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Environment and Business Relations in Urban SMEs - A study on Mirpur Benarashi Palli

A Dissertation
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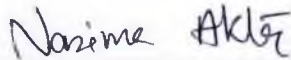
Environment and Business Relations in Urban SMEs

- A study on Mirpur Benarashi Palli

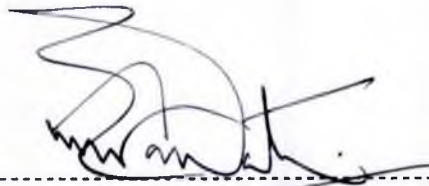
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Abstract

The concept of environmentally responsible business has the intention of promoting conscious involvement by the individual business clusters in developing and maintaining guidelines relating to environmental development issues and also promoting dialogue designed to strengthen the environmental aspects of laws and frameworks. Bearing this in mind, this study was designed to understand how an individual SME value their business strategy within an environmentally responsible business arrangement. The study location was in Mirpur Benarashi Palli areas, where there subsist a large number of urban SMEs involving the Benarashi Shari manufacturing activities. Environmental assessments were done based on standard EIA procedures. Findings require wider facilitating consultation services to improve environmental performances as these small business managers do not have sufficient access to information concerning environmental management and many do not have the capital or the expertise to undertake the sort of these approaches. This is considered necessary as because, environmentalism is all about prevention and enhancement of the physical environment and has a primary influence on societies overall development initiatives.

Keywords: SME, Environmentally responsible business, Business environmentalism.

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Abbreviations

ADB	=	Asian Development Bank
CAC	=	Command-and-Control
DFID	=	Department for International Development (UK)
EIA	=	Environmental Impact Assessment
EMS	=	Environmental Management System
ERB	=	Environmentally Responsible Business
MBP	=	Mirpur Benarashi Palli
MOI	=	Ministry of Industries (Bangladesh)
NCID	=	National Council for Industrial Development (Bangladesh)
SME	=	Small and Medium-scale Enterprise
SMESDP	=	Small and Medium Enterprise Sector Development Program.
TQM	=	Total Quality Management

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Mortuza Khaled
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1 Introduction

Enterprises locate where there are business opportunities. Small and medium-scale enterprises (SMEs) are a very heterogeneous cluster. The specific characteristics of small business that distinguishes them from other business is obviously their size. Because of this they tend to have some common features, but they are by no means identical. There are varieties of small businesses, which differ for instance in their stage of development, in their business sector or in their type of ownership etc. The SME sector represents a huge untapped market for the financial service industry in Bangladesh and other developing countries. SMEs have to respond to a market where they need to be more flexible in their operations and produce goods which clearly satisfy the particular needs of their consumers.

By providing the goods and services demanded by the public, businesses fulfill many vital social needs and many not-so-vital social wants. The investments and innovations of industry drive economic growth and satisfy the demands of the consumer. In doing so, the resources that they consume, the processes that they apply or the products that they manufacture - the entire business activities become a major contributor to environmental destruction which has been identified by the environmentally conscious researchers around the world (Acutt & Meson, 1998). Environmental issues have been a matter of public concern for over a quarter of a century. Until recently, the environmental debate in business has largely been one of rhetoric rather than action in Bangladesh. While it is difficult for business to disprove the general need for environmental protection, yet there has been little practical guidance as to how real progress might be made. As a consequence, businesses are now at the core of the environmental debate and are central both to the problem and to the solution in the intellectual arenas.

As knowledge relating to the cause and effect of environmental damage has become more complete, the pressure to change the ways in which we behave has increased. Much of this pressure has been targeted towards industry which is often identified as the major

source of pollution. Individuals are also changing their patterns of behavior and industry has to respond to the seemingly endless demands of the modern, environmentally aware consumers all around the world.

The aim of this study is to reveal the interrelationships between the environmental safety measures and the business strategies of the clustered SMEs existing in Mirpur Benarashi Palli (MBP) area. The objective is to understand what actions actually these enterprises can take for the sustainability of their business within the environmentally responsible business (ERB) arrangements and how could this process best be transformed into actions which usefully supports environmentally sustainable business practices.

1.1 Research objective

The overall objective of this study is to understand the complete relationship between business and the environment both the way in which the environment influences business as well as the ways in which the various enterprises mutate the environment. More specifically, objectives are –

1. To find how Mirpur Benarashi Palli SMEs value their business strategy within an environmentally responsible business arrangement.
2. To find what measures these SMEs can take to operate sustainability of their products and operations within an environmentally responsible business arrangement.

1.2 Justification for the research

To protect the environment, we must find ways to meet the needs of both current and future generations. In part we need to find new technologies and to develop more efficient methods of production. There is a need for a change in attitudes towards both consumption and production. There is no doubt that business activity has been innovating and improving efficiency for many years and business enterprises have made a little

advance in their environmental performance (Starkey & Welford, 2004). Unless changes occur rapidly environmental degradation may become irreversible and thus, developing practical solutions to meet the environmental challenge is a prior requisite. Figure-1 below showing the relationships in between the physical environment with internal and external business arrangements practices in most cases.

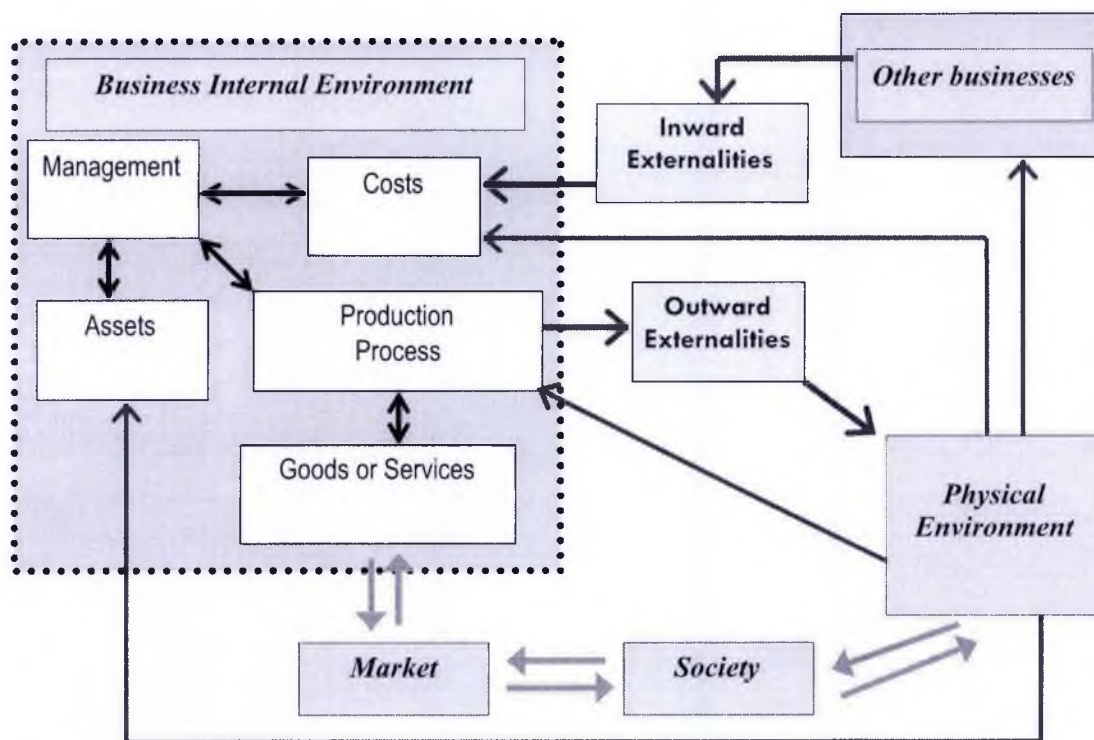


Figure 1: Relationship between physical environment with the internal and external business arrangements.

Again, individual businesses have always been faced with a range of competitive market conditions which threaten their survival. In many cases, requirements for improved environmental performance are perceived to add to this threat. It is now clear that the demands placed upon industry to improve its environmental performance will continue to grow. Enterprises which respond to this challenge will see themselves at the forefront of industry, developing new products in new markets and gaining a competitive edge over their competitors (Welford, 1998).

The approach of governments has also been to respond to increasing public concern for the environment by developing policy frameworks for environmental protection. Environmental policies and their associated legislation impose new costs and also generate fresh opportunities for business enterprises and change the competitive business environment. Not only is it ethical for a company to improve its environmental performance, but it is sound business practice. Thus we can expect a gradual and continuous effort to improve environmental performance and in time this will move the economy towards a more sustainable pattern of production.

The rapid growth of public environmental awareness in recent years has placed new pressures on business strategies in the environmentally conscious economies. These pressures can take many forms as individuals collectively exercise their environmental conscience as customers, employees, investors, neighbors, fellow citizens etc. and also enterprises are beginning to develop the new technologies and techniques that will move the economy toward sustainability and must continue to do so in many conscious societies (Baxi & Prasad, 2005). Within the pluralist society in which we live, a whole range of pressures are beginning to create the preconditions which are necessary to encourage businesses to respond to the environmental challenge. Environmentalists consider it as a primary influence on societies overall development. Bearing in mind that environmentalism is all about prevention and enhancement of the environment and consumers have a major part to play in overall environmental improvement efforts.

1.3 Definitions and concepts

1.3.1 Small and medium-scale enterprises (SMEs)

The statistical definition of SMEs varies by country, and is usually based on the number of employees or the value of assets. The lower limit for small-scale enterprises is usually set at 5 to 10 workers and the upper limit at 50 to 100 workers. The upper limit for medium-scale enterprises is usually set between 100 and 250 employees (Carter & Jones-Evans, 2000). Since statistical definitions vary, there are no single, clear, precise and widely accepted definition of what is a small business. Different definitions exist often

because of different purpose such as support policy application, taxation or legislation. The EU definition of SME used to be one that employed fewer than 250 employees. The USA small business administration uses 500 as the limit of its remit. Elsewhere the limit is often set as 200 which many take as being closer to the size that force a change in organizational structure (Bridge, O'Neill & Cromie, 1998).

Again, in terms of annual turnover 7 million euro is marked for small firms and 40 million euro is marked for medium sized firms. In terms of balance sheet total 5 million euro is considered as small firm and 27 million euro is considered for medium sized firms.

In Bangladesh Small Industries are defined (MOI, 1999) as industrial enterprises employing less than 50 workers and/or having a fixed capital investment of less than Tk. 100 million. Medium industry covers enterprises employing between 50 and 99 workers and/or having a fixed capital investment between Tk. 100 and 300 million. Again Cottage Industry covers household-based industrial units operated mainly with family labor.

1.3.2 Environmentally Responsible Business (ERB)

By physical environment we realize the surroundings, especially the materials and spiritual influences which affect the growth, development and existence of living being¹. It provides materials for and natures every aspects of human activity, also provides and maintains work opportunities. Once more, it can be the external conditions under which any person or thing lives or is developed and/or the sum-total of influences which modify and determine the development of life or character².

Responsibility, on the other hand, can be conceptualized as a degree of control which has attained meaning for society³ or the state or fact of being responsible.

1 According to the Webster's dictionary, 1992

2 Athens online Oxford English dictionary, second edition, 1989

3 <http://www.geocities.com/Athens/Delphi/5179/Glossary.htm>

Thus, the concept of environmentally responsible business has the intention of promoting conscious involvement by the private sector in developing and maintaining guidelines relating to environmental development issues such as environmental protection, management, practices etc; and also promoting dialogue designed to strengthen the environmental aspects of laws and frameworks which may eventually become legally enshrined. For assessing progress with environmentally responsible business argument, judgment indicators might be exercised like evidence of new production processes with reduced environmental damage, participatory community assessment of environment impact, implementation of economic principles in the workplace etc.

As a result, the promotion of environmentally responsible business aims to make a positive impact on society through relations with its stakeholders, such as employees, suppliers, customers and the communities in which it operates; to be precise, economic activities which are sustainable and environment-friendly.

1.3.3 The Total Quality Approach in the SME

Total quality management (TQM) is an approach which aims to improve the effectiveness and flexibility of the business as a whole and attempts to eliminate wasted effort as well as physical waste by involving everyone in the process of improvement. The theory behind a total quality management system is that as quality improves costs actually fall through lower failure and appraisal costs and less waste. Total quality management is much more than assuring product or service quality; it is a system of dealing with quality at every stage of the production process, both internally and externally. It is a system requiring the commitment of senior managers, effective leadership and teamwork. This last facet is actually easier to achieve in the SME and in turn makes a TQM program more easily implementable in a firm with flexible specialization systems built into its operations.

Central to the TQM approach is teamwork where people get together in process improvement teams and quality circles. Within the very small business a quality circle may actually involve everybody in the organization and one of the key functions of the

quality circle is to make recommendations to management and discuss suggestions made by others. This is actually very much easier in the smaller organization where there are fewer management structures and shorter lines of communication.

1.3.4 Flexible Specialization Systems

The environmental concerns about mass production and a trend away from production line techniques in the workplace tend to point in the direction of smaller, more flexible firms and divisions. Small-scale units enable production to be specialized and to meet customer's requirements more accurately, while modern production methods, often including new technological modes of operation, enable the unit to be flexible and responsive to changing demands. There are five key influences underlying the flexible specialization system. These are using appropriate technology, flexibility in terms of production scheduling and working hours, contracts and sub-contracts, defined products and markets and the workforces.

Following this way, the clustered SMEs have to think carefully about how to develop a flexible specialization strategy in an environmentally friendly way. In purchasing new, clean technology, the cheapest may not be the most important consideration and the firm needs to think carefully about multi-process technology which can produce an increased number of variations to a basic product. Again, it needs to look towards serving new and complementary markets and offering a high quality, personal service. The enterprises and their scheduling of production should enable a move away from batch processes wherever possible and working patterns need to be in line with levels of demand and not usual custom and practice. The workforce must become more flexible and specialized and there is a role for increased training and education.

2 Literature review

Enterprise development is the main engine of economic development, which in turn, is an important instrument in realising a wide range of other development goals. But this has been repressed in playing its development role due to market and regulatory failures (Lee, 2002). In Bangladesh very few studies were commenced on understanding SME-Environmental impact analysis that would limit the study getting country specific pertinent information. The restrained activities were not just to attaining to these SMEs but access to relevant literature became a great challenge as very few surroundings study information on these clustered SMEs were found.

For densely populated countries like Bangladesh job creation is one of biggest challenges and expectantly many new jobs will continue to be in the SME sector. To lift themselves out of poverty, poor people will wish to use their major assets; usually natural resources and intend to include as much value as possible. They may need to group into associations, to help them negotiate better terms and improve the efficiency of environmental asset management.

The National Council for Industrial Development (NCID), which is chaired by the Prime Minister and empowered to take policy decisions under the umbrella of Industrial Policy 2005, has the responsibility for SME development in Bangladesh. NCID has a leading role in achieving the Government's objective of establishing small, medium, and heavy industries on a massive scale throughout the country and expeditiously resolving problems in the industry sector. The Government has constituted an SME Advisory Panel to develop an action program to support SME development. The SME Advisory Panel consists of representatives from the Ministry of Industries (MOI)—the ministry designated to implement the Government's SME development strategy—and other concerned ministries, industry associations, and the other private sector bodies. Once more, MOI formulated the SME Policy Strategies on the basis of recommendations of the SME Task Force and the SME Advisory Panel. ADB's Small and Medium Enterprise

Sector Development Program (SMESDP)⁴ is designed to have three strategy outcomes (ADB, 2004):

- a. Establish SME policy and development framework
- b. Establish institutional structure and mechanisms to support SME development
- c. Define Government support to SMEs and improve SME access to various services.

The SME Cell also has a critical role in planning, organizing, and managing the resources needed for the implementation of the SMESDP.

The National Task Force on Development of SMEs (SME Task Force)⁵ submitted its Report on Development of SMEs to the Prime Minister in 2004. The Report on Development of SMEs was prepared after extensive stakeholder consultations including a national workshop. In January 2005, the Economic Affairs Committee of the Cabinet approved the recommendations of the SME Task Force except exemption from value-added tax and any Government imposed duty or tax.⁶ Further, Industrial Policy 2005, approved by the Cabinet on 17 January 2005, has identified SMEs as the thrust sector for sustainable industrial development in the country. Industrial Policy 2005 also provides a single uniform definition of SMEs. The rapid expansion and growth of SMEs have also been significantly highlighted in the national poverty reduction strategy for sustainable industrial development and poverty reduction. Yet again, DFID's Enterprise Development Strategy (DFID, 2000) illustrates a number of formidable constraints in developing countries to enterprise formation and expansion. These includes –

4 ADB Program Number: 35225 , Loan Number: 2148 , Bangladesh: Small and Medium Enterprise Sector Development Program, December 2005

5 The Small and Medium Enterprise (SME) Task Force was established by the Government on 5 November 2003 to prioritize specific elements of SME policies from the perspective of Bangladesh. The SME Task Force—comprising 16 members from the Government, academia, and the private sector—is chaired by the principal secretary, Prime Minister's Office.

6 The FY2006 budget extended tax holiday facilities, which were to expire at the end of FY2005, by 3 years up to FY2008, with periods re-fixed at 4 and 6 years instead of 5 and 7 years for SMEs located in Dhaka, Chittagong, and other major cities, and for SMEs located in underdeveloped and undeveloped areas, respectively. The SME Task Force is planning to discuss tax and duty incentives in January 2006.

- a. An unfavourable policy, legal and regulatory environment for enterprise due to a heritage of heavy state intervention, outdated laws, excessive regulation and discrimination against micro-enterprise.
- b. Lack of appropriate financial services particularly for poor families and micro-entrepreneurs through stronger and more extensive micro-finance institutions with stronger links to the commercial banks and mainstream capital markets.
- c. Shortage of management skill and business development services in need of better access to effective training in management systems, production and distribution technologies, marketing technology and market research.
- d. Insufficient market knowledge, weak communication and institutional linkages among small enterprises etc.

In consequence, we can say, an enabling business environment through appropriate management, improved access to markets and transport, streamlined regulations and technical support could be an optimistic approach for the overall flourishing of this sector. Following this, SMEs have to respond to a market where they need to be more flexible in their operations and produce goods that clearly satisfy the particular needs of their consumers. The sort of approach which is increasingly being adopted by small firms is that of flexible specialization where small firms have to respond to complex consumer demands in a flexible way and produce products which exactly fit customer requirements through introducing a degree of specialization.

However, regarding the environmental concerns adjacent enterprise related literature information illustrates key environmental problems associated primarily with the SMEs are as follows –

- The growing use of chemicals and other polluting technologies.
- Pollution and waste through the inefficient use of resources and outdated technologies.

- An ever-increasing number of small and medium enterprises competing for diminishing resources and space.
- The negative environmental impacts of SMEs often pose a direct threat to human life. This includes the improper disposal and unsafe use of hazardous substances, which affects human health, ecosystems, food chain, air, water and also occupational health and safety risks.
- The inappropriate location of SMEs, mostly in urban areas, and their subsequent contribution to overcrowding and pressure on infrastructure such as water and sanitation services.

Thus, a need for an integrated approach and in particular, linkages between environmental improvement and quality, and between environmental management systems and the culture of total quality management in business activities is exceptionally important. These linkages are no different in the SME sector but are sometimes compounded by the developments, which are occurring in the sector itself and the sorts of demands increasingly being made by the customers

As we know from the *Brandland* report (UN, 1987), development that meets the needs of the present without compromising the ability of future generations meeting their own needs could be a sustainable development and it is possible to make the development and environmental protection compatible by pursuing sustainable strategies and by not developing the particular area of economic activity that are most damaging to the environment. The fundamentals of management practice and strategy will then facilitate improved environmental performance in business activities. But prior to that, it is important to pass on some of the factors (Welford & Gouldson, 1993) which altogether serve to encourage business to respond to the environmental challenges.

These includes the following factors –

2.1 Environmental Management Competences

Business enterprises frequently try hard to minimize the costs of their operations. This is especially relevant in relation to the efficiency with which they use their material inputs. As the ability of the environment to supply raw materials and accept waste is diminished, the costs of these services to industry will increase. As a result, more efficient raw material utilization and a decrease in the amount of waste generated are key factors which will encourage industry to minimize its environmental impact. In efforts to increase the efficiency of their operations, lots of businesses have developed integrated management systems to reduce inefficiencies and the possibility of inaccuracies. Commonly these have centered on the promotion of quality. But still there are clear parallels between quality management and environmental management aspects.

2.2 Government's Influences

Environmental considerations have been built into the legislative framework for many years. The main impact of government on the environmental performance of industry has been through the development of environmental legislation. Initially, establishing rights of ownership over natural resources led to the development of a legal system to protect those rights. Subsequently, the impact of industrial activity on the health of employees and the surrounding community led to the creation of public health and safety legislation. Measures have also been introduced to control the use of products, processes and wastes which may harm the environment.

Thus, industry must satisfy an increasing number of legal obligations in relation to the effect that its activities have upon the environment. As a result, in all of its operations, industry must plan ahead to meet the demands of current and forthcoming environmental legislation. By developing proactive responses to legislative pressure, industry may reduce its costs and exposure to risk. While, legal obligations undoubtedly increase the costs of production that fall upon the firm, it is up to each firm to comply with legislation in the most cost-effective way. The development of proactive strategic responses to the demands of legislation will reduce these costs.

In parallel with the development of environmental legislation, governments are increasingly applying market instruments to achieve environmental objectives. Actions of this nature may include the imposition of taxes on environmentally damaging goods, subsidies on environmentally friendly goods or the provision of information relating to the environmental performance of companies or products. Market instruments are intended to channel the choice of consumers or other stakeholders towards the better environmental option. Thus through a combination of legislative and market instruments, by encouraging certain activities and discouraging others, governments seek to accelerate the structural change which encourages improved environmental efficiency in the economy as a whole.

2.3 Other Stakeholder Influences

Individual businesses interact with a number of stakeholders, all of whom have an interest in the performance of that company. Traditionally the main focus of stakeholder interest has been upon the financial performance of the industry. The range of stakeholders which demand high environmental standards are –

2.3.1 *Customers*

The relationship between an enterprise and its customers is obviously of paramount importance. In relation to environmental considerations, the potential importance of green consumerism cannot be overstated. The range of characteristics that underlay the purchasing decision is a fundamental consideration for all businesses. Increasingly, the environment is being accepted as one such characteristic by consumers. At present, the influence of green consumerism in Bangladesh on most businesses is marginal. Of the myriad of products that each consumer buys, very few are chosen on the basis of their environmental credentials alone. Nevertheless, it is certain that credible claims relating to environmental performance constitutes one positive element among the many characteristics upon which consumers base their purchasing decision. Thus business enterprises which can validate and communicate the environmental performance of their products will enhance their competitive position.

2.3.2 Trading Partners

Many businesses do not sell into end-consumer markets and may therefore perceive themselves to be remote from any consumer pressures to improve their environmental performance. Increasingly, the pressure to improve environmental performance is emanating from trading partners rather than the ultimate consumer. In efforts to improve overall environmental performance many companies are exercising their own rights both as purchasers and as vendors and are demanding that all of the companies within their supply chain seek to minimize their own environmental impacts. Hence, demands to improve environmental performance at all stages in the supply chain are being diffused beyond those businesses that are directly exposed to the pressures of green consumerism in the western world and now a days increasing number of business enterprises prefer to buy their resources from or sell their products to companies which meet certain standards of environmental performance.

2.3.3 The Community

Industry shares its surrounding environment with the local Population. Increasingly this Population is demanding a high level of environmental performance from its industrial neighbors, and seeks some degree of reassurance that they are not exposed to significant environmental risk due to a company's operations. This concern has been recognized for many years and was initially recognized in public health legislation. In order to foster a positive working relationship, enterprises may improve their environmental performance and communicate their efforts to the surrounding communities. This is true both for future developments and existing operations.

2.3.4 Workers

Enterprise also includes the workforce from the community surrounding populations. The pressure to provide a healthy living environment is magnified within the workplace. Employees seek healthy and secure working conditions and can draw on a responsively established framework of health and safety legislation in this respect. The businesses that

reflect the environmental concerns of the public will find it easier to attract, retain and motivate a quality workforce.

2.3.5 Investors and Insurers

The pressures to improve environmental performance also emanate from the investors and shareholders of an industry. The rapid growth of ethical investment schemes in recent years reflects the desire of many investors only to lend their financial support to companies which behave in a responsible manner in the responsibly conscious societies. There are also a number of very good business reasons why investors prefer to work with enterprises that have a proven track record of environmental integrity.

2.3.6 Media and Pressure Groups

A combination of increased public awareness of environmental issues and freedom of access to information on the environmental performance of businesses may serve to magnify media and pressure group interest in the environmental performance of industry. In order to manage media and pressure group attention, industries must be able to state that they have made efforts to reduce their environmental impact. Businesses that seek to communicate responsible environmental performance must base any claims that they make to this effect on hard facts which they are willing to communicate.

Above mentioned the internal and external factors to improve the environmental performance of a business, only those industries that achieve high standards of environmental performance will benefit in a number of ways. Many of these benefits are directly related to cost reduction and as such are not inconsistent with principles of profit maximization. But those benefits also reflect a more ethical approach to business where profits will not be the sole motivation and where due care and responsibility towards the environment are integral parts of doing business.

3 Methodology

3.1 Selection of study area and organization

The study location is in the Mirpur Benarashi Palli area; heart of the Dhaka metropolitan city where there subsists a large number of SMEs involved in the Benarashi Shari manufacturing industry. The hindering points behind selecting the study location was anchored in the uniformity of the clustered organizations of these SMEs which will help finding complete involved interactions in between the environment and SME business strategies. The map of the study site included as Annex – A.

3.2 Selection of sample

There are various types of clustered enterprises existing in MBP area and they are closely related with each other in business production and operation sequences. This study included six types of MBP SMEs considering their vigorous involvement with Benarashi industry and other ERB points of view.

These includes *Tanni* enterprises which twisted the raw silk yarns, the dyeing enterprises which colors the yarns, *Tanti* (loom) enterprise which produces the fabrics, the designing enterprises which makes the *Patta*, the loom-frame making enterprises which build or repair the loam frames and the extra-designing enterprises which set golden or silver threads or *Zarri* designs. Besides there are other supporting enterprises exists in that location which are not directly roofed by this study.

3.3 Sampling method

As there is no hard and fast or absolute rule concerning what to measure, setting priorities and targets is important in order to translate the objectives into convenient workable outlines. Individual business clusters needs to decide on measurement areas, levels and priorities based on the formal environmental considerations or simply good judgements. More to this point, there are few absolute standards which constitute good performances.

The basic principles for choosing appropriate measures for this study were based on the following assumptions –

- Identified areas must be capable of being measured.
- Consistent with the existing environmental policy bases and to be appropriate and easily understandable.
- There wouldn't be too many measures as they may confuse the issues.
- Must be transparent and be appropriate over time so that significant improvements or deteriorations can be mapped out and results can be communicated to stakeholders.

Again from the ERB standpoint, this study requires other than measuring waste discharges, emissions and energy usage; however, other performance areas, such as product and process design, raw materials usage and linkages along the supply chain also need to be identified for action. Initial deliberation took place at the time of undertaking the scoping of this study and the other literature based initial environmental reviews. As environmental performance needs to be measured alongside with other aspects of business performances, areas of performances were identified concerning the MBP SME business activities in direction to the company and its product, direct environmental impacts, infrastructures and other external relations.

In spite of that, contributor measures designing is very important for assessing environmental impacts at the business level through the measurement of waste, effluent discharge and energy usage etc. which include the appropriate use of technologies and materials, product and supplier performance and the effectiveness of the overall environmental management systems. These persuaded conscious involvements by the various MBP business actors in developing and maintaining guidelines relating to environmental protection, management and practices will then make the business an environmentally responsible business.

Thus, the development of environmental performance measures is an interactive procedure and here the crucial steps in that line was identifying the areas in which to measure the environmental performance of these Benarashi Palli SMEs.

3.4 Data Collection

Based on the above mentioned principles and themes, this study was rooted in both primary and secondary data sources with an objective of assessing how an individual Benarashi Palli enterprise value its business strategy within an environmentally responsible business arrangement. Theoretical understandings were initiated from extensive SME linked literature reviews; equally primary data were collected through site observation, semi-structured check-list, in-depth interviews and focus group discussions way. Data were collected in September-October 2006 time period. The interviews and focused group discussions covered the corresponding Benarashi Palli SME workers, owners, managers, supervisors along with the community peoples, association members and also with every potential level of stakeholders involved in that supply-chain machinery. The entire data collection prototype were by the following fashion –

	Small enterprise	Medium enterprise
In-depth interview with the enterprise workers / owners / managers / supervisors	6 owner + 2 worker = 8 person	13 worker + 4 manager / supervisor = 17 person
Focused group discussions with the SME workers	1 FGD	1 FGD
In-depth interview with the persons involved in various retailers / persons involved in various supply-chains	4 person	3 person
Discussions with the SME association members / policy makers / community people / other influential persons	2 policy / association member + 3 community people = 5 person	

3.5 Research procedures Matrix

Based on all the earlier mentioned points the complete methodological matrix used for this study was as followed -

Objective	Approaches	Structures / Measures / Indicators	Data collection ways
1. To find how Mirpur Benarashi Palli SMEs value their business strategy within an environmentally responsible business arrangement.	Conduction of Initial Environmental Assessment of SMEs working in Mirpur Benarashi Palli.	<i>The Baseline Environment</i> – Proximity & numbers of surrounding human population, Present human use of the site, Nature of flora, fauna & habitats, Nature of the built environment and other relevant environmental features. <i>The Process Design</i> – Description of the purpose of the venture, Fixed physical attributes, Operational characteristics <i>Alternatives Consideration</i> – In terms of location, Product design, Process design, Operational management.	Field observations, literature reviews, Semi-structure interviews with the enterprise authorities, regulatory bodies, community peoples and other influential persons.

		<i>Mitigating measures</i> – Technology (indicators might be - Level of investment, Substitution of clean technology, Effectiveness of new system), Techniques, Alternatives, Predicted effectiveness <i>Contingency Measures</i> – Risk assessment (indicators might be - Measure of the probability of accidents, Existence and understanding of emergency plan, Communication with emergency services,). <i>Physical contingency measures</i> -(Number of prosecutions, Level of complains, Positive and negative exposure resulting from pressure groups, No of complementary or adverse media report).	
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2. To find what measures these SMEs can take to operate sustainability of their products and operations within an Environmentally Responsible Business Arrangement?

Measuring the environmental performance of Benarashi Palli SMEs by analyzing the scope and coverage of the overall environmental programs, Training facilities and other environmental development issues such as environmental protection, management, practices etc.

<i>The enterprise and its products</i> – processes, procedures & operations, the involvement and integration of the supply chain, the appropriate use of materials, product use and disposal, <i>Direct environmental impact</i> – the treatment and disposal of waste, emissions to air and effluent to water, energy use, noise, the use of & impact on natural resource depletion, impacts on nature & ecosystem <i>Infrastructure</i> – the use of equipments and technology, transportation, storage, buildings, communications and management system. <i>External relations</i> – local community involvement and public relations, education, customer relations, wider support for environmental initiatives.	Field observations, literature reviews, Semi-structure interviews with the enterprise authorities, regulatory bodies, community peoples and other influential persons.
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3.6 Data processing and analysis

Data processing was initiated as described on the research procedures (methodological matrix). Analysis was done based on qualitative and quantitative research methods. A structured assessment questionnaire matrix was used for conducting in-depth interviews (included as Annex – B) with the targeted workers, owners, managers and supervisors and the persons involved in various supply chains. Another broad-based semi-structured questionnaire was followed while conducting the FGDs and also at some point in the open discussions with the policy makers, community peoples and other influential persons (included as Annex – C).

3.7 Scope for further research

Hopefully, this study will optimistically create further scopes to verge upon environmentalism and its influence towards the way SME business is conducted and also possibly analysing how small-and-medium scaled business has reacted to the environmental lobby or a mixture of other socially responsible business interactions.

4 Findings / Results and Discussions

The Mirpur Benarashi Palli Shari manufacturing SMEs have their own traditional way of business strategies. They have the expertise and the experience emulating complicated and intricate designs. There are roughly estimated 10,000 (ten thousand) skilled workers involved in various Shari making activities with their own enterprises. Though the craft of making Benarashi Shari was brought in by Non-Bengalis but gradually the numbers of Bengali workers; most of them are the locally living persons, has also raised the number of this skilled workforce. There are around 800 registered SMEs working in that location with the Shari making activities but the number has now dwindled to 500-600. These SMEs includes enterprises relating to dying, processing the gold or silver threads, embroidery, designing the weaving frames, the Shari designing formats and so on. There are six to seven medium scaled enterprises for dying the raw silk where lots of employees are working as full time. Again there are ten to twelve designers designing the new formats. They usually designs on their own keeping up with the latest fashion trends but also with the customer's choices. Most of the enterprises exist in the local residential areas and sometimes just the extension of the living houses. These enterprises have a very little scope to expand their working areas. The environmental impacts of these MBP SME activities are related to a collection of legal, political, economic and social factors that entrepreneurs have little control over. The SMEs existed there in MBP area comprises the following prominent characteristics⁷ –

- Management of the business is independent. Usually the managers are the owners.
- Capital and ownership are provided by an individual or a small group.
- The areas of operation are mainly local, with the workers and owners living in one home community though the market is not local.

⁷ Based on both common observations, various discussions and questionnaire based structured interviews findings are specified as Annex - D.

Critical observation also illustrates that the major impacts of the environmental degradations are encouragement of the slow decay of the urban landscape, roadside restaurants and small shops contributing congestion, impede the circulation of traffic especially for pedestrians, and encroach on green space or other spaces. This also can cause accidents and pose other health and safety risks. MBP enterprises also contribute to the accelerated erosion of local infrastructure and services such as roads, water & sanitation facilities and also are high & inefficient users of energy resources. The reviews regarding the ERB point of view on Benarashi Palli illustrates -

- Insufficient financial resources available to invest cleaner and healthier production procedures.
- Inadequate tools, equipments & raw materials available due to lack of business market development services.
- Lack of licensing and monitoring activities.
- Low levels of educations and awareness about environmental dangers amongst the peoples involved in these SMEs.
- Insufficient workplace due to congested place because of insufficient commercial allocated places availability.
- Widespread profit making attitude among these SMEs actually lead them to higher savings motive.
- Illegal dumping of wastes.
- Illegal sale of food under unhygienic conditions, etc.

Cumulatively the potential environmental damage can be significant while each individual SME may not be very detrimental to the environment. Besides; incidence of poverty causes motivating citizens forcing to discounts environmental amenities in relation to immediate priorities of sustenance and income growth. Citizens are also relatively uneducated about environmental safety measures including remedial

techniques, alternative clean development technologies and cost effective occupational safety standards etc. The effective environmental regulations or protections are difficult due to inadequacies of legal and legislative framework, weakness of the environmental enforcement authorities etc.

4.1 Matrix based outcomes

The section below illustrates the specific outcomes based on the matrix headings –

A. Establishment of the enterprise & the baseline environment outcomes:

- Most of the enterprises are either attached with the living places or very close to the residential areas.
- 80% respondent's answer is against better aeration facilities. Most of the small enterprises have insufficient aeration problems. Only a very few medium enterprise have individual working spaces where the overall aeration arrangement is moderately better.
- 88% respondent replied to have improved or workable lighting arrangement.
- Most of the workplace has common toilet arrangements as almost all the workplaces are closely attached to the household surroundings.
- Almost all the respondent answered positive availability of water sources but in many time they took few glasses as because of work-pressures.
- Enterprises are not taking any extra-measures to minimise their negative business externalities.
- 90% of the respondents think their business activities are not depleting the external resource base, very few others replied partially. But not a single person mentioned any big external natural depletion affairs due to their business operations.

- Nearly all the respondents haven't observed any major changes in land structure or water body due to establishment of their enterprises.
- Respondents haven't yet observed any building or soil settlement, landside slumps or other natural hazards in the nearby surrounding area.

B. Explicatory procedures outcome – The enterprise and it's products and technologies :

- Various clustered enterprises exist in MBP location. The Tanni enterprises twisted the raw silk yarns, the dyeing enterprises colour the yarns, Tanti (loom) enterprise produce the fabrics or Shari, the design enterprises makes the Patta, the loom-frame making enterprises build or repair the wooden frames, the extra-designing enterprises set golden or silver *Zarri* designs etc. Besides there are other supporting enterprises exists in that industry.
- There are various types of clustered enterprises existing in MBP locations and they maintain a close business production and operation series. In that chain, first of all, the raw silk has been twisted by the Tanni enterprises, they then place that twisted yarn to dye enterprises. After dying it goes to Tanti (loom) enterprise they produce the Shari and then it goes to the extra-designing enterprises. Besides there are other supporting enterprises in this chained link.
- In the whole process only in the dyeing enterprises uses chemicals. This includes chemical dyes, various acid and other careers. The workers and even the managers don't have any knowledge on chemical names or the compositions. What they know, they are using the chemical dyes collected from the local markets and in the retailer's shop they also don't use tag-marks or label the chemicals what they are selling.
- In the dyeing factories the workers don't use any machines or any kinds of mechanical frames other than the gas burners or Kerishin burners. They mix the

chemicals with their empty hands and they don't even use any protective measures for their safety. The managers or the owners are not conscious enough about the chemical dealings.

- Most of the enterprises have 11-50 range of workforces. This data was based on the unit of workplaces. Sometimes it happens under a single enterprise there may be 2 or three separate workplaces.
- The whole production process requires raw silks, various chemical dyes, wooden frames, other design materials etc.
- The raw materials include raw silks, various chemical dyes, wooden frames, other design materials chemical dyes, various acid and other careers etc.
- Only the raw silks and other fabrics are imported from outside the country mostly from china, Korea India etc. The chemicals are available in the local markets; sometimes the Shari designs made new designs from the foreign designers who actually were invited by the big owners or directly brought from India.
- 72% replied they utilize almost all the materials they have and remaining answered most of the materials.
- In the nearby garbage location but they chemical wastes thrown to the sanitary or sewerage drains.
- 60% workers said no major health problem due to their business activities. The remaining said about breathing problems, scabies or other skin diseases, sometimes diarrhoea and jaundices. The dye workers suffered much among all the other workers. Others suffer illness and some sort of physical exaggerations due to hard working.
- More than 90% answers are no. The wastes that are stored-treated and disposed on-site management facilities are not well designed.

C. Contingency procedures outcome – Risk assessment and other external relations:

- Not found any specific alternative suggestions on production technologies. 90% of the respondents believe that their business operations aren't hampering the external environment a lot. But there may be possibilities of contamination of chemical residual effects. Other than they believed that if the whole industry can be shifted to a new place where the establishments of the enterprises would be designed in a more flexible way then may be the environmental negative externalities would be minimised.
- Most of the respondents feel illness or tired due to hard working. Only the chemical users are of great risk in contamination of chemicals. Besides there are minor injury cases in the mostly in twisting (Tanni) enterprises.
- There are no major working problems except they mentioned about the non-regular types of working schedules. They mostly work by contractual basis. Sometimes, for that, they had to take overloads.
- All the answer is NO. Enterprises don't use first aid boxes.
- Among all the respondents 20% workers said they usually work 9-12 hrs in a day. 75% said more than 12 hrs and remaining workers are non-regular workers.
- As all the workplaces are attached to the residential areas and usually the workers drink city corporation supplied piped water.
- All the answers is NO. Enterprises didn't ever test the quality of the drinking water status.
- Most of the answers are no. they haven't ever been contaminated by drinking waters. Very few responded yes. But there is a big risk for the chemical users and their family members. Here all the community usually drink city-corporation supplied piped waters.

- Energy uses are mostly on electricity consumptions by all the enterprises. Besides, the dyeing enterprises use gas burners or petroleum (Keroshin) burners.
- Most of the solid wastes tried to be reused, only a few waste were dumped in the nearby garbage areas. The chemical residues were washed away to the sewerage drains and not any gracious wastes found in this business cycle.
- The dye SMEs replied no. they don't have any recycle system of waste management, except in the other cases they try to reuse the cotton or the fabrics or the designs (*Patta*) as far as they can.
- The enterprises don't pay for any kind of waste disposal.
- There isn't any provision of payment for overtime work. May be it's because of their working strategies. The Tant weavers work on contractual basis. Others don't have any overtime provisions.
- The enterprises are closed for at least one weekday. But depending on the work loads the workers sometimes don't want to enjoy the holidays especially while they work by contract basis.
- More than 60% respondent replied positive about the existence of child labour in that industry.
- More than 90% replied negative to have any training programs for keeping the workers informed of the environmental obligations. Very few training program information were found. But they were not fully related to the environmental aspects.

4.2 Discussions based on research procedure matrix

Based on the objectives related point of views (as illustrated before in the research procedure) findings can be explored further as below -

A. On the topic of description of the location, purpose of the venture, general description of fixed physical attributes and operational characteristics:

The area is highly congested with man and its habitat and lots of peoples are living there very congested along with these enterprises and no enterprises found taking any extra-measures to minimise their negative business externalities.

Most of the enterprises are either attached with the living places or very close to the residential areas. Among these SMEs majority of the small ventures have insufficient aeration problems. Only a very few medium enterprise have individual working spaces where the overall aeration arrangement is moderately better.

Respondents replied to have better or workable lighting arrangement and positive availability of water sources but several answers reveals taking few glasses of water as because of heavy work-pressures. Besides the workplaces has common toilet arrangements as they are closely attached to the household surroundings.

B. Concerning the use of and impact on natural resource depletion and ecosystems:

Respondents haven't yet observed any major changes in land structure or water body, landside slumps or other natural hazards in the nearby surrounding areas due to establishment of these enterprises.

Near to all of them think their business activities are not depleting the external resource bases, only very few enterprises things partially this could be happen.

C. Regarding the involvement and integration of the supply chain, processes, procedures and operations dealings:

There are various types of clustered enterprises existing in MBP locations and they maintain a close business production and operation chain. In that sequence, first of all, the raw silk has been twisted by the *Tanni* enterprises, they then place that twisted yarn to dye enterprises. After dying it goes to *Tanti* (loom) enterprise they produce

the Shari and then it goes to the extra-designing enterprises. Besides there are other supporting enterprises in this chained link.

Most of the enterprises have 11-50 range of working person in each unit of workplaces. Sometimes it happens under a single venture there may be 2 or three separate workplaces. The whole production process requires raw silks, various chemical dyes, wooden frames and other designing materials. Raw materials include raw silks, various chemical dyes, acid and other careers and other design materials etc.

The whole process only in the dyeing enterprises uses chemicals. This includes chemical dyes, various acid and other careers. The workers and even the managers don't have any knowledge on chemical names or the compositions. What they know, they are using the chemical dyes collected from the local markets and in the retailer's shop they also don't use tag-marks or label the chemicals what they are selling.

In the dyeing factories the workers don't use any machines or any kinds of mechanical frames other than the gas burners or Kerishin burners. They mix the chemicals with their empty hands and they don't even use any protective measures for their safety. The managers or the owners are not conscious enough about the chemical dealings.

The raw silks and other fabric items are imported from outside the country mostly from china, Korea India etc. The chemicals are available in the local markets; sometimes the Shari designers made new designs with the help of foreign designers who actually were invited by the big owners.

D. Substitution of clean technology and effectiveness of new system, techniques, alternatives and predicted effectiveness:

Though there might have possibilities of contamination of chemical residual effects, no specific alternative suggestion on production technologies were found from the respondents. More than 90% of them believe that there business operations aren't

hampering the external environment anyway. Other than they believed that if the whole industry can be shifted to a new place where the establishments of the enterprises would be designed in a more flexible way then may be the environmental negative externalities would be minimised.

E. Concerning the probability of accidents, existence and understanding of emergency plan / rapidity and effectiveness of emergency plans / Communication with emergency services:

These SME workers suffer illness or get tired due to hard working. Only the chemical users are of great risk in contamination of chemicals. Besides there are minor injury cases in the mostly in twisting (*Tanni*) enterprises but enterprises don't use first aid boxes.

Major portion of the workers usually work more than 12 hours in a day. Not found any major working problem except the non-regular types of working schedules. These SME workers (mostly the Tanti enterprises) mostly work by contractual basis, for that, they had to take overloads.

They haven't ever been contaminated by drinking waters except only very few of them replied positive on that issue. The chemical users and their family members are of great risk regarding the concern. Here all the community usually drink city-corporation supplied piped waters. Enterprises didn't ever test the quality of the drinking water status.

F. Regarding the appropriate use of materials or product use, treatment or disposal of waste and energy usage:

Nearly three-quarter of the respondents replied on utilizing almost all the materials they have, rest of them answered most of the materials. Whatever the unused things remain, usually were dispose to the nearby garbage location except the chemical wastes. The dye enterprises dispose the chemical residues to the sewerage drains and

also mentioned not having any recycle system of waste management initiatives. The enterprises don't pay for any kind of waste disposal affairs. The wastes that are stored treated and disposed on-site management facilities are not well designed.

More than half of the workers said no major health problem they had to face due to their business activities. The common problems were breathing problems, scabies or other skin diseases, sometimes diarrhoea and jaundices. The dye workers suffered significantly among all the other workers and physical exaggerations are common due to hard working.

Energy uses are mostly on electricity use by most of the enterprises. Besides, the dyeing enterprises also use gas burners or petroleum (*Keroshin*) burners.

G. On the subject of local community involvements and public relations. for instance - education, customer relations etc

The local community persons are mostly engaged with these enterprises and the existence of child labour in that industry is moderately severe. The enterprises are closed for at least one weekday. But depending on the work loads the workers sometimes don't want to enjoy the holidays especially while they work by contract basis.

There isn't any provision of payment for overtime work. May be it's because of their working strategies. The *Tant* weavers mostly work on contractual basis. Others don't have any overtime provisions.

H. Regarding the scope and coverage of the overall environmental program, Training facilities:

Nearly all the respondents replied negative to have any training program for keeping the workers informed of the environmental obligations or anyway to be conscious.

Very few training program information were found. But they were not fully related to the environmental aspects.

4.3 Problems in environment and MBP SME business relations

From the above discussed points we can specify the considered overall lacking or weaknesses in MBP industry regarding the SME-Environmental dealings. These problems can be examined under the following headings –

4.3.1 *Lack of information on getting better environmental performance*

A fundamental obstacle to improving environmental performance of the MBP SMEs has a lack of knowledge and information concerning environmental issues. Very few training program information were found. But they were not fully related to the environmental aspects.

SMEs generally have a perception that the only driving force to improve environmental performance is legislative compliance. Moreover, SMEs tend to believe that their processes have little or no impact on the environment due to their small-scaled production. This study not even founded any specific alternative suggestions on production technologies from the respondents. Majority of them believe that there business operations aren't hampering the external environment a lot, though there might have possibilities for contamination of chemical residual effects. Other than they believe that if the whole industry can be shifted to a new place where the establishments of the enterprises would be designed in a more flexible way then perhaps the possible environmental negative would be minimized. This perception is derived from the fact that they have limited information on the operational losses in their production processes. That's how this mental model prevents a great number of MBP SMEs from realising the hidden costs of inefficiencies in production. Accordingly, the SMEs keep running their businesses as usual and resist change.

4.3.2 Weak incentives and external pressures

Due to the large number and distribution of SMEs, the command and control (CAC) approach became less efficient due to resource limitations in terms of the monitoring and inspecting of personnel and budget allocation. This study finds that enterprises are not taking any extra-measures to minimise their negative business externalities. Very few external pressures or weak incentives actually letting this degradation process more alarming. No organization or local support was there for accelerating and disseminating the information focussing on developing environmentally-friendly products. In the whole process only the dyeing enterprises uses chemicals. This includes chemical dyes, various acid and other careers. The workers and even the managers don't have any knowledge on chemical names or the compositions of those materials. They are using the chemical dyes without any physical safety initiatives; collected from the local market and in that retailer's shop, they also don't use any tag-marks or labels for the chemicals what they are selling. However, MBP SMEs are not fully aware of the trend.

4.3.3 Lack of Internal Capacity

The major obstacles of MBP SMEs are their weak capacity and limited resources in terms of financial resources, trained and qualified human resources, and technological resources along with the traditional business strategies. The raw materials needed for this industry mostly include raw silks, various chemical dyes, wooden frames, other design materials, various acids and other careers etc. Only the raw silks and other fabrics are imported from outside the country mostly from china, Korea India etc. The chemicals are available in the local markets; sometimes the Shari designs made new designs from the foreign designers who actually were invited by the big owners or directly brought from India. But all these things require government and other social supports. These capacity building initiatives are highly lacking there. These are discussed more detailed below –

4.3.3.1 Financial resources

One of the major obstacles is the limited financial resources of SMEs existing in MBP area since the majority of the SME sector is pursuing a survival business strategy. They suffer from financial problems, such as lack of access to loan financing, they find it difficult to adapt to the changing markets and they lack the capability to attract new financial resources.

Moreover, investment capital for major process improvement is another issue of concern since accessibility to financial resources is a major problem for a number of SMEs involved in Benarashi Shari manufacturing dealings, as they tend to lack self-capacity to attract funding from local, regional and national financial institutions and also from international institutions and donor organisations. The problem has a supply and demand component. From the supply side, various MBP SMEs face difficulties in obtaining loans due to the bank's perceptions of high associated risks. That's why the number of SMEs involved in Shari making activities is now dwindling very rapidly.

4.3.3.2 Trained and Qualified Human resources

Lack of trained and qualified human resources in production point is another barrier that requires improvement as this industry has its own way of doing business. Human resource allocations found in these SMEs are limited for performing accurate business functions and there were no environmental personnel in the MBP SMEs to undertake related tasks effectively.

4.3.3.3 Technologies

Utilisation of outdated technology makes the MBP SMEs less competitive and this is happening due to limited capital investments. Research and development activities are limited which inhibits innovative improvement within the sector. Promotion of resource sharing and applications of shared facilities through building industrial zone and networking is a must. Thus, these SMEs lack technical capacity in these enterprises to

identify access, adapt and adopt better technologies and operating practices to improve their environmental performance.

4.3.3.4 Business management

The nature of the MBP SMEs' establishment is a major problem affecting environmental improvement in terms of infrastructure as the physical distribution tends to be haphazard. Most of the SMEs are located in concentrated commercial and residential areas, thus, they are unable to expand their sites and install pollution treatment facilities especially for chemical dying enterprises. Moreover, the scattered distribution prohibits the development of shared treatment facilities, while the separate treatment system of SMEs is not in an economy of scale to operate efficiently.

4.3.3.5 Weak Supporting Framework

The overall framework for supporting these SMEs is weak. Such as –

- a. Weak institutional arrangements of other supporting SMEs - Linkages among agencies involved with the SMEs development have not been strengthened yet.
- b. Lack of SMEs-focussed environmental awareness programmes.
- c. Missing links between the government and other SMEs supporting organisations.
- d. Gaps between international support and local implementation - Even though the environmental improvement of SMEs has drawn the attention of international organisations, the international support for SMEs development couldn't found there.

5 Conclusions and recommendations

SMEs are an important sector in the economies of almost all developing countries as they provide employment and livelihood options to the growing population, particularly to the poor and disadvantaged sections of society. But, they are a highly unorganized sector of the economy and are characterized by low technical and managerial skills and limited access to expertise and finance. Still the majority of MBP SMEs are not fully aware of the harmful effects of their activities on the environment.

The prime objective was to assess the enterprise's own perceptions regarding the conscious involvement (not legally-bound only) in developing and maintaining guidelines relating to environmental development matters. Study findings highlight various capacity lackings and weaknesses of other external involvements regarding those points of view.

However, lots of people are involved in these enterprises both manufacturing and non-manufacturing service oriented activities; certainly engage in degrading the environment as a whole but they have a very little understandings or knowledge on that. This situation requires involvement of rapid environmentally conscious business development strategies which will then strengthen the new production processes with reduced environmental damage in a much planned way. These activities will subsequently help increasing the conscious involvements by the various MBP business actors in developing and maintaining their own guidelines relating to environmental protection, management and practices issues towards making the business an environmentally responsible business.

The key to implementing an environmental management system in MBP SMEs are no different from that in larger firms. Since communications and the whole organization of the system are central and have to be transparent and clearly understood, the small size of the enterprise can make this process easier and the SMEs needs to place these firmly within the design of an inclusive business strategy. Each MBP enterprise needs to think carefully about how it is going to measure environmental performances and this need to be integrated into the overall environmental policy. The measurement of baseline

performance is central to the environmental review and is also important in further developing and extending environmental performance and objectives. Thus, environmental policies and objectives must have to cover a range of performance areas and not just those prescribed by legislation and regulations only.

Based on the assessment of the issues and problems that MBP SMEs are facing, certain policy goals, strategies and corresponding policy options have to be initiated to meet the multi-dimensional demands of this clustered industry. In order to realize a competitive advantage based on environmental management, MBP enterprises must seek to develop strategies which translate actions into benefits, improving their environmental performance and addressing the environmental demands placed upon them by government and other stakeholders.

Again, the key to environmental strategy must be integration which is not only reflected in the International Chamber of Commerce (ICC) business Charter (included as Annex – E). This common element of integration implies that business units must examine every aspect of its environmental performance. In doing so, it becomes possible to design strategies that are holistic rather than a little at a time.

If the objective is to increased continues involvements to act in environmentally responsible business practices through available resources to assists Mirpur Benarashi Palli SMEs in their environmental performances, widely disseminated and exchanged information is a must.

Doing so strategies to be initiated for example - encouraging access to information through partnership and networking through local support, disseminating the concept of economic benefits created by environmental performance, maintaining environmental costs through recourse efficiency, making use of external pressure to create incentives, mobilizing the necessary resources etc. Achieving all these considered things the following policy options must have to be initiated –

- Improving MBP SME access to finance.
- Promoting the adoptions for environmental management system for these SMEs.

- Promoting resource sharing and applications of shared facilities through building industrial zone and networking.
- Developing research, development and demonstration programs for adoption of cleaner technologies in MBP SMEs.
- Applying partnership for inter-city industrial cooperation.
- Accelerating information dissemination through local support and local NGOs
- Strengthening roles of industry associations for information flow and active communications.
- Facilitating consultation services to improve environmental performances.
- Greening the supply chain with the prospect of social responsibility
- Initiating media campaigning to stimulate green markets.

In order to motivate the MBP SMEs to improve their environmental performance, critical information on cost-benefits can illustrate the benefits of environmental improvement and help to develop a positive attitude regarding environmental enhancement frameworks. However, it seems that such information is not widely disseminated in MBP SME industry.

There are a number of sources of help and advice to which the SME can turn when some sort of environmental assessment is needed. Some local authorities may be willing to help in the process and other organizations can help MBP SMEs carry out environmental reviews at very small level. Businesses in the same area can often get together, work cooperatively and spread costs, and it is always worth tying into local initiatives such as business and environment forums and link up with sources of local expertise such as universities.

Government can promote relocation to industrial parks where MBP SMEs have access to shared pollution control and waste treatment facilities and can provide financial backing

for environmental training, guidelines, and consultation. Other social organizations can produce brochures with worksheets etc. and there is also a need for better information flows among the financial providers.

Over time the aim must have to be developing a positive culture surrounding environmental management. The MBP enterprise owners need to start thinking about more holistic management approaches. The total quality approach can easily constitute the core of that. The achievement of environmentally friendly production requires continual monitoring at all stages of the production and servicing process.

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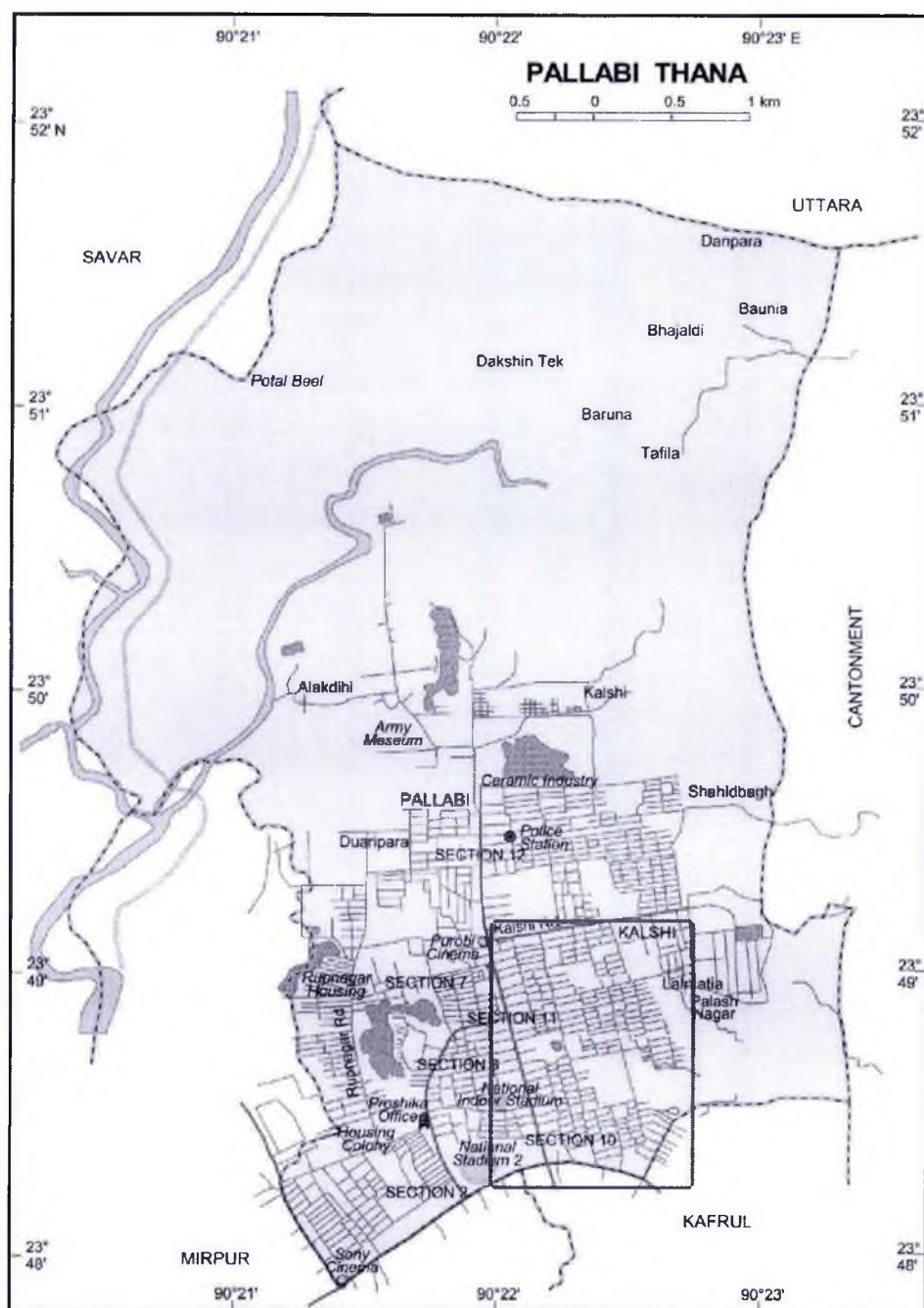
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7 Annexes

7.1 Annex – A : Study Location

The location of the study is in Mirpur Benarashi Palli area, Dhaka. (square box area)



7.2 Annex – B : Structured Assessment Questionnaire Matrix

	Environmental Apprehensions	Health, Water, Sanitation and Waste-disposal and Energy-use	Business Strategy
Establishment of the enterprise & the baseline environment	- Where is the enterprise positioned? 1= Attached with residence, 2=In an industrial / commercial area - Is there sufficient aeration in the working place? 1=Yes, 2=No - Is there sufficient lighting arrangement in the working place? 1=Yes, 2=No	- Is there safe sanitation of both male and female workers separately in the working place? 1=Yes, 2=No - Is their sufficient arrangement of safe drinking water for the workers? 1=Yes, 2=No	- Do you think your business activities depleting the external natural resource base? 1=Yes, 2=Partially, 3=No - Have you observed any changes in land structure or water body due to establishment of this enterprise? 1=Yes, 2=No; please explain [write answer] - What are the measures (current practices) you are taking for minimizing the problems created by this business? [write answer]
Explicatory procedures - The enterprise and it's products and technologies	- What products are you producing from your enterprise? [write answer] - What materials are involved in the production process? [write answer] - What are the chemicals you are dealing with? [write answer] - How do you deal with hazardous chemicals? [write answer]	- Do you utilize all the materials you have? 1=All, 2=Most of them, 3=Very little - Where do you dispose the unused or wasted materials? [write answer] - Does the enterprise pay for waste disposal? 1=Yes, 2=No - Did you face any health problem due to operating the activities? 1=Yes, 2=No; if Yes explain[write answer] - Is there any recycling system of waste management? 1=Yes, 2=No	- Please explain the production process or operations. [write answer] - How many full time, part time and/or casual employees you have? 1=1-10, 2=11-50, 3=51+ - What are the raw materials used in the production process? [write answer] - From where you collect the raw materials? [write answer] - Are the wastes that are stored, treated or disposed of on-site management facilities well designed? 1=Yes, 2=No

Contingency procedures – risk assessment and other external relations	1. Has there ever been contaminated drinking water for your business activity? 1=Yes, 2=No ; if Yes explain [write answer] 2. Have you observed any building or soil settlement, landside slumps or other natural hazards in the nearby surrounding area? 1=Yes, 2=No	3. 4. 5. 6. 7.
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What is the source of your drinking water in the working condition? [write answer]

Are there any worker had been sick or suffering from illness or injured while working on. 1=Yes, 2=No

What are the other working problems you are facing in doing works? [write answer]

What type of energy consumption you have? [write answer]

Specify the applied ways of –

(a) Solid waste management, [write answer]

(b) Liquid waste management, [write answer]

(c) Gaseous waste management. [write answer]

8. Does the enterprise has training programs to keep employees informed of their environmental obligations? 1=Yes, 2=No

9. Is their any existence of child labor in the enterprise? 1=Yes, 2=No

10. How long the workers work in 24 hours. 1= 1-8hrs, 2= 9-12hrs, 3= 12hrs+

11. Is there any provision of payment for overtime work? 1=Yes, 2=No

12. Does the workers enjoy weekly holiday while producing? 1=Yes, 2=No

13. Does the enterprise test the drinking water quality? 1=Yes, 2=No

14. Does the enterprise maintain first-aid box? 1=Yes, 2=No

15. What would be the alternative clean technologies or production techniques or mechanisms just to minimize the environmental negative externalities? [write answer]

7.3 Annex – C : Broad based semi-structured questionnaire

General features:

1. Name of the enterprise :
2. Address of the enterprise :
3. Establishment year :

The enterprise and its product:

On the topic of description of the purpose of the venture, General description of fixed physical attributes

Operational characteristics –

4. Where is the Enterprise positioned –
 - a. attached with your residence
 - b. in the industrial / commercial area
5. Is there sufficient aeration in the working places?
6. Is there sufficient lighting arrangement in the working places?
7. Is there safe sanitation of both male and female workers separately in the working places?
8. Is there sufficient arrangement of safe drinking water for the workers?

Regarding the processes, procedures and operations dealings –

9. What products are you producing from your enterprise?
10. Please explain the production process / operations.
11. What are the chemicals you are dealing with?
12. How do you deal with during use of hazardous chemicals?

Regarding the involvement and integration of the supply chain –

13. How many full-time, part-time and casual employees you have?
14. What materials are involved in the production progression?
15. What are the raw materials used in the production process?
16. From where you collect the raw materials?

Regarding the appropriate use of materials –

17. Do you utilize all the materials you have?
18. Do you waste any material? If yes, tell us more.
19. What are the negative impacts of those hazardous chemicals if handled improperly?

On the subject of product use and disposal –

20. Where do you dispose the unused/wasted materials?
21. Did you face any health problems due to this establishment? (Specify)

Regarding the transportation, storage, buildings, communications and management systems –

22. Are hazardous wastes that are stored, treated, or disposed of on-site managed in well designed facilities will prevent future environmental impacts?

Direct environmental impacts:

Regarding the location, product design, process design, and operational management –

23. Do you think that this establishment is corrupting the environment? If yes, how are the areas being polluted?
24. What measures are taken in handling the hazardous items involved in this production process?

25. What are the measures should be taken in reducing the problems creating by this establishment?

On the subject of the treatment and disposal of waste, emissions to air and effluent to water, energy usage –

26. What types of energy consumption you have?

27. Specify the applied ways of,

- a. Solid waste management :
- b. Liquid waste management :
- c. Gaseous waste management :

28. Is there any recycling system of waste management?

29. Does the enterprise pays for waste disposal?

30. What are the hazardous items used in the production process?

31. What are the ultimate effects on the surrounding environment?

Concerning the use of and impact on natural resource depletion and ecosystems –

32. Do you think your business activities depleting the external natural resource bases?

33. Was there any changed in land structure or water body due to establishment of this enterprise?

34. Have you observed any building or soil settlement, landslides, slumps or other natural hazards in the nearby surrounding area?

35. What is its impact on surrounding ecosystems (nature of flora, fauna & habitats) and other relevant environmental features?

- d. Direct & indirect effects,
- e. Cumulative or Short - medium & long term effects
- f. Temporary & permanent effects

Explicatory procedures - technology

Substitution of clean technology and effectiveness of new system, techniques, alternatives and predicted effectiveness –

36. What do you think, would be the alternative clean technologies or production techniques or mechanisms just to minimize the environmental negative externalities?
37. To what extent were different approaches and management techniques effective, in order to minimize any potentially negative effects on the environment or to provide for restorative or compensatory measures?

Contingency procedures - risk assessment

Measure of the probability of accidents –

38. Are there any workers had been sick or suffering from illness due to working condition (working in this enterprise)? If yes, specify the nature of illness with reasons.
39. Are there any workers were injured while working on? If yes, who pays for this?
40. What are the other problems you are to face in doing works?

Concerning existence and understanding of emergency plan, rapidity and effectiveness of emergency plans, Communication with emergency services –

41. Are the workers concerned or sensitized to environmental problems and the direct and indirect effects on the environment?
42. Does the enterprise maintain first-aid-box?
43. How long the workers work in 24 hrs?

Regarding physical contingency measures –

44. Is there any arrangement of fire services in the working place?

45. What is the source of your drinking water?
46. Do you test drinking water quality?
47. Has there ever been contamination? If Yes, please describe particulars and your activity to prevent or limit damage or contamination

On the point of procedural contingency measures

48. Please answer -

1.	Level of complains	
2.	Number of prosecutions	
3.	Positive and negative exposure resulting from pressure groups	
4.	No. of complementary or adverse media reports	
5.	Fall or increases in sales related to environmental impact	

External relations:

On the subject of local community involvements and public relations, for instance - education, customer relations -

49. Are there any accompanying measures predicted in order to promote environmental awareness and knowledge and to enable the stakeholders to pass on the knowledge they have acquired?
50. Is there any provision of payment for overtime work?
51. Does the workers enjoy weekly holiday?
52. Is there any existence of child labor in the enterprise?

On the subject of wider support for environmental initiatives –

- 53. Would you be responsive enough if significant penalties are there for not fulfilling to comply with environmental legislation?
- 54. How sure are you that your business is operating fully within the environmental laws? (Fully/Partially/Not at all)
- 55. Are you aware that many businesses save money and enjoy benefits from improving their environmental performance?

Regarding information collection & assessment, Predictions of effects –

- 56. Do you feel a need to extend environment-trade-development capacity building services, such as training and seminars,
- 57. What more you think for intensive country-based efforts aimed at human resource development and institution building?

Regarding the scope and coverage of the overall environmental program, Training facilities –

- 58. Do you have any training programs to keep your employees informed of their environmental obligations?
- 59. What would you need or like to better manage your environmental responsibilities?
 - a. Information on services and products
 - b. On-going support from the supporting agencies
 - c. Brochures, posters, and other products
 - d. All of the above

Specific Questions for the managers / supervisors:

Purpose of questioning: To find the disagreements between environmental and design in enterprise (business strategies) which are prepared consistent and achievable solutions; i.e. - changes in business traditions and management with respect to the environment; how management has to be the catalyst for these changes? –

60. What are the key aspects of the business?
61. Which areas of the business make the biggest contribution to achieving business objectives?
62. What are the strengths, weaknesses, opportunities and threats most apparent in the business?
63. What future scenarios are achievable and consistent with business objectives?
64. What future scenarios would be deemed undesirable?
65. Of the positive scenarios, what efforts are required to achieve them?
66. What activities should be ceased which would hamper the achievement of the desirable scenarios?
67. Are periodic or any environmental regulatory compliance audits conducted?
68. How concerned are you about the impact of pollution on the nature of flora, fauna & habitats and nature of the built environment and other relevant environmental features?
69. Which commercial strengths should the organization build on to achieve its goals?
70. Which commercial weaknesses need to be remedied in the short run?
71. Have you developed or made improvements to your enterprise's business risk management processes within the last two years?
72. What sorts of investments are required to achieve the desirable scenarios?
73. What commitment are you willing to give to enable workers access to environmental training if it were provided?

7.4 Annex – D : Detailed Question-wise findings

Question aspects	Specific Questions	Findings
A. Establishment of the enterprise & the baseline environment	Environmental Apprehensions	1. Where is the enterprise positioned? 1= Attached with residence, 2=In an industrial / commercial area Most of the enterprises are either attached with the living places or very close to the residential areas.
		2. Is there sufficient aeration in the working place? 1=Yes, 2=No 80% answer is NO. Among the small enterprises have the insufficient aeration problems. Only very few medium enterprise have individual working spaces where the overall aeration arrangement is moderately improved.
		3. Is there sufficient lighting arrangement in the working place? 1=Yes, 2=No 88% answer is Yes. Almost all the enterprises have workable lighting arrangement.
	Health, Water, Sanitation and Waste-disposal and Energy-use	4. Is there safe sanitation of both male and female workers separately in the working place? 1=Yes, 2=No Most of the workplace has common toilet arrangements as almost all the workplaces are closely attached to the household surroundings.
		5. Is their sufficient arrangement of safe drinking water for the workers? 1=Yes, 2=No Most of the answers are Yes, they have available water sources but in many time they took few glasses as because of work-pressures.

	Business Strategy	6. Do you think your business activities depleting the external natural resource base? 1=Yes, 2=Partially, 3=No
		7. Have you observed any changes in land structure or water body due to establishment of this enterprise? 1=Yes, 2=No
		8. What are the measures (current practices) you are taking for minimizing the problems created by this business? [write answer]
B. Explicatory procedures - The enterprise and it's products and technologies	Environmental Apprehensions	1. What products are you producing from your enterprise? [write answer]
		2. What materials are involved in the production process? [write answer]
		3. What are the chemicals you

90% of the answer is No and few others replied partially. But not a single person mentioned any big external natural depletion affairs due to their business operations.

Most of the answer is No. they haven't observed any major changes in land structure or water body due to establishment of their enterprises.

Enterprises are not taking any extra-measures to minimise their negative business externalities

Various clustered enterprises exist in MBP location. The *Tanni* enterprises twisted the raw silk yarns, the dyeing enterprises colour the yarns, *Tanti* (loom) enterprise produce the fabrics or Shari, the design enterprises makes the *Patta*, the loom-frame making enterprises build or repair the wooden frames, the extra-designing enterprises set golden or silver *Zarri* designs etc. Besides there are other supporting enterprises exists in that industry.

The whole production process requires raw silks, various chemical dyes, wooden frames, other design materials etc.

In the whole process only in the dyeing enterprises uses chemicals.

		are dealing with? [write answer]
		4. How do you deal with hazardous chemicals? [write answer]
	Health, Water, Sanitation and Waste-disposal and Energy-use	5. Do you utilize all the materials you have? 1=All, 2=Most of them, 3=Very little
		6. Where do you dispose the unused or wasted materials? [write answer]
		7. Does the enterprise pay for waste disposal? 1=Yes, 2=No
		8. Did you face any health problem due to operating the activities? 1=Yes, 2=No; if Yes explain[write answer]

This includes chemical dyes, various acid and other careers. The workers and even the managers don't have any knowledge on chemical names. What they know, they are using the chemical dyes collected from the local markets and in that shop there are no chemical label found for the individual dyes.

In the dyeing factories the workers don't use any machines other than the gas burner or *Kerishin* burner. They mix the chemicals with their hands and they don't even use any protective measures for their security. The managers or the owners are not conscious enough about the chemical dealings.

72% replied all the materials and remaining answered most of them.

In the nearby garbage location but they chemical wastes thrown to the sanitary or sewerage drains.

Most of them replied No.

60% workers said no major health problem due to their business activities. The remaining said about breathing problems, scabies or other skin diseases, sometimes diarrhoea and jaundices. The dye workers suffered much among all the other workers. Others suffer illness and some sort of physical exaggerations due to hard working.

	Business Strategy	9. Is there any recycling system of waste management? 1=Yes, 2=No	The dye SMEs replied no. but in the other cases they try to reuse the cotton or the fabrics or the designs (<i>Patta</i>) as far as they can
		10. Please explain the production process or operations. [write answer]	There are various types of clustered enterprises existing in MBP locations and they maintain a close business production and operation chain. First of all the raw silk has been twisted by the <i>Tanni</i> enterprises, they then place that twisted yarn to dye enterprises. After dying it goes to <i>Tanti</i> (loom) enterprise they produce the Shari and then it goes to the extra-designing enterprises. Besides there are other supporting enterprises in this chained link.
		11. How many full time, part time and/or casual employees you have? 1=1-10, 2=11-50, 3=51+	Almost all the answers are from 11-50 range. This data were collected based on the unit of workplaces. Sometimes it happens under a single enterprise there may be 2 or three workplaces.
		12. What are the raw materials used in the production process? [write answer]	The whole production process requires raw silks, various chemical dyes, wooden frames, other design materials chemical dyes, various acid and other careers etc.
		13. From where you collect the raw materials? [write answer]	Only the raw silks and other fabrics are imported from outside the country mostly from china, Korea India etc. The chemicals are available in the local markets; sometimes the Shari designs were made from the foreign designers who actually were invited by the big owners or directly brought from India.
		14. Are the wastes that are stored, treated or disposed of on-site management facilities well designed?	More than 90% answers are Yes. The wastes that are stored, treated and disposed on-site management facilities are well designed.

C. Contingency procedures – risk assessment and other external relations	Environmental Apprehensions	1=Yes, 2=No	
		1. Has there ever been contaminated drinking water for your business activity? 1=Yes, 2=No ; if Yes explain [write answer]	Most of the answers are no. but very few information on yes. But there is a big risk for the chemical users and their family members. Here all the community usually take piped waters supplied by the city corporations.
		2. Have you observed any building or soil settlement, landside slumps or other natural hazards in the nearby surrounding area? 1=Yes, 2=No	Almost all the answer is no. they haven't yet observed any building or soil settlement, landside slumps or other natural hazards in the nearby surrounding area.
	Health, Water, Sanitation and Waste-disposal and Energy-use	3. What is the source of your drinking water in the working condition? [write answer]	As all the workplaces are attached to the residential areas so usually the workers took supplied piped water.
		4. Are there any worker had been sick or suffering from illness or injured while working on. 1=Yes, 2=No	Most of the answers are No but they feel illness or tired due to hard working. Only the chemical users are of great risk in contamination of chemicals. Besides there are minor injury cases in the twisting (<i>Tanni</i>) enterprises.
		5. What are the other working problems you are facing in doing works? [write answer]	There are no major working problems except they mentioned about the non-regular types of working schedules.
		6. What type of energy consumption you have?	Energy uses are mostly on electricity consumptions by all the enterprises. Besides, the dyeing enterprises use gas burners or

		[write answer]	petroleum (<i>Keroshin</i>) burners.
		7. Specify the applied ways of waste management, [write answer] (a) Solid waste management, [write answer] (b) Liquid waste management, [write answer] (c) Gaseous waste management, [write answer]	Most of the solid wastes tried to be reused, only a few waste were dumped in the nearby garbage areas. The chemical residues were washed away to the sewerage drains and not any gracious wastes found in this business cycle.
	Business Strategy	8. Does the enterprise have training programs to keep employees informed of their environmental obligations? 1=Yes, 2=No	More than 90% answered No. Very few training program information were found. But they were not related to the environmental aspects.
		9. Is their any existence of child labor in the enterprise? 1=Yes, 2=No	More than 60% replied Yes.
		10. How long the workers work in 24 hours. 1= 1-8hrs, 2= 9-12hrs, 3= 12hrs+	20% workers said 9-12 hrs. 75% said more than 12 hrs remaining are either contractual or others.
		11. Is there any provision of payment for overtime work? 1=Yes, 2=No	Almost all the answers are NO. May be it's because of their working strategies. The <i>Tant</i> weavers work on contractual basis. Others don't have any overtime provisions.
		12. Does the workers enjoy weekly holiday while	Yes, the enterprises are closed for at least one weekday. But depending on the work loads the workers sometimes don't want to

		producing? 1=Yes, 2=No
		13. Does the enterprise test the drinking water quality? 1=Yes, 2=No
		14. Does the enterprise maintain first-aid box? 1=Yes, 2=No
		15. What would be the alternative clean technologies or production techniques or mechanisms just to minimize the environmental negative externalities? [write answer]

enjoy the holidays if they work by contract basis.

All the answers is NO. Enterprises didn't ever test the quality of the drinking waters.

All the answer is NO. Enterprises don't use first aid boxes.

Not found any specific alternative suggestions on production technologies. 90% of the respondents believe there business operations don't hamper the external environment much. But there may be possibilities of contamination of chemical residual effects. Other than they believed that if the whole industry can be shifted to a new place where the establishments of the enterprises would be designed in more flexible way then may be the environmental negative externalities would be minimised.

7.5 Annex – E : ICC business charter for sustainable development

The general principles of such a strategy are embodied within the International Chamber of Commerce's Business Charter for Sustainable Development. The key elements to this strategy are embodied in sixteen 'Principles for Environmental Management'. Companies are therefore encouraged to endorse the following aims:

1. **Corporate priority:** To recognize environmental management as among the highest corporate priorities and as a key determinant to sustainable development; to establish policies, programmes and practices for conducting operations in an environmentally sound manner.
2. **Integrated management:** To integrate these policies, programmes and practices fully into each business as an essential element of management in all its functions.
3. **Process of improvement:** To continue to improve corporate policies, programmes and environmental performance, taking into account technical developments, scientific understanding, consumer needs and community expectations, with legal regulations as a starting point; and to apply the same environmental criteria internationally.
4. **Employee education:** To educate, train and motivate employees to conduct their activities in an environmentally responsible manner.
5. **Prior assessment:** To assess environmental impacts before starting a new activity or project and before decommissioning a facility or leaving a site.
6. **Products and services:** To develop and provide products and services that have no undue environmental impact and are safe in their intended use, that are efficient in their consumption of energy and natural resources, and that can be recycled, reused, or disposed of safely.

7. **Customer advice:** To advise, and where relevant educate, customers, distributors and the public in the safe use, transportation, storage and disposal of products provided; and to apply similar considerations to the provision of services.
8. **Facilities and operations:** To develop, design and operate facilities and conduct activities taking into consideration the efficient use of energy and raw materials, the sustainable use of renewable resources, the minimization of adverse environmental impact and waste generation, and the safe and responsible disposal of residual wastes.
9. **Research:** To conduct or support research on the environmental impacts of raw materials, products, processes, emissions and wastes associated with the enterprise and on the means of minimizing such adverse impacts.
10. **Precautionary approach:** To modify the manufacture, marketing or use of products or services to the conduct of activities, consistent with scientific and technical understanding, to prevent serious or irreversible environmental degradation.
11. **Contractors and suppliers:** To promote the adoption of these principles by contractors acting on behalf of the enterprise, encouraging and, where appropriate, requiring improvements in their practices to make them consistent with those of the enterprise; and to encourage the wider adoption of these principles by suppliers.
12. **Emergency preparedness:** To develop and maintain, where appropriate hazards exist, emergency preparedness plans in conjunction with the emergency services, relevant authorities and the local community, recognizing potential cross-boundary impacts.
13. **Transfer of technology:** To contribute to the transfer of environmentally sound technology' and management methods throughout the industrial and public sectors.

- 14. Contributing to the common effort:** To contribute to the development of public policy and to business, governmental and inter-governmental programmes and educational initiatives that will enhance environmental awareness and protection.
- 15. Openness to concerns:** To foster openness and dialogue with employees and the public, anticipating and responding to their concerns about the potential hazards and impacts of operations, products, wastes or services, including those of trans-boundary or global significance.
- 16. Compliance and reporting:** To measure environmental performance; to conduct regular environmental audits and assessments of compliance with company requirements and these principles; and periodically to provide appropriate information to the Board of Directors, shareholders, employees, the authorities and the public.