning company can concentrate on elaborating their business in this sector for future.

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Case company Description (by e-mail)

APPENDICES

QUESTIONNAIRE FOR THE SURVEY ABOUT JUTE BAG

Dear Respondent

I am a student on Savonia UAS Varkaus. I am doing my thesis work subjected as

“How plastic bag can be substituted by jute bag and how it can plays vital role in sustainable environment.”

This thesis is done for a Swedish company named redQ.

I need your support and cooperation on this research by filling this questionnaire. Your answers are strictly confidential and can't be separately identified if whether you will not give permission. Thanks for your time, attention and cooperation.

Please fill the form by x mark

1. Gender: Male Female

2. Age Group: 21----30
 31----40
 41----50
 51 and Above

3. I am a: Service holder
 Entrepreneur/Businessman
 Pensioner
 Student
 Unemployed
 other, please specify _____

4. How many Plastic bag you need in a month
 1- 5
 6-10
 More than 10
 I am not using plastic bag

5. How important are the following characteristics to you while using shopping bag? (Please tick one box for each characteristics)

Characteristics	Very important	Quite important	Of little importance	Not important
Cost				
Quality				
Durability				
Easy to handle				
Multipurpose use				
Design				
Size				
Usability (weight carrying)				
Environmental friendly material				
Other please specify....				

6. I gave jute bag to you. After using it for several months, how do you think about the characteristics of this jute bag based on your experiences?

Characteristics	Fully satisfied	Quite satisfied	Unsatisfied	No comment
Quality				
Durability				
Easy to handle				
Multipurpose use				
Design				
Size				
Usability (weight carrying)				
Environmental friendly				
Other, please specify.....				

7. Are you familiar with jute before?

(Jute as a material...It can be used in different forms e.g. rope)

(You can choose more than one option)

- I use jute before as shopping bag
- I use jute as decorative item
- I use jute before as floor mat and covering items
- Any other, please specify_____
- I did not use jute products before

8. I will buy this kind of jute bag if it is ...

- Less than 1 €
- 1-2 €
- More than 2 €

9. What do you do for the plastic bag after using it? I reuse plastic bag after used as....

- Bin liner
- Reuse
- Throw it away

10. I think jute bag is useful for following purpose:

(you can choose more than one)

- I can use it as a shopping bag for groceries
- I can use it for other shopping
- I can use it for travelling
- Any other, please specify.....

11. Which one from below is more environmental friendly for you?

- Plastic
- Jute
- Other, please specify_____
- I don't know

12. "Substitution of poly bag by jute bag"- do you think it's can be a good business idea?

- completely agree
- partially agree
- Not agree at all
- I don't have any idea

13. Jute bag is satisfying option as a shopping bag to me

- I totally agree
- partially agree
- Not agree
- I don't have any idea

14. Indicate which of the following statements is closest to your opinion. You can choose more than one option.

- Plastic and other synthetic material are cheaper
- Jute bag is heavier than Plastic shopping bag
- Jute bag take more space than plastic shopping bag
- Jute decomposes in nature easier and faster than plastic

15. If you have any more comment, please feel free to specify below

Supermarket

1. As an administrative manager of a Supermarket, what is your opinion - "Is it possible to substitute of polybag by Jute bag?"
2. What can be an obstacle to substituting poly bag by jute bag?
3. Jute bag is heavier and take much space, do you think this can be a problem?
4. How Important is sustainable development in Prisma?
5. What is Prisma's role in sustainable development?
6. Do you think customers are willing to buy environmental shopping bag?
7. Is this possible for Prisma to change their shopping bag by Jute bag? And what can be the possible problems in implementing this this idea of having Jute bag?

Industry

1. Why you are interested about jute? Please explain.
2. Why do you think jute bag can be a substitution of plastic shopping bag?
3. What can be main barrier for this implementation?
4. Your aim is to gain environment friendly product. How it can play role in sustainable environment?
5. Why do you think it can be a new innovation in business idea?
6. You are having production unit in Bangladesh and you want to market it in Europe. Are there any cultural barrier between Sweden and Bangladesh in doing business?
7. How it can be profitable for you? Entrepreneur

www.savonia.fi

