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Triple Bottom Line Demonstration Project in Four Asian Countries

FINAL REPORT

Vienna, January 2003

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Acknowledgements

The success of this project is mainly due to the efforts made by the participating companies and by the National Experts to meet the strict project time schedule. The project results included in this report are presented in the four country reports prepared by the National Cleaner Production Centre, India; by Ambreen Waheed (Responsible Business Initiative, Pakistan); by Dharmasiri R. Gunaratne (Small and Medium Enterprise Developers, Sri Lanka); by Pitsamai Eamsakulrat (National Science and Technology Development Agency, Thailand).

Part of this report was inspired by the work undertaken by Aurore de Crombrugghe during her internship at UNIDO, as well as by a paper compiled for the Greening of Industry Network Conference (Göteborg, Sweden, June 23 □ 26, 2002) by Ralph Luken and Rodney Stares.

This project was jointly implemented by the Cleaner Production and Environmental Management Branch and the Small and Medium Enterprises Branch of UNIDO.

1. Introduction

In recent years, there has been a growing trend for manufacturers at the top of the value chain to require that their suppliers further down the chain meet environmental and social standards, or at the very least they give preference to suppliers that do. In many cases, manufacturers are taking this step in response to pressures from consumers or NGOs in their own countries, although it can also result from environmental and/or social policies that the companies have adopted themselves independently of any outside pressures.

Given the trends in the geographic distribution of value chains, these pressures often translate into companies in the developed countries putting these demands onto export-oriented companies in the developing countries. The latter are therefore now being challenged to reconsider their environmental and social commitments. The larger exporting companies in the developing countries may be able to meet these social and environmental requirements in a cost-effective way. However most SMEs are usually at a loss on how to effect the technical and managerial changes that would enable them to meet emerging environmental and social standards without losing their competitive edge in international markets.

It was in this context that the United Nations Industrial Development Organization (UNIDO) wished to explore what tools could be made available to SMEs in the developing countries to assist them in meeting social and environmental standards without losing their competitiveness, and being able to demonstrate this fact to any of their international buyers who asked for the necessary evidence. UNIDO believes that it has found such a tool in the so-called Triple Bottom Line (TBL) approach.

The term "triple bottom line□was coined in 1997; it combines a piece of American slang (the bottom line), borrowed from accountancy, with the word "triple□which widens its application into two new areas. TBL refers to the three prongs of social, environmental and financial accountability. It is used as a framework for measuring and reporting corporate performance against economic, social and environmental performance. It is important to keep in mind that the TBL approach is neither a quality programme nor a prescriptive system such as a code of conduct. The concept is finding increasing and widespread international acceptance within the corporate community and it is transforming corporate reporting practices.

The notion of reporting against the three components (or "bottom lines□) of economic, environmental and social[1] performance is directly tied to the concept and goal of sustainable development and Corporate Social Responsibility (CSR)[2]. It is an attempt to align private enterprises, originally multi-national companies in particular, to the goal of sustainable global development by providing them with a more comprehensive set of working objectives than just profit alone. Triple bottom line reporting, if properly implemented, will provide companies with information that will enable them and their stakeholders to assess how sustainable their operations are. The perspective taken is that for an organization to be sustainable, it must be financially secure, it must minimize (or ideally eliminate) its negative environmental impacts and it must act in conformity with societal expectations. The high level of inter-relation between these three factors suggests and recommends an integrated environmental, social and financial approach.

[1] "Social□is normally defined broadly as "acting in conformity with societal expectations□and as such, it covers issues of importance to a number of different stakeholder groups, especially employees, local communities, consumers and governments.
[2] See UNIDO, Corporate Social Responsibility. Implications for Small and Medium Enterprises in Developing Countries, Vienna 2002.

2. The UNIDO application of the TBL concept

The majority of the experience with TBL has been in the developed countries, so UNIDO decided to undertake a demonstration project to assess the utility of the TBL approach in the context of SMEs in developing countries, and to delineate the modifications that might be necessary to make it work properly in such a context.

For its application of TBL, UNIDO made a major change to TBL approaches currently in use. Up till now the TBL concept has mostly been applied by trans-national corporations from developed countries. In general, these are companies that focus on long-term sustainability. However, the primary client base for whom UNIDO is developing TBL approaches - small and medium-sized enterprises in developing countries with a high level of direct (or indirect) export dependence - is much more concerned by short-term survival in the face of a variety of challenges. These can be new demands on them from international purchasers to be environmentally and socially responsible, or growing local regulatory enforcement pressures, but they can also be conventional challenges such as rising costs of resources (raw materials, water, energy, etc.). It was clear that only a TBL approach that recognized and responded to this primal need to survive would be acceptable to SMEs in developing countries.

Taking this fundamental factor into account, UNIDO has conceived its TBL approach as a natural extension of the approach that it has always taken in its Cleaner Production projects. Here, through the use of a tailor-made assessment methodology, enterprises are brought to identify options for change that can reduce their impacts on the environment but that can also reduce their costs. This is in recognition of the fact that pollution and waste is a sign of inefficiency in the use of material resources and energy. As such, UNIDO developed a TBL approach that extended the consolidated CP assessment methodology into the social area. As with CP, the primary purpose of UNIDO's TBL approach is to bring enterprises to see international pressures not as a negative drag on business, but as a positive driving force to encourage management to look more closely at the operations of the business and to make it more successful and sustainable over the long-term. Once SMEs recognize by evidence that TBL is not a cost but a concrete help in planning and tracking environmental and social improvements that bring financial benefits, they can then be engaged in the virtuous cycle of continuous improvement, which has the survival of participating companies as a starting point.

Thus, UNIDO's TBL approach is unique in that it adds to the traditional TBL elements of evaluation and reporting a third element of continuous improvement.

2.1. The improvement methodology in UNIDO's TBL approach

The two primary building blocks of UNIDO's improvement methodology in its TBL approach are the Cleaner Production Process (CP), and the Social/Human Resource Development Process (HR). These two processes are very similar and are compared in the table below (further details about CP and HR linkages are included in Annex 1):

Table 1: Main Stages in the Cleaner Production and Social/ Human Resource Development Process for TBL

Project Phase	CLEANER PRODUCTION	HR DEVELOPMENT
Preparatory Phase	Stage 1: Getting Started	Stage 1: Getting Started
	• Designate a Cleaner Production / HR Improvement Team • Team Training	
	Stage 2: Analysing Process Steps	Stage 2: Analysing HR Performance
	• List Process Steps / Departmental Units • Identify & Select Wasteful/Polluting Processes and HR problem areas • Baseline Data Collection • Gap Analysis	
Application Phase	Stage 3: Generating Cleaner Production Opportunities	Stage 3: Generating HR Improvement Opportunities
	Stage 4: Selecting Cleaner Production Solutions	Stage 4: Selecting HR Improvement Solutions
	Assess options on technical, financial, environmental and HR criteria	
	Stage 5: Implementing Cleaner Production Solutions	Stage 5: Implementing HR Improvement Solutions

As shown in the table the TBL approach involves different stages but it is essentially made up of two key phases:

Preparatory Phase

A fundamental tenet of UNIDO TBL approach is that it is not a prescriptive system. Rather, it is an approach that is based on a voluntary commitment of the top management of an enterprise and is carried out with input from the whole company staff down to the lowest practicable level. Therefore, a core aspect of UNIDO TBL approach is the use of teams to work through the TBL process. Thus, the creation of TBL teams within enterprises is the first step of the process. The second is the training of the team members since it is unlikely that they will be familiar with TBL. Such trainings familiarizes the team members with the TBL approach and concepts and on how to collect the necessary financial, social and environmental baseline data.

After all the necessary initial training, the TBL teams proceed to collect baseline data that will show where the enterprise stands with respect both to its environmental impacts and its social impacts. On the environmental side, teams prepare process charts, flow diagrams and descriptions of the productive cycle and of the input and output of every production activity, and use this information to assess current situation in their companies. On the social side, teams evaluate buyers needs and expectations and both management and employee concerns, and they review the existing recording system (payroll, time cards and accident records). The use of a standardized procedure helps enterprises to gather the relevant information in an organized manner, and this led to the elaboration of a software that enterprises can use to guide and document their TBL activities (section 3.6).

To channel the information-gathering and subsequent evaluation work into a "bottom-line" type framework, UNIDO has chosen a set of financial, environmental and social indicators for which SMEs would gather the necessary information and against which they would evaluate their status. The financial and the environmental bottom-line indicators are based on UNIDO's experience respectively in financial analysis and in Cleaner Production while the indicators of the social bottom line were derived by the many ongoing international initiatives dealing with social issues. In particular, the indicators chosen by UNIDO were as follows:

Financial Indicators:
In this dimension, UNIDO suggests to use financial indicators that define not only the pure financial aspects of an enterprise but also a more significant range of long-term "economic" performance indicators. The areas covered are as follows:

- Pure Financial Measures:
  - Annual Turnover;
  - Value Added;
  - Earning Before Tax;
  - Total Assets;
  - Rate of Return on Average Capital Employed.

- Resource Productivity Measures:
  - Overall Productivity;
  - Labour Productivity;
  - Capital Productivity;
  - Energy Productivity.

- Resource Utilization Measures:
  - Plant Utilization;
  - Labour Force Utilization;
  - Shift Work Pattern.

Environmental Indicators:
The environmental indicators cover air emissions, water effluents and solid wastes. In particular, the indicators considered are:

- Water Consumption;
- Energy Consumption;
- Waste Generation;
- Releases of key Water Pollutants;
- Releases of key Air Pollutants.

An additional indicator is compliance with all applicable environmental rules, regulations and standards.

Social Indicators:
Some of the indicators address the need to change the social consciousness of the companies' management and to provide decent working conditions, while others refer more to the productivity of the employees. They cover the following issues:

- Hours of work;
- Compensation & benefits;
- Freedom of association;
- Health & safety;
- Harassment & abuse;
- Discrimination;
- Use of child labour;
- Use of forced/bonded labour.

While the financial and environmental indicators can be considered as consolidated and have been extensively used in many UNIDO projects, the choice of the social indicators required the evaluation of existing codes and reporting frameworks. Many sources, listed in the Reference section, contributed to the selection of the social indicators, with a predominant contribution from the Global Reporting Initiative (GRI), which is itself based on other core standards, and a significant contribution from ILO guidelines and from SA8000.

Once the baseline data have been collected the TBL teams compare them to a set of benchmarks that are set for each of the TBL indicators. The benchmarks can be either external or internal. External benchmarks may be drawn from a variety of sources. These will include national legislative or administrative standards, national industry averages or best practice, international norms or best practice or technical optima. For instance, environmental benchmarks can refer mainly to national effluent or emissions standards while the social benchmarks will often refer to both national and international regulations and codes of conduct. Internal benchmarks are likely to reflect either management targets or goals. Since the context will differ from country to country, UNIDO does not promote the use of a set of standardized benchmarks in its TBL approach. Rather, it encourages SMEs to choose those benchmarks that are most relevant to their activities, client demands and social and environmental context.

The result of this comparison between the actual situation and the benchmarks is a "gap analysis□ which prepares the ground for the following phase of the TBL approach.

Application phase:

In the second phase, the TBL teams evaluate the results of the gap analysis during brainstorming sessions. The teams first assess what improvement options exist to close the gaps that have been shown to exist between the actual situation and the chosen benchmarks. Then they assess the options for technical feasibility and financial viability in the light of the priorities of the enterprise, and submit to management their recommended set of improvement options to be implemented. Once the management has accepted the recommendations, the teams can then take on the task of implementing them.

It is worth noting that although the TBL concept has three elements □ financial, environmental and social □ the improvement methodology adopted by UNIDO only deals directly with the last two. Improvements in the financial bottom line are an outcome of improvements in the environmental and social bottom line. Social and environmental improvements, like better housekeeping, raw materials and energy conservation, reuse and recycling, a better working environment and better working conditions all can reduce operating costs; they have proved to also increase product value added and product quality and to reduce product rejection rates. Further details on the financial perspective are included in Annex 2.

The two phases have to be given equal importance if the enterprise is to obtain significant results and needs to be conducted by an integrated team with competencies in the environmental and social fields; at the beginning of activities in the TBL field, the team, formed by employees of the enterprise, should be properly trained and assisted by a TBL expert familiar with the consolidated methodology. This strongly suggests that national industry support institutions and industry associations need to be trained in TBL concepts, so that they can support their enterprises in this activity.

2.2. *The Responsible Entrepreneurs Achievement Programme (REAP)*

An additional element of UNIDO's TBL approach is the development of a software (REAP, *Responsible Entrepreneurs Achievement Program*), which enterprises can use as a practical tool to guide thems through the TBL process in a structured and documentable way. REAP is described in more detail in section 3.6, however a few major points about REAP can be covered here. As was already stated above, it is valuable for enterprises undertaking TBL to use standardized procedures for gathering, processing and evaluating the necessary data and then to keep track of the options implemented and of their associate benefits. This is one of the primary purposes of REAP. However, it does more. Remembering that one of the fundamental elements of the TBL approach is the ability to report on the status of the enterprise with respect to financial, environmental and social performance, the REAP software is designed to prepare reports that the enterprises can use to demonstrate to clients other stakeholders, the efforts undertaken to improve TBL.

2.3. *The concept of continuous improvement in UNIDO's TBL approach*

As was stated above, a unique contribution by UNIDO is to embed a methodology for continuous improvement in its TBL approach. The immediate reason for doing this is that it gives rise to a TBL approach that is acceptable to many SMEs in developing countries, which are focused on short-term survival. However, unlike some "code-driven" initiatives, it has the further advantage that it makes the TBL process an open-ended process, one that starts from the point of ensuring survival but leads over time to ever greater improvements and longer-term sustainability. Three stages can be distinguished in this virtuous cycle of improvement, which tend to build on each others over time. These are:

Compliance
Many enterprises will decide to adopt the TBL approach in order to simply comply with buyers' expectations or local regulation, with the aim of retaining their "licence to operate" in the face of buyers' demands or government inspections. These enterprises will focus on putting in place policies, procedures and facilities that are essentially "bolted-on" to their existing operations and that will blunt criticism in the short run. These measures are generally not costly to implement.

Efficiency
With time, or sometimes in parallel with the pressures to comply, enterprises will come under pressure to improve performance and they will use this pressure, channelled through a TBL approach, as a driver for cost savings, productivity improvements and quality enhancements, focusing on process efficiency and resource utilization ("eco-efficiency" and "social efficiency"). Essentially, such enterprises are using the TBL approach to re-invigorate and fine-tune their existing processes and systems. This option offers a mix of cost saving and productivity improvements.

Differentiation
Later on, enterprises involved for some time in the TBL process can think of using the TBL approach strategically, aiming at strengthening their competitive position by moving them from being "price-takers" to being "price-setters". Using the TBL approach as the delivery mechanism, enterprises can use outside pressures as a driver for product and market differentiation. The objective is to shift the focus from the product per se to the service delivered by the product, which widens the perspective and brings an enterprise to consider the whole "value chain" not just the processing stage (e.g. eco-labelling, Environmental Management Systems, supply chain greening, etc.).

While some types of compliance actions might continue over a long period of time many □ especially policies and procedures - will only need to be put in place once and then occasionally reviewed. On the other hand, actions to improve efficiency are likely to be continuous, with one period□s targets becoming the floor for the next round of improvement initiatives. Finally, the need for actions to differentiate the company's products or services will come sooner or later depending on a constellation of factors including the degree of downward pressures on margins (because of the "commoditisation□of the product or the arrival of aggressive new entrants into the market) or the exhaustion of all the cheaper cost reduction options.

3. The TBL demonstration project

As has already been described, UNIDO wished to create an approach to TBL that would make the concept acceptable to SMEs in developing countries. On the basis of its previous work with SMEs, UNIDO recognized that there was some scepticism on their part of the benefit to them of adopting environmentally sound and socially sustainable programs in general, and that it was necessary to generate "hard evidence" of the fact that such programs worked and would bring them returns before a program would gain wide acceptance in the SME community. Therefore, UNIDO decided that there was a need also in this case for a demonstration project that would generate the evidence of the benefits that SMEs in developing countries could gain from adopting a TBL approach. The aim of the project was therefore to provide this evidence.

At the same time it was recognized that the TBL concept would not spread without building support capacity in national SME support institutions. For this reason an important part of the project was dedicated to building support capacity for TBL in the countries that took part in the project.

3.1. The choice of participating countries

The project involved four Asian countries, India, Pakistan, Sri Lanka, and Thailand, already chosen during the preparation of the project document because enterprises in these countries have shown particular interest in the concepts of corporate responsibility. There is a much more stringent need in these countries than in many other developing countries for small and medium-sized enterprises to respond to social and environmental standards required by international buyers. Entrepreneurs recognize the value of maintaining and improving environmental and social norms, recognize also the associated financial and productivity benefits, but they are often at a loss on how to effect the technical and managerial changes that would improve their performances. At the same time national environmental regulations in the selected countries are becoming more stringent and Governments are encouraging the introduction of cleaner production and cleaner technologies to reduce the generation of waste and industrial environmental impacts.

3.2. The choice of project counterparts

The design of the project required the involvement of two different institutions in each of the four countries to provide counterpart support capacity to the project: an association of entrepreneurs, that as sponsoring institution enhanced the entrepreneurs' active participation in the project, and a professional organization with established skills in providing advice to industry on either environmental or social matters or both, as the technical support institution.

In **India** the National Cleaner Production Centre in association with National Productivity Council (NPC), New Delhi and Karnataka Cleaner Production Centre (KCPC), Karnataka, provided the technical support. The sponsoring institutions were the Punjab Cleaner Production Centre, that coordinated the project in Punjab, and the Confederation of Indian Industries, that assisted at the National level. Two other host institutions participated to the project development: the Ludhiana Cotton Dyeing Association and the Jalandhar Tanners Association.

In **Pakistan** the Federation of Pakistan's Chambers of Commerce and Industry and the Government's Export Promotion Bureau were the sponsoring institutions whereas the Responsible Business Initiative (RBI), a Pakistan NGO, played the role of technical support institution.

The Federation of Chambers of Commerce and Industry of **Sri Lanka** (FCCISL) was the sponsoring institution for the project and the Small and Medium Enterprise Developers (SMED), which is part of the Federation, was the technical support institution. SMED now hosts the newly-established UNIDO/UNEP Sri Lankan Cleaner Production Centre.

In **Thailand** the sponsoring institution, the National Science and Technology Development Agency (NSTDA), an NGO, was also the technical support institution.

3.3. The Holding of National Seminars

To kick off the project introductory seminars were held in each participating country with government and industry leaders, to discuss national standards for corporate responsibility in light of global standards and supply chain requirements. The scope of the TBL exercise was defined and procedures for collecting, analyzing and reporting data on financial, environmental and social performance and compliance were elaborated. At the same time a set of adequate benchmarks were chosen to compare enterprises□performance against consolidated values, with some referring to international standards, others to national or local/sectoral standards. The criteria for selecting the participating companies (see below) were also reviewed.

3.4. The choice of participating companies

The participating enterprises were selected according to an agreed set of criteria based on a simple qualitative score system, with enterprises coming out on top using the scorecard being made a preliminary offer of assistance by the local partner organizations.

The scorecard system was based on the following six criteria:

1) The enterprises are SMEs;
2) Significant direct or indirect exporters (i.e. vulnerability/exposure to international pressure);
3) The existence of at least some management capacity and the availability of an information system;
4) Significant level of interest shown by a person within the enterprise with a track record of leadership or innovation and the authority (Chairman/CEO/Plant Manager) to sustain an initiative such as TBL in the face of competing pressures;
5) A clear potential for improvement;
6) Likelihood of a dissemination or demonstration effect arising from changes at the selected enterprise.

With respect to the second criterion, the textile sector was preferred because of its importance in the selected countries and because of its high dependence on international markets. The goal was therefore to have at least half the sample from the textile sector (weaving, knitting or finishing), with the balance being ideally leather tanning or from other significant sectors meeting the export vulnerability criterion. However, a wider spectrum of industries (encompassing apparel, rubber and confectionery) was eventually selected to better respond to country needs.

The level of interest shown by the plants□management was considered an important criterion because the participation in a TBL project is very demanding and requires a strong commitment in all its stages: at the beginning during the enrolment, then in the preparatory and in the application phase and also in the maintenance phase, to continue to implement TBL option and support the virtuous cycle of continual improvement (section 4).

The last two criteria also need further comment. With respect to the potential for improvement criterion, the enterprises considered varied greatly in the extent to which they had already completed environmental or social programmes or had such programmes underway. This raised the question as to the scale of the improvement likely to be achieved by a TBL exercise at firms with already heightened baselines as compared to those starting from a lower baseline. For the purpose of illustrating the value of TBL (via case study results) it seemed that large improvements would be more convincing, which suggested choosing enterprises with lower baselines.

As regards the last criterion, all the enterprises visited were parts of large and often vertically integrated business chains. This suggested there might be scope for rapid dissemination of best practice within the group but raised questions as to whether smaller firms not part of big business chains would relate to or be influenced by the experience of their far larger peers. This was not considered an issue because for most textile enterprises to work with large producers is not a choice but a common necessity and also no consistent differences would be experienced in smaller companies.

On the basis of these criteria, a total of 22 companies were chosen, and accepted, to participate in the project. A Memorandum of Understanding was signed with each laying out the terms of their participation (a copy of such an MoU is given in Annex 3). Through the MoU the enterprises also committed themselves to providing the necessary "in-house□ support to the project and to implement the TBL improvement options emerging out of the project at their own cost. As part of the MoU, the participating enterprises paid a participation fee (this tended to be symbolic, but was intended to make company commitment that more significant).

In **India** seven enterprises were selected as demonstration units: three tanneries, which being located in the same industrial district experienced the benefit of a cluster approach; three textile units, engaged in garment manufacturing, that, though located in different places, belong to the same sector and were therefore studied under a sectoral approach, and finally a textile company where a unit level approach was followed. All of them, as either primary or secondary exporters, are directly exposed to market pressures.

In **Pakistan** four companies participated to the project, representing sectors that have expressed concerns that if unable to respond to social and environmental requirements, they might lose their competitive edge in international markets. Two units are knitwear & garment manufacturers, one unit is a woven textile manufacture and the last is a leather tanning & garment manufacture. All of them are private limited companies almost totally export oriented. Two companies are certified ISO9000, one company is preparing for ISO14000 registration and another for SA8000.

Six enterprises participated in the project in **Sri Lanka**. Even though the focus was initially supposed to be on the textile sector only two of the chosen companies are actually textile. Two are apparel industries, one produces rubber and one is a confectionery industry. The choice of a broader spectrum of industries was determined by the necessity to cover as much as possible the most export-oriented sectors of the country.

In **Thailand** five companies were selected. Three of them are textile industries, one is mainly an apparel industry, even though formally in the textile sector, and one is a furniture company. Three companies are ISO9000 certified, and all of them are aware of Cleaner Production (CP) even though only in two cases had CP alternatives been implemented. Two companies have experience in Codes of Conduct and have been audited by their customers.

3.5. Project implementation

As described in Chapter 2, the management of the participating enterprises started by identifying the employees who would be members of the TBL teams. A TBL orientation and hands-on capacity-building was then given to the team members by TBL national and international experts.

At the same time, various benchmarks against which to assess company performance against the three TBL dimensions were screened and a common set of indicators was identified as the basis for assessing the participating companies□financial, environmental and social performance. The collected environmental and social information was then compared against benchmarks, defined according to international or national targets/regulation, and "gaps□identified. Because of time constraints benchmarking was in practice limited and the "gaps□were often identified in a qualitative manner.

Box 1: Principal project phases in Thailand

The UNIDO Regional Office identified the technical support institution (NSTDA) and recruited the national TBL coordinator in August 2001 and at the beginning of September the UNIDO TBL experts held the introductory seminar, whose main outcomes were the familiarization of Thai agencies and companies with TBL concepts. By the end of the month, seven SMEs had volunteered to take part and five were selected. All of them paid a participation fee and committed to the project during an executive meeting. During the meeting the idea of a "Thai TBL slogan□competition was launched by NSTDA, with slogans being solicited from workers with the purpose of evaluating their understanding of the TBL concept and creating a communication channel with the management. The TBL teams, comprising representatives of all vertical layers within the enterprises and NSTDA technicians, participated to a capacity building session held at the end of October. After this first training "on-site□ project implementation started with the gap analysis, which included preliminary audits and baseline data collection and company training needs identification. In November about 70 people from the participating enterprises were trained "in-house□about TBL concepts; the indicators of the three TBL dimensions were introduced and discussed, and emphasis was given to CP as the TBL "starter motor□ Brainstorming sessions took place in November-December at every enterprise to discuss what TBL options to choose and to prepare an action plan to implement them. Details about activities, responsible persons, time-frame, budget and evaluation methods were prepared. The companies had follow-up sessions in January and UNIDO and NSTDA TBL experts visited each company to determine progress and to discuss problems occurring during the implementation of the selected options. Concluding sessions took place one month later, and the TBL teams presented their achievements to their management. Improvements were presented during a national dissemination seminar held in March 2002. Most of the selected TBL options are still being implemented and project results must be considered preliminary because of the very strict project time line, but feedbacks from the participating enterprises are very encouraging (better business performance, improvements in worker motivation and in environmental consciousness) and the project has spurred a great interest in TBL among Thai business institutions.

3.5.1 Baseline Data Collection

Once they had received their initial training, the enterprise TBL teams began to conduct the audits of their company□s operations to collect the baseline data for the indicators that had been chosen to make up their Triple Bottom Line reporting. They were assisted in their efforts by regular visits from national experts. In order to assist in the in-depth investigation of the data gathered, some templates were prepared to collect both qualitative and quantitative baseline data with a common format and in a systematic manner.

With respect to the gathering of social data and as an integration to the social analysis, a questionnaire on "Job Satisfaction and Worker Morale□(Annex 4) was distributed among workers in Thailand and in India, to survey the opinion that employees have of their job, their company and the working environment. Examples of such data gathering are given below.

Table 2: Data for the "Financial□Bottom Line, example for three leather enterprises in India

Measure	Company 1	Company 2	Company 3
Annual Turnover (millions of INR)	42.6	129	65.2
Value Added (millions of INR)	13.6	38.3	24.8
Earning Before Tax (millions of INR)	0.38	2.9	0.70
Total Assets (millions of INR)	8.4	25.1	11.8
1. Pure Financial Measures			
Rate of Return on Average Capital Employed =Earnings Before tax (EBT) x 100 /Total Assets	4.5%	11.5%	5.9%
2. Resource Productivity Measures			
2.1. Overall Productivity Measures			
A Value added x 100/ Raw Material Cost	46.9%	42.2%	61.6%
B Value added / Value of Standard Output (INR per square ft. of leather produced)	7.5	12.7	16.6
2.2. Labour Productivity Measures			
a. Value added per Employee (in thousands of INR per employee per year considering both permanent & contract labour)	188.9	311.4	261.4
b. Value added per Employee-Hour (in INR per employee per hour considering both permanent & contract labour)	52	86	70
c. Value added / Total wage bill (for permanent employees only)	11.2	16.6	11.5
2.3. Capital Productivity Measures			
Value added / Total Assets	1.6	1.5	2.1
2.4. Energy Productivity			
Value added per KWH of Energy Used (Electric only) =Value Added / KWH consumed during the year (in INR)	60	64	84
3. Resource Utilisation Measures			
3.1 Plant Utilization			
a. Average % utilisation under current operating conditions	40%	100%	70%
b. Average % utilisation of plant compared to technical maxima	70%	90%	80%
3.2. Labour Force Utilisation			
a. Paid absentees (value in INR) * 100/ Total wages paid (for permanent employees only)	Nil	Nil	Nil
b. Overtime hours x 100/ Total hours worked	Nil	Nil	Nil
3.3. Shift Work Pattern			
a. No. of Shifts worked	2	2	2
b. Basic shift length (hours)	12	12	12
c. Overtime worked (hours)	Nil	Nil	Nil

Table 3: Data for The "Environmental□Bottom Line, example for three leather enterprises in India

		Company 1	Company 2	Company 3
Emissions		Emissions from the boiler are generally within the acceptable levels	Emissions from the boiler are generally within the acceptable levels	Emissions from the boiler are generally within the acceptable levels
Solid Waste		• Trimmings at various stages: those from raw hides sold to glue manufacturers; • shaving & buffing dust:sold to board making industries; • Salt; • Fleshings; • Hairs; • Wood ash.	• Trimmings at various stages: those from raw hides sold to glue manufacturers; • shaving & buffing dust sold to board making industries; • Salt; • Fleshings; • Hairs; • Wood ash.	• Trimmings at various stages: those from raw hides sold to glue manufacturers; • shaving & buffing dust sold to board making industries; • Salt; • Fleshings; • Hairs; • Wood ash.
Liquid waste		The process effluent is directed to the central treatment system.	The process effluent is directed to the central treatment system.	The process effluent is directed to the central treatment system.
Basis		Per ton of raw hides processed	Per ton of raw hides processed	Per ton of raw hides processed
Volume (m^3) of composite wastewater		39.7	38	39.6
pH		8.0-8.5	8.0-8.5	8.0-8.5
COD*	**mg/l**	3,858	5,031	4,186
	Kg/ton	153.2	191.2	165.8
TDS	**mg/l**	10,464	10,374	17,895
	Kg/ton	415.4	394.2	708.6
TSS	**mg/l**	651	1,187	579
	Kg/ton	25.8	45.1	22.9
Chrome	**mg/l**	182	220	227
	Kg/ton	7.2	8.4	9.0

* for comparison of COD loads see graph in section 3.5.1.

Table 4: Data for the "Social□Bottom Line, example for three leather enterprises in India

	Company 1	Company 2	Company 3
Hours of work	Based on verbally discussed & mutually agreed informal terms and conditions at the time of employment.	Based on verbally discussed & mutually agreed informal terms and conditions at the time of employment.	Based on verbally discussed & mutually agreed informal terms and conditions at the time of employment.
Compensation and Benefits	Leave entitlement for the employees is not mentioned in any formal contract but depends upon the discretion of the management; Benefits and compensation are covered as per regulations of the Employee State Insurance Scheme	Leave entitlement for the employees is not mentioned in any formal contract but depends upon the discretion of the management; Benefits and compensation are covered as per regulations of the Employee State Insurance Scheme; Accommodation is provided to the workers in nearby plot. The electricity and water is also provided with accommodation at company's cost.	Leave entitlement for the employees is not mentioned in any formal contract but depends upon the discretion of the management; Benefits and compensation are covered as per regulations of the Employee State Insurance Scheme.
Freedom of Association	No union but good labour relations	No union but good labour relations	No union but good labour relations
Safety Policy & Organisation	No formal safety policy exists	No formal safety policy exists	No formal safety policy exists
Health & Safety Issues	A management representative in administration department takes care of overall safety aspects in the factory premises; At the time of employment head of the management representative briefs the worker on the safety measures to be taken in case of fire, accidents etc.; Protective gear like masks, gloves, gumboots are provided to the workers for necessary protection.	Head of the maintenance department takes care of overall safety aspects in the factory premises; At the time of employment head of the maintenance department briefs the worker on the safety measures to be taken in case of fire, accidents etc.; Protective gear like masks, gloves, gumboots are provided to the workers for necessary protection.	Head of the maintenance department takes care of overall safety aspects in the factory premises; At the time of employment head of the maintenance department briefs the worker on the safety measures to be taken in case of fire, accidents etc.; Protective gear like masks, gloves, gumboots are provided to the workers for necessary protection.
Harassment and Abuse	Freedom from harassment is guaranteed; Employees are free to complain against any harassment.	Freedom from harassment is guaranteed; Employees are free to complain against any harassment.	Freedom from harassment is guaranteed; Employees are free to complain against any harassment.
Discrimination	No discrimination on grounds of race, religion, cast etc.	No discrimination on grounds of race, religion, cast etc.	No discrimination on grounds of race, religion, cast etc.
Use of Child Labour	No child labour.	No child labour.	No child labour.
Use of forced / bonded labour	No forced /bonded labour.	No forced /bonded labour.	No forced /bonded labour.

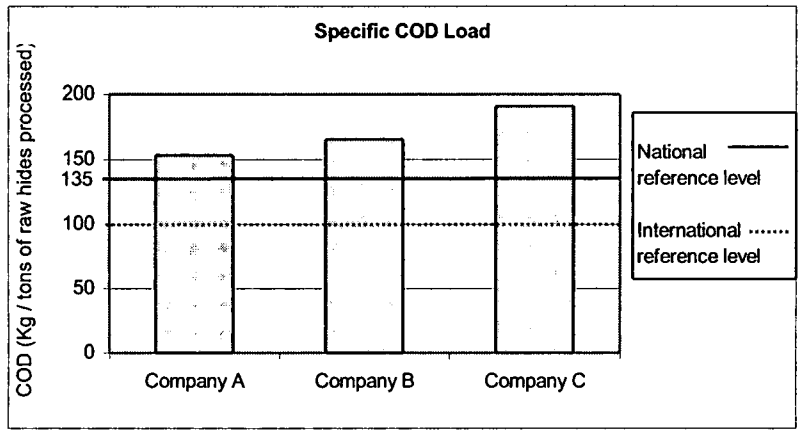
3.5.1. Preparing the gap analysis

Because of time constraints the benchmarking was in practice limited and the gaps were often identified only in qualitative manner.

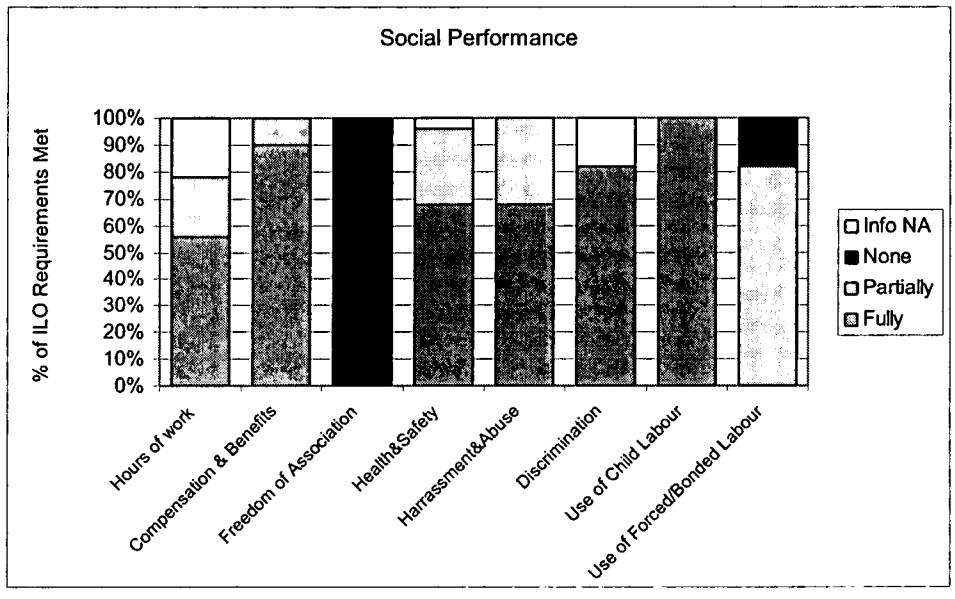
Once the baseline data were collected, and with the assistance of national experts, the TBL teams performed their gap analysis, i.e. they assessed their enterprises□current performance with respect to the benchmarks chosen for the three dimensions of TBL performance. The very limited project schedule did not allow for an in-depth benchmarking analysis. Even though quantitative and qualitative national and international standards were benchmarked against, the gap analysis consisted mostly of problem identification. This identification was, in some cases, driven by the comparison with the chosen benchmarks, especially for the quantitative indicators, in others a product of brainstorming sessions.

The following two graphs are examples from the three Indian tanneries taken as examples, of gap identification through the use of social and environmental benchmarks.

Graph 1: Specific COD load in three Indian tanneries and national and international reference levels.



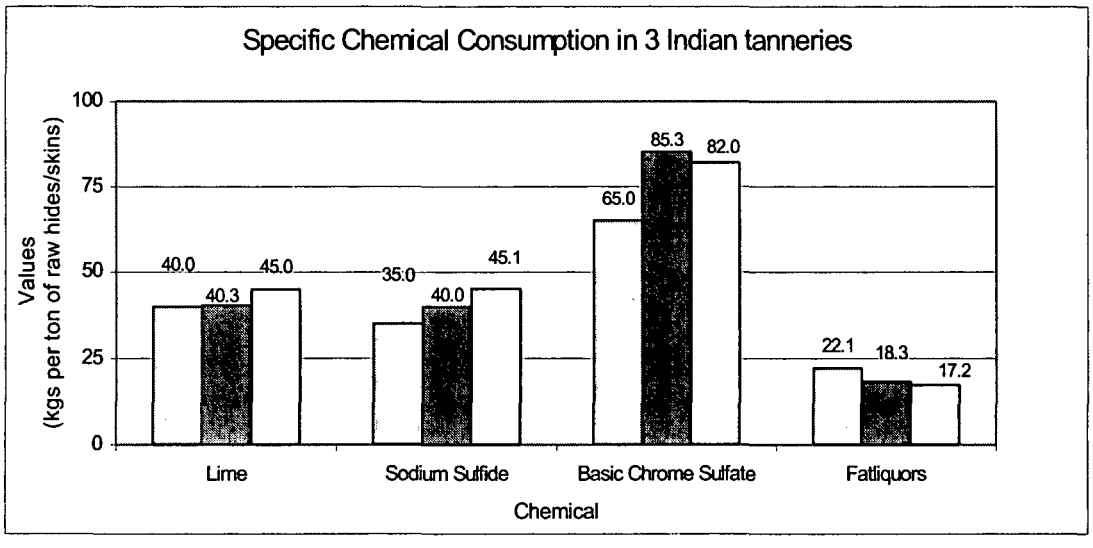
Graph 2: Social performance in Indian tanneries[3] (benchmarked with ILO requirements)



[3] The graph covers social performance in the three Indian tanneries participating in the demonstration project and in six other Indian tanneries.

Another example of benchmarking comes from India, where the three tanneries in the project were part of a cluster and so could be assessed together. In this case, the three tanneries could also benchmark their performance against each other. The following graph shows a comparison undertaken on consumption of the most significant chemicals used in the production process.

Graph 3: Specific consumption of most important chemicals in three different tanneries



3.5.2. The improvement process and the potential revealed

On the basis of the gap analysis, problems were prioritised on the basis of their environmental and social impacts, and different TBL options were identified to "close the gaps□ This was done during brainstorming sessions of the TBL teams, with the assistance of national experts and the help of a literature survey if necessary. Most of the proposed options belonged to one of the following main categories:

- Good housekeeping, training and social improvement;
- Better process control & optimisation of production activities;
- Reduction (or modification) of input raw material;
- Changes in the equipment;
- Changes in the technology;
- Recycle, reuse and material recovery.

Technical issues related to the implementation of the options were evaluated, as were the possible anticipated financial, environmental and social benefits they might give rise to. For every proposed option the technical analysis covered:

- Equipment Requirements;
- Manpower Requirements;
- Impacts on Production Quality;
- Energy Consumption;
- Resource Consumption.

The environmental impact of every option was summarized in terms of the change in pollution load (COD, BOD, TDS) and of volume of waste generated, while the social impact was covered considering:

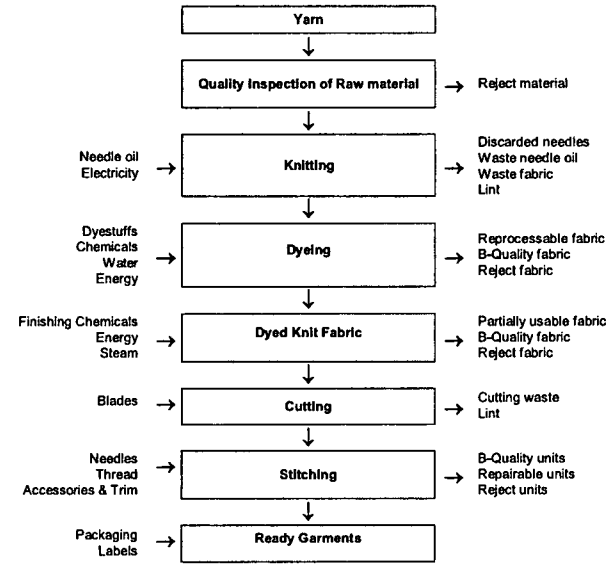
- Required social changes to implement the option; these are evaluated considering the requirements themselves, such as training needed to put in place the selected option and considering also the impact -essential, marginal or very limited- that they would have on workers;
- Total social benefit (both employees□and employer□s benefits, e.g. less absenteeism, better work environment, etc.).

Every alternative was also financially evaluated in terms of:
- Investment requirements;
- Changes in environmental costs;
- Savings;
- Payback period.

The results of the assessment phase, were then used by the teams to select the TBL options that they would recommend to management to be implemented. Examples of TBL option evaluation are given in Annex 5

Box 2: TBL option identification in a textile (knitwear) company in Pakistan

Process Flow chart



The gap analysis highlighted mainly environmental problems, especially in the dyeing department, and a lack of training that is causing significant wastage. Suggested options included changes in equipment and technology and better housekeeping and training. A summary table of the proposed TBL options is presented below:

Problem	
Poor environmental awareness among employees & high solid waste dumping costs	Awareness program and segregated waste bins under solid waste management plan
High use of chemicals & dyes despite computerized dosing	Technical inputs from UNIDO in training technicians
Worker □supervisor isolation leading to quality issues	Integrated decision-making at floor level
Steam wastage	Better boiler maintenance
High cutting waste	Install laser cutters
Inconsistent work from piece-rate stitchers	In-house stitcher training school

3.5.3. Project achievements to date

Based on the results of the gap analysis and on the options generated during the brainstorming sessions, the TBL teams selected one or more options to be implemented during the last part of the demonstration project. The selection criteria were that the options had to be simple and easy to implement with clear results in the short time frame of the project. Moreover, they should have significant impact on the three bottom lines.

Below there is a description of the options implemented, or whose implementation is still ongoing, in the four countries. As already experienced in CP projects, the implementation phase could not be completed in the very strict period that was initially planned and while some of the easier and quicker options are already in place, for others more time must be allowed. In the Indian tanneries case, for example, at the end of June 2002, 28% of the options had already been implemented, 34% were under implementation and 38% were planned.

Apart from the economic gains the companies achieved through the implementation of the TBL concept, a remarkable improvement in the labour relations was seen throughout the implementation process in every country. The workers and their trade unions gave their fullest support for the project and this paved the way for better labour relations in all the demonstration factories. This improvement on the social bottom line is already a success, but it definitely will boost the productivity in the years to come.

The TBL options selected in **India** are summarized in the following tables:

Leather Sector	
a) Finished Leather Company (mainly cow/buff leather)	
Options implemented	**Gains and improvements achieved**
A) Better process control & optimisation of production activities: *soaking in paddles/drums, de-dusting hides prior to soaking, elimination of idle running of pigment/lacquer spray machine.* B) Reduction of input raw material: *reducing lime and sulphide concentrations to 3.5% and 1.5% respectively, in pasting and lime and Na_2S concentrations to 4.5% and 2.1% respectively, in liming.* C) Changes in the equipment: *undertaking structural modifications in the units of the Effluent Treatment Plant, installing hand guards in pressing machine.* D) Recycle, reuse and material recovery: *reusing wastewater generated during fleshing/ scudding operations, recovering/reusing chrome from tanning bath, reusing raw hide trimmings and fleshings for manufacturing of glue and gelatine.*	1) Potential saving of approx. INR 250,000/year. 2) Improved quality of product and reduction in rejection and increase yield. 3) Reductions in: • Electricity consumption; • Water consumption (20%); • TDS load (20-25%); • Solid waste generation (10-15%) 4) Improved working conditions at shop floor; reduced risk of accidents; improved health conditions.

b) Finished Leather Company (mainly baby buff calf leather)	
Options implemented	**Gains and improvements achieved**
A) Better process control & optimisation of production activities: *de-dusting hides prior to soaking* B) Reduction of input raw materials: *reducing lime and Na_2S concentration to 4.5% and 2.1% respectively, in liming* C) Changes in the equipment: *installing permanent feeding system for feeding of chemicals in drums, using bearing blocks instead of wooden blocks in drums, undertaking structural modifications in the units of the Effluent Treatment Plant.* D) Recycle, reuse and material recovery: *reusing wastewater generated during fleshing/ scudding operations, recovering/reusing chrome from tanning bath, reusing raw hide trimmings and fleshings for manufacturing of glue and gelatine.*	1) Potential saving of approx. INR 220,000/year. 2) Improved quality of product and reduction in cost per unit. 3) Reduction in: • water consumption (25-30%); • TDS load (20-30%) • solid waste generation (10-15%); 4) Improved working conditions at shop floor; reduced risks of accidents; improved health conditions.
c) Finished Leather Company (mainly cow leather)	
Options implemented	**Gains and improvements achieved**
A) Better working conditions: *providing drinking water facility at shop floor, providing gloves, gumboots, masks, ear plugs and other safety apparel to workers, providing adequate illumination at the shop floor.* B) Better process control & optimisation of production activities: *soaking in paddles/drums, de-dusting hides prior to soaking.* C) Reduction of input raw materials: *reducing lime and Na_2S concentrations to 4.5% and 2.1% respectively, in liming.* D) Changes in the equipment: *installing permanent feeding system for feeding of chemicals in drums, calibrating feeding vessels for feeding water in drums, undertaking structural modifications in the units of the effluent treatment plant.* E) Recycle, reuse and material recovery: *recovering/reusing chrome from tanning bath, reusing raw hide trimmings and fleshings for manufacture of glue and gelatine.*	1) Potential savings of approx. INR. 310,000/year. 2) Improved quality of product and reduction in cost per unit. 3) Reductions in: • water consumption (25-30%); • TDS load (25-30%); • solid waste generation (15-20%). 4) Improved working conditions at shop floor; reduced risks of accidents; improved health conditions and higher motivation among the workers.

<table>
<tr><th colspan="2">Apparel sector</th></tr>
<tr><td colspan="2">a) Ready made garment manufacturing company</td></tr>
<tr><td>Options implemented</td><td>Gains and improvements achieved</td></tr>
<tr><td>A) Better working conditions: replacing existing tube lights of 40 watts with 28-watt fluorescent tube lights with chrome reflectors, providing mid-day meals, production incentive scheme
B) Better process control & optimisation of production activities: preventing steam & leakages, avoiding dummy stitching for trouser pockets.
C) Changes in the technology: introducing automatic CAD cutting machine in cutting section replacing manual cutting.
D) Recycle, reuse and material recovery: providing rain water harvesting system, recovering and reusing condensate for steam generation.</td><td>1) Potential savings of approx INR. 700,000/year.
2) Improved quality of product and reduction in product rejection.
3) Reductions in:
• water consumption;
• electricity consumption;
• boiler fuel consumption;
• boiler chemicals consumption.
4) Improved illumination at the work place; reduced absenteeism; higher motivation among workers.</td></tr>
<tr><td colspan="2">b) Ready made garment manufacturing company (denim products)</td></tr>
<tr><td>Options implemented</td><td>Gains and improvements achieved</td></tr>
<tr><td>A) Better process control & optimisation of production activities: reducing pressure at ironing station.
B) Changes/improvements in the equipment: covering the steam louvers, insulating thermal fluid carrier pipe or stinters, providing glass case to sand blasting machine, providing ironing station between stitching section, providing accurate length and size aluminium pieces instead of small pieces for easy ironing, providing pocket setting machine.
C) Changes in the technology: introducing computer aided colour matching system, introducing solar water heating system.
D) Recycle, reuse and material recovery: recycling/reusing treated wastewater for agricultural purposes after improved treatment.</td><td>1) Potential savings of approx INR. 500,000/year.
2) Improved quality of product and reduction in product rejection.
3) Reductions in:
• water consumption;
• wastewater generation;
• fuel;
• electricity consumption.
4) Improved work environment, reduced risks of accidents and higher motivation among workers.</td></tr>
<tr><td colspan="2">c) Ready made garment manufacturing company (pullovers & T-shirts)</td></tr>
<tr><td>Options implemented</td><td>Gains and improvements achieved</td></tr>
<tr><td>A) Better working conditions: fixing hanging tube lights at the center of the cutting table instead of wall-mounted tube lights in cutting section, replacing hanging tube lights with individual machine-mounted compact fluorescent lamp focused on the working area in the stitching section, using chrome reflectors in hanging tube lights.
B) Better process control & optimisation of production activities: optimising air-to-fuel ratio for boiler by damper adjustment.
C) Changes in the equipment: feeding water into boiler through heat recovery unit.
D) Recycle, reuse and material recovery: recovering and reusing condensate for steam generation.</td><td>1) Reductions in product rejection.
2) Substantial savings in:
• electricity consumption;
• boiler fuel consumption;
• boiler chemical consumption;
3) Reductions in water consumption.
4) Improved illumination at the work place.</td></tr>
</table>

Similar TBL options were adopted in the textile (wool processing) unit, including:

Textile sector	
Options implemented	**Gains and improvements achieved**
A) Better working conditions: *installation of hydrants and other fire-fighting equipment in the fire-prone areas, installation of clearly marked and accessible emergency exits, better illumination at the shop floor, provision of drinking water, toilets and other amenities for the employees, provision of gloves, ear plugs, gumboots etc. to workers, putting on view the guidelines to handle hazardous chemicals.* B) Better process control & optimisation of production activities: *standardization of the running wash time in cabinet dyeing machine, periodic checks on the status of steam coils in cabinet dyeing machine, proper sampling methods for dyed fabric to avoid wastage of dye-chemicals and dye; optimisation of addition of auxiliary chemicals and suitable calibration of chemical addition/dosing equipment.* C) Changes in the equipment: *proper insulation of steam pipelines, flanges and valves.* D) Recycle, reuse and material recovery: *recycle of steam condensate to boiler, reuse of spent dye liquor, use of indirect cooling system, recycling of cooling water in dyeing operation.*	1) Improved quality of product and reduction in costs per unit and product rejection. 2) Important reductions in: • water consumption (30%); • wastewater generation (20%) • COD, TDS, Chloride load on the effluent treatment plant; • solid waste generation 3) Social improvements

The options selected by the companies in **Pakistan** and their main impact on the three bottom lines are presented in the following tables:

Textile Sector	
a) Knitting Company	
Options implemented	**Gains and improvements achieved**
Better process control & optimisation of production activities: *better boiler management through preventive maintenance, eliminating energy and water/steam leakage.*	1) Potential yearly cost savings of about PKR 6.8 million (a saving of 0.5% to the bottom-line); 2) Up to 15% reduction in the energy bill; 3) Better risk management and reduction in the threat of accidents.
b) Knitting Company	
Options implemented	**Gains and improvements achieved**
Changes in the equipment: *better utilization of dye-stuffs and chemicals through computerized dyeing kitchen and dispensing unit.*	1) Installation costs of PKR 10 million recoverable within one year at full capacity; 2) Positive impact on product quality and rejection control, leading to client loyalty and profitability.
c) Greige cloth Company	
Options implemented	**Gains and improvements achieved**
Improved working relations: *corporate policy development and better documentation of worker-management relations for tracking impact of social standards on bottom-line.*	Direct impact of policy on worker health and retention in terms of lower staff health costs and higher productivity estimated at PKR 4 million per year, approximately 5% of annual revenue.

Leather Sector	
Options implemented	**Gains and improvements achieved**
Better process control & optimisation of production activities: *time-carding various plant operations for tracking of process utilization, energy and raw material consumption, and higher predictability of costs.*	Better de-salting, washing, dyeing process management, enhanced labour and productivity ratios, all impact value-addition by approximately PKR 50 million, approximately 8% of annual revenue.

In **Sri Lanka** the options implemented by the enterprises during the TBL project implementation period are as follows:

Textile Sector	
Textile Dyeing and Finishing Company	
Options implemented	**Gains and improvements achieved**
Recycle, reuse and material recovery: *selling all recyclable waste such as polythene, cardboard and paper.*	Income of approx. LKR 25,000 per year, to be used for workers' welfare.
Better process control & optimisation of production activities: *correcting the supply chain to suit the production process in order avoid re-dyeing of materials incurring high cost, approx. one batch per month.*	Approx. LKR 85,000 in extra costs of re-dyeing are saved per month.
Handloom Export Company	
Options implemented	**Gains and improvements achieved**
Recycle, reuse and material recovery *(selling all recyclable waste such as polythene, cardboard and paper).*	Income of LKR 2,700/month, to be used for workers' welfare.
Good housekeeping *(rewiring the lighting system to enable the workers to switch off lights when not required).*	Savings of LKR 3,000/year in electrical energy.

Rubber Sector	
Natural foam rubber manufacturing company	
Options implemented	**Gains and improvements achieved**
Better process control & optimisation of production activities: *controlling latex waste*	Applying waste control procedures, which involve no cost, only in the production section led to reductions of 11% in total latex waste in the first month alone, with savings of about LKR 180,000. 33% of the savings was distributed to the workers. This has improved labour relations, and further reductions are expected in the future.
Better process control & optimisation of production activities: *improving boiler performance and controlling wastage of steam.*	Reduction in the cost of fuel of approx. LKR 110,000/ month; the cost for tuning 2 boilers is about LKR 10,000, therefore payback 3 days.

Apparel sector	
Large scale garment manufacturing company	
Options implemented	**Gains and improvements achieved**
Recycle, reuse and material recovery: *selling all recyclable waste such as polythene, cardboard and paper.* Good housekeeping: *reducing unnecessary use of lights, telephone and water.* Workplace improvements: *appointment of safety committee and safety officer, change in attitudes and Minimising Absenteeism Through Team Spirit, MATTS.*	Income of approx. LKR 9,000/month, to be used for workers' welfare. Reduction in light bill, telephone bill and water bill (approx. LKR 5,000/month, totally). Enhancement of productivity through improved morale and reduction in absenteeism (Reduction from 10% to 5.9%). Improvement of awareness through training programme.
Small scale garment manufacturing company	
Options implemented	**Gains and improvements achieved**
Recycle, reuse and material recovery: *selling recyclable waste such as polythene, cardboard and paper.* Workplace improvements: *increasing working space by modifying the building.*	Income of approx. LKR 2,160/month, to be used for workers' welfare. Worker satisfaction increased.

Food sector	
Biscuit manufacturing company	
Options implemented	**Gains and improvements achieved**
Changes in the technology: *bulk handling system for the palm oil is under construction.*	Estimated saving is LKR 600,000 per annum.

In **Thailand** 15 options were implemented with potential economic savings of at least THB 1.5 million per year. Except for the dyeing company, which already had extensive experience in CP and implemented a high cost option, the companies implemented no/low cost options.

Apparel sector	
Options implemented	**Gains and improvements achieved**
Improvements in working conditions: *payment by objectives and targets.*	Reduction in worker turnover rate, empowerment of teamwork, higher production efficiency, e.g. productivity rose from 600 pieces/employee/month to 900 pieces/employee/month in Feb.2002, lower waste generation, increased morale, better working conditions at no cost for implementation.

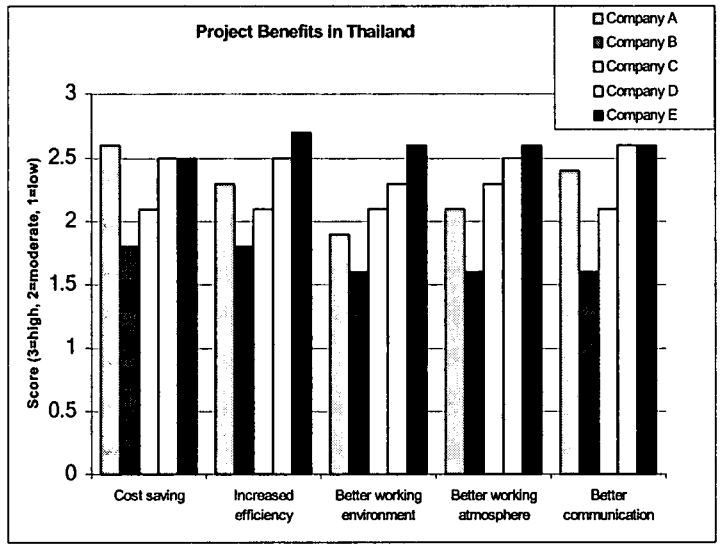
Textile sector	
Weaving company	
Options implemented	**Gains and improvements achieved**
Good housekeeping: *improvement in the working practice used for yarn connection.*	Up to 75% reduction in waste yarn, with potential cost savings of THB 396,000/year and minimal implementation cost; time savings, increased productivity, better working conditions.
Knitting company	
Options implemented	**Gains and improvements achieved**
Better process control & optimisation of production activities: - *reduction of power consumption from a new elevator usage policy.* - *less frequent setup of knitting machines setup and better maintenance of the machines.*	Potential cost savings of THB 400,000/ year, with no cost for implementation - just better planning. Reduction of waste fabrics, reduction of waste oil, increased productivity, reduction of Green House Gases (CO_2) by 48 t/year.
Dyeing company	
Changes in the technology: *closed-system jigger with indirect steam.*	Potential cost savings of up to THB320,000 /year/machine, at an investment cost about THB650,000/year/machine, about 2 years payback period; reduced heat losses, less steam contamination, better working conditions, reduced water consumption and reduced wastewater treatment costs.

Furniture sector	
Options implemented	**Gains and improvements achieved**
A) Improvements in working conditions: *competition to reduce waste in the whole factory and better waste management, clearly defined acceptable customer quality levels, new organization structure, clearly defined reward and disciplinary policy, logging of working hours.* B) Better process control & optimisation of production activities: *formation of a preventive maintenance section, improvement in the dust collecting system, product design and group ware communication channel.* C) Changes in technology: *information technology implementation in accounting* D) Recycle, reuse and material recovery: *value added products from waste.*	Cost savings from waste reduction (wastage rates of 10.34% in August □ December reduced to 5.2% in January □ February) with no cost for implementation; Turned waste accumulated in the company into value added products that sold for THB 350,000. More efficient resource utilization, increased morale and loyalty, better working conditions, better organizational communication, better company image

To overcome the lack of communication that was identified as a common issue among all participating companies, a Thai Morning Talk option was proposed as a Thai TBL option. The results indicated that this option enhanced the other TBL implemented option(s) and created a more harmonious working environment. One of the companies even claimed that this option reduced rework from about 18% to about 8%.

A questionnaire for TBL project evaluation (see Annex 6) was distributed to the participating companies, and the results show that the company TBL teams were generally satisfied with the project.

Graph 4: Project benefits experienced in Thailand by the five participating enterprises



3.6. Development of the REAP software

In parallel to the national-level activities, a significant effort was devoted to the development of a software tool that can serve as an operative guide for SMEs committed to the TBL process, for both the analysis of the baseline situation and the documentation of the changes and improvements achieved. REAP (*Responsible Entrepreneur Achievement Programme*) is a software for benchmarking, analysing and improving company performance in the financial, environmental and social areas. It is a "management support system□that can be used to improve performance against any chosen standard. The development of REAP covered the whole project duration, and important contributions to the software contents were given by the project field experience.

REAP basically consists of three parts that can be accessed from the Main Menu:
- Company Reference Data;
- Indicators and Benchmarks;
- Reports and Statistics.

Company Reference Data

In this section all the relevant information regarding the company are stored in records at three levels: that of the **company**, that of the **departments and processes** that collectively make up its operations, and finally, that of the **inputs or outputs** that go into individual processes. One company record may be linked to several department records and many process records. In turn, a process record may also have many inputs and outputs records linked to it.

Departmental records are used to store information about labour force issues such as number of employees, pay and hours, labour turnover and absenteeism. Process records (along with inputs and outputs records) are used to store information about the stages of production and the non-labour elements that go into making the product such as water, energy and chemicals and the residues left over such as scrap material, waste water, pollutants and solid waste. In order to analyze each process and identify areas of waste or improvement it is necessary to record the detailed inputs and outputs related to it. The inputs will take the form of raw material, energy (in various forms), water and chemicals while the outputs are likely to include raw material waste, emissions of various types (water, solids,

gases and chemicals) as well as the product moving forward to the next stage in the production process.

Ideally one company record should have linked to it a record for each department within the company, showing its distinct labour force characteristics and one for each process. REAP becomes more useful the more it is possible to break the operations of the company to the smallest operational level, however, when filling in REAP for the first time there may not be the data to support a detailed breakdown. At the beginning, therefore, it may be sensible to create just one departmental record summarizing the labour force situation for the entire company. Later, when more data have been collected, the single record could be added to and adjusted by the entry of additional records for the key departments within the company.

Data on inputs and outputs for each process may already be available or may need to be measured. All inputs and outputs for a process should then be expressed per unit of output, whether measured in weight (kgs) square meters or "pieces as this is the only basis that allows valid comparisons over time and between different companies. Because chemicals are often both a significant cost of production and a source of pollution, REAP allows users to track and report on the top five chemicals used in the production process.

Indicators and Benchmarks

Once the baseline data are collected and the relative records are created in REAP, a gap analysis can be performed to compare the company situation against two types of indicators: leading and lagging. They are entered in REAP by a different route to the basic information about the operations of the company.

Leading Indicators (or **benchmarks**): these consist of the policies, systems and procedures that a company management should have in place to eliminate or at least minimise the risks of negative social and environmental "outcomes They "lead in the sense that they aim to prevent a problem happening in the first place. The leading benchmarks contained in REAP take the form of an "electronic questionnaire that has been drawn up by summarising a wide range of international standards and codes of conduct put forward by governments, trade bodies and major buyers. Although a broad set of such benchmarks come "pre-loaded into REAP, they can easily be altered to reflect specific concerns or preferences. The act of creating a new company record also gives that record a corresponding set of environmental, social and financial leading benchmark records ready to be completed.

Lagging Indicators (or **benchmarks**): these consist of standards of performance for a range of TBL issues. They "lag in the sense that they are based on measures of "outcomes or "outputs They typically include environmental efficiency and emission standards as well as those relating to the treatment of the workforce. Financial standards are not yet incorporated, but could cover issues of tax and regulatory compliance, disclosure, bribery, and the treatment of suppliers. As for the Leading Indicator, the act of creating a new company record also gives that record a corresponding set of environmental, social and financial records in the Lagging Indicators section to be filled in.

REAP comes with a basic set of TBL indicators pre-defined but without any benchmarks for each; users must supply their own. REAP currently has space for two benchmarks per parameter. These are termed an internal benchmark and an external benchmark but both could be external, such as a national standard and an international one, if so required. Space is also provided to record background information about each benchmark being used, such as its source, its scope or applicability.

Once an enterprise has given its answers to the questions posed by REAP, it is possible to see its areas of weakness and therefore vulnerability with current good practice. This can be documented using a standardised report in the Reports and Statistics section; separate

standardised reports are available for the leading benchmarks and the lagging benchmarks. When both the relevant operating data and the standards the company wants to be judged by are entered it is possible to see the current level of performance as a percentage score (achievements score) compared to the benchmarks.

Reports and Statistics

All reports begin with the selection of the records whose data is to be included in the report itself. A report can examine:

- just one record in a point in time report. A one-company period must be selected;
- or it may compare several records. The multiple records may be for different companies at the same point in time or for the same company for different time periods of time (a comparison report). An extension of the time series analysis (a time series report) is planned.

The report section is a very helpful tool to:

- document problem areas at the end of the gap analysis;
- monitor project improvements;
- report on TBL status.

3.6.1. Continuous improvement through REAP

The outputs of the Reports and Statistics section highlight weaknesses, through the integrated analysis of the point-in-time reports. For the key lagging benchmarks REAP calculates "achievements scores□in the form of the company performance level, normalized for the volume of production, and expressed as a percentage of the chosen internal and external benchmarks. The information provided by these scores is integrated by the software into a "scorecard□that the software produces for the leading indicators.

The scorecards can then be used by the TBL teams to prioritize the problems areas to be tackled first. Using the methodology outlined in chapter 2, the teams propose possible improvements. REAP can then be used in a "feedback□mode to evaluate the benefits of such improvements. Once actually implemented, the baseline data in REAP can be modified to reflect the new situation and generate new scorecards.

The comparison reports, on the other hand, can be very useful for evaluating the key TBL performance benchmarks, for companies that have a similar activity and a comparable dimension. This could be the case, for example, of cluster analysis (see, for instance, the company comparison data for the three tanneries in India, section 3.4.2, graph 3).

4. Embracing TBL: constraints, catalysts and enabling measures

The experience gained with the demonstration project proves the potential of a wide dissemination of TBL, both because of the interest the project raised among entrepreneurs, and of the benefits experienced in the field. Nevertheless constraints and difficulties did occur as well during the project, because from a company perspective involvement in the TBL process is quite demanding and requires a strong commitment from the management of an enterprise. The commitment will be required, to differing degrees and in different forms, in the four basic stages of any long-term, sustained TBL program:

- Enrolment: being prepared to "sign up□for the program in the beginning,
- Application: being prepared to commit company resources, especially staff time to investigating company performance.
- Implementation: being prepared to invest resources in implementing options arising from the TBL process.
- Maintenance: being prepared to sustain over the long term the initial gains made as a result of implementing improvement options.

In previous assessments of its cleaner production work[4] UNIDO examined the constraints, catalysts and enabling measures associated with the adoption of cleaner production techniques, using a framework of seven broad types of constraint with the catalysts and enabling measures related to each. These were:

- Attitudinal constraints;
- Systemic constraints;
- Organisational constraints;
- Technical constraints;
- Economic constraints;
- Government constraints;
- Other constraints (such as "seasonal variations□and "lack of public pressure□).

The constraints encountered during the present project fit this typology equally well so it will be used again here. However, the findings have been organized on a slightly different basis, namely in relation to the constraints encountered at the four stages of company involvement in the TBL process. The implication of this approach is that some companies might be interested in TBL but not commit to applying it; others might conduct some initial studies or convene a working party but then not implement any of the options arising from its work; finally, there may be those who reap initial benefits but allow these to tail off or be reversed for one reason or another at a later time. Examples of firms who did not carry through completely were encountered during the demonstration project.

[4] UNIDO, 1998. *From Wastes to Profit: The Indian Experience - The DESIRE Project.*

4.1. The enrolment stage

Getting firms to commit to the TBL process is the first and in some ways the biggest hurdle. The following table shows the sort of factors that can be at play at this stage of the process.

CONSTRAINTS	CATALYSTS	ENABLING FACTORS
New, untested idea - no established tool kit to work with.	Growing buyer pressures coming down the supply chain.	Endorsement of TBL by a local commercial or trade body.
Risk of exposure to external scrutiny (press/NGOs/Tax offices) or of "leakage□of commercially sensitive information.	Growing regulatory pressures especially in the environmental area.	Ability to limit exposure through some form of Memorandum of Understanding (MoU).
Risk of exposure to potentially open-ended demands on staff time and other company resources.	Need to find additional sources of competitive advantage in the face of ever-increasing international price pressures.	History of positive prior contact with the local technical partner to the project.
No clear benefit in terms of certification or credentials.		Possibility of accessing national and international level experts at zero or low cost.
Poor timing □seasonal production peaks, factory re-building etc.		

In this demonstration project, given the newness of the idea, considerable reliance was placed on using existing business or technical assistance relationships as a channel for marketing and enrolling firms. Hence a significant percentage of the final sample of 22 participants had already been involved in a cleaner production initiative. This meant that the two sides of the partnership □ the company owners/managers and the local technical counterpart institution □already knew one another and there was a basis of trust.

Furthermore, the selection criterion requiring that the owner or manager of the firm have a track record of leadership or innovation in their sector also tended to favour approaching and enrolling companies with whom relationships already existed.

4.2. The application stage

Even if a company manager's interest in TBL can be raised, a series of barriers can mean that this interest will never be turned into an actual activity. The following are some of the more general factors that can be at play.

CONSTRAINTS	CATALYSTS	ENABLING FACTORS
Managers' understanding of the idea in practice as it does not fit existing categories such as "codes", benchmarks or quality standards.	Pressures from owners and/or senior managers.	Familiarity with other "bottom-up" improvement processes such as Cleaner Production, Kaizen, Quality Circles, Total Quality Management, etc.
Resistance from middle managers, not prepared to do their "homework" or make staff available.	Managers having a performance related stake in the company e.g. being share-holders.	Hearing of the benefits achieved by other firms at feedback sessions.
Competing priorities, especially seasonal peaks in activity or factory re-building work.		
Lack of in-house monitoring or data collection systems, particularly in relation to labour issues.	Pressures from peers in other companies at periodic review sessions.	Provision of high-grade technical help in measuring performance, especially in the environmental areas.

Following the general pattern, getting firms to commit wholeheartedly to working with the process within this demonstration project – even after signing up for it - varied quite extensively between the countries in the sample. Leaving aside catastrophic outside events – such as the impact of September 11th on the global business climate and of the attack on Colombo Airport by the LTTE – there seemed to be various reasons for this. Although the majority of the companies were small – and in most cases privately owned – it was frequently the case that the owners were not engaged in day-to-day operations. These they entrusted to externally recruited managers. Often these managers were generalists with long administrative or organisational experience in, for example, the Army or Police (this was the case, for instance, in Pakistan and India) but not necessarily with much technical foundation. The initial enthusiasm of the owner in buying in to the idea had therefore to be translated through an intermediary who often had a different agenda.

Resistance from middle management can be rooted in a variety of factors. These included, in no specific order, the following:

- Loss of "face"/loss of job: Fear of being shown up as not being competent or on top of their job was clearly a major factor for middle managers. Instances were recounted where managers – or senior technical staff such as dye-masters – had lost their jobs when an owner discovered, as a result of outside technical studies, the extent of the waste that his manager was "tolerating".
- Perceived loss of control: Two aspects of this can be identified. In the first place, involving other people, especially those at the operator level, in decision-making can be seen as undermining the manager's authority. Second, the greater transparency involved in documenting hitherto hidden aspects of company performance – be it water or electricity usage or the level of accidents – creates a risk that information will leak out and get into the hand of outsiders who could use it against the company. In a culture of

non-compliance, and possibly outright evasion, any documenting of the status quo is potentially dangerous.

- Upsetting the local status quo: However much individual companies compete with one another in product markets there is often a degree of tacit collusion in other markets, especially in attracting labour. Often firms will stick with local accepted rates or established contractual terms rather than risk upsetting their peers or triggering a mutually destructive bidding war.
- Adverse prior experiences: On several occasions managers cited a past experience where they had tried a recommended practice and it had either not worked, or worse, it had rebounded on them in some detrimental way. In the face of an initial setback the improvement effort had lost credibility and stalled.

In general these "failures□involved broad systemic changes □ usually in the social area - rather than small housekeeping or process control improvement. It was clear from the feedback gathered during the project that in making a change some element of the required mix had been overlooked or left out for some reason and without it the benefits of the change did not materialise or it turned negative.

4.3. The implementation stage

Even after highly cost-effective improvement options have been identified, there can still be factors impeding their implementation.

CONSTRAINTS	CATALYSTS	ENABLING FACTORS
Management staff changes □loss of key managers or re-deployment elsewhere.		
Competing priorities at owner/ senior manager level e.g. expanding the factory, completing a major order or introducing automation.	Easily demonstrable gains to the bottom line in the form of direct or indirect savings.	Low implementation costs and quick payoffs.
Lack of space to implement the proposals due to high seasonal stock or factory re-building.		

With respect to the demonstration project, the following were some factors that came to light. In at least one factory in the sample the TBL initiative has gone on hold because of changes at middle management level. There is no longer a TBL "champion□to act as an advocate for rapid implementation. In some factories it seemed that owners had other priorities when it came to allocating resources. They often appeared willing to spend very considerable amounts of money □ particularly on automation □ to solve a visible and pressing problem rather than very small amounts of money on improvement options that would tackle very wasteful but not obvious process problems. Examples of this were the installation of computer-controlled fabric cutting in garment factories and computerised colour matching and dye application in dyeing plants. In both cases the productivity and profitability benefits of these investments were contingent on the availability of skilled operatives and maintenance of a high order, both of which were reported as being a problem by the firms who had made them.

4.4. The maintenance stage

While some improvement options raise company performance to a new, higher □ and largely irreversible □ level, others, especially the easiest to implement, give rise to benefits that are contingent on the maintenance of certain procedures or good practices on a continuing basis. Sustaining initial gains is therefore an important issue.

CONSTRAINTS	CATALYSTS	ENABLING FACTORS
Management staff changes □ loss of key managers or re-deployment elsewhere.	Capacity Building by continuous training.	TBL becomes international standard.
Labour turnover and labour absence among shop floor workers.	Begin stabilising the workforce (turnover and retention) and reducing labour absence.	Transparency of achievement of TBL in the factory.
Literacy & skill levels among "front-line□workers.	Recruit and retain higher level workers.	Better process instrumentation.
Lack of incentives to maintain worker motivation and application.	Introducing group based incentive schemes to share gains with workers.	
Conflict with other operational priorities.		
Lack of good communication flow.	Good communication flow from bottom up and top down e.g. Thai Morning Talk.	Public recognition, both national and international.

Due to the relatively short lifetime of the project, none of the factories in the TBL sample built up extensive experience in maintaining the gains from its improvement options during the project itself. However, several had started to tackle the motivation issues. One company had entered into an agreement with the union to set aside one third of the savings on materials to go into a bonus fund for workers. Another was putting some of the savings into a workers□welfare fund.

Finally, there is some evidence from the firms sampled that the mix of constraints encountered is also strongly influenced by scale and ownership factors. Typically the smaller the firm the more likely it is that the owner and manager are one and the same and that he/she is physically present at the factory supervising operations. The larger firms often had either absentee owners or conventional shareholders and hence much of the TBL programme had to be mediated through one or more layers of management. The exception was one large firm where all the key managers □ making up the operating committee □ were also shareholders in the firm.

5. Conclusions

The results of the demonstration project have proven the importance of promoting Corporate Social Responsibility in the four countries involved in the project and the effectiveness of UNIDO's TBL approach when applied to Small and Medium-sized Enterprises. Even though the shortness of the project did not allow for an evaluation to be made of some longer term issues like the maintenance of TBL activities, and limited the possibility to monitor the benefits of the implemented TBL options, there is evidence that the virtuous cycle of continuous improvement has started and that instruments have been given to the enterprises and to the national technical institutions to move forward in the field.

The project clearly demonstrated that SMEs can improve their environmental performance and make their labour practices more acceptable in a manner that is financially advantageous, and not only because they can continue to be part of international supply chains. The TBL approach as crafted by UNIDO is not a code driven process that can lead to some sort of certification; rather, it leads to continuous improvement and the implementation and maintenance of options that create benefits in all three bottom lines. The demonstration project provides good examples of financial savings (e.g. reduction in water, electricity and raw material consumption), environmental improvements (e.g. reduction in solid waste generation and improvement in waste water quantity/quality), social improvements (e.g. risk reduction, improvement in working/health conditions) and product improvements (e.g. better quality, increased yield, rejections reduction).

An additional positive result of the project was that the TBL capacity of national technical institutions in the countries involved has been built through trainings and "on the job" experience. Some of these institutions and in particular the National Cleaner Production Centres, which already promoting the CP methodology, are now in the position of being able to offer TBL services to other enterprises that did not take part in the demonstration project, thus increasing dissemination of TBL concepts.

Project results suggest strongly that there is value in promoting the TBL approach on a much wider scale than was possible in this demonstration project. The benefits experienced in Pakistan, Sri Lanka, Thailand, and India using UNIDO's TBL approach represent a starting point to move forward and provide to SMEs in more developing countries a simple and practical tool to respond to national or international pressures on their environmental and social performance in a proactive manner.

In this sense the development of the software REAP is a significant project product. REAP transforms a rather abstract concept, as corporate social responsibility can be, into a practical tool to collect baseline data, compare environmental, social and financial indicators to different benchmarks thus revealing gaps and weaknesses, and then to evaluate possible TBL options and to keep track of implementation benefits. REAP also gives enterprises the opportunity to report in an easy way on their current status and over time on their improvements, comparing the contribution of TBL options in terms of financial payoff, environmental impact and social contribution. The REAP reporting tool also allows comparisons to be made between different enterprises, which is particularly helpful considering the frequency with which SMES will work in clusters in developing countries. The strict project schedule limited the amount of testing of REAP that could be undertaken. Nevertheless even in its limited testing the software showed great promise and merits further development. As a result, the software can still be considered as a demonstration version with a few elements, in particular those regarding the financial indicators and the time series reports, that still need to be further developed.

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List of Abbreviations and Acronyms

CP	Cleaner Production
CSR	Corporate Social Responsibility
FCCISL	Federation of Chambers of Commerce and Industry of Sri Lanka
HR	Social/Human Resource Development Process
ILO	International Labour Organization
KCPC	New Delhi and Karnataka Cleaner Production Centre
MoU	Memorandum of Understanding
NCPC	National Cleaner Production Centre
NPC	National Productivity Council (India)
NSTDA	National Science and Technology Development Agency (Thailand)
REAP	Responsible Entrepreneurs Achievement Program
RBI	Responsible Business Initiative (Pakistan)
SMEs	Small and Medium Enterprises
TBL	Triple Bottom Line

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Annex 1: Linkages between the Cleaner Production Process (CP) and the Social/Human Resource Development Process

Since the CP process and that of HR Development have been designed in UNIDO□s TBL approach to have many methodological similarities, it is useful to review how the two processes work together, especially since typically a common team will manage the two processes.

Possible types of options generated by the CP process on the one hand and the HR Development process on the other, and how these might evolve over time, are shown in the table below.

CP and HR options at different stages in TBL implementation

TBL Stage	CP Improvement Options	HR Improvement Options
"Compliance□	Better Housekeeping Better process control ("Low hanging fruit□)	Policies & Procedures in place Improved worker facilities First Aid, fire & HS facilities and training
"Efficiency□	Changes in capital equipment Process re-engineering Cycle time reduction options	Reducing absenteeism Reducing labour turnover, improving retention Reducing accidents and excessive overtime Improving take home pay
"Differentiation□	Product Analysis Life Cycle Analysis	Worker empowerment Ongoing HR investment

The balance of emphasis that a team will give between cleaner production and HR issues will be determined in large part by the operational characteristics of the company. For example, companies with labour intensive operations with limited use of process chemicals, energy or water, such as garment production, focus more on HR issues than cleaner production, as small improvements in the former would probably give a greater payoff, at least in the short term. The balance would be more even in companies which are quite labour-intensive but also use significant quantities of toxic materials (such as tanning).

There are some practical linkages between the two improvement processes. Three of the more important ones are worth noting: functional linkages, "benefit/disbenefit□linkages, and cash-flow linkages.

Functional Linkages: These reflect interdependencies between the particular process technology being used and the nature and deployment of the company□s human resources, particularly shop floor workers. A process improvement option may need changes in the nature and organisation of the labour input if it is to be effective and sustainable, while an HR improvement may require changes in the processes or the technology before it can render its full benefits. For example, it might be possible to increase the efficiency of a dyeing process by increasing process temperature, but this could require a more skilled and stable (and therefore experienced) workforce with a higher level of attention to detail than a process that can operate satisfactorily within broad tolerances. In the other direction, efforts to eliminate distressing and time-wasting "needle pricks□ in a garment factory are likely to require changes to the ways machines are set up and possibly to the maintenance arrangements.

Ideally there should be an alignment between the needs of the process and the profile of the labour applied to running it. Note that achieving alignment in the short-term may be

relatively easy but sustaining it day in day out is a major challenge. The key question at the functional level is therefore, "what profile of technology, labour input, organisation and remuneration is needed to optimise this process over the long-term?□

Benefit/Disbenefit Linkages: When assessing the merits of improvement options on one side of the TBL equation, their secondary □ and usually indirect - consequences on the other side of the TBL equation also need to be taken into account since they may tip the argument in favour of an option or conversely undermine its implementation or sustainability. Some examples illustrate this point. Insulating steam lines to save energy as a CP improvement can lead indirectly to a HR benefit, since this option will also reduce heat stress in the work environment. Reducing chemical inputs or their toxicity to reduce the amount of wastes generated or their environmental impact can also lead to reduced worker exposure and risk of accidents. Eliminating excess water usage on the shop floor to reduce water consumption can mean there is less chance of accidents from workers slipping on wet floors. On the other hand, a process improvement option that increases materials or energy efficiency could lead to a faster work-rate, which could lead to more strain on the workers and therefore increase chances of an accident.

Improvement options on the HR side can equally generate secondary CP benefits and disbenefits. For example, reducing overtime (via an overtime ban or by bringing in more workers) in order to become compliant with buyer codes may lead to the loss of key operatives who find they can no longer earn their previous take-home pay and who have the ability to find a job elsewhere which still offers overtime. As a result, process efficiency suffers and wastage increases.

Cash-flow Linkages: These consist of the immediate cash-flow implications of the implementation of an improvement option. In some cases there will be a tangible and immediate reduction in operating expenses (or increase in revenue), which provides resources to finance the implementation of other options. In other cases the benefits will be more long-term, less directly perceptible or less easily captured by the financial bottom line.

Annex 2: The TBL Financial Perspective

To date, TBL approaches have usually used conventional financial measures such as profits before tax or rate of return on capital employed to measure the financial bottom line. However, they suffer from a number of significant deficiencies as an over-arching indicator of TBL performance. Among these are the following:

- They measure the returns to only one stakeholder group □ owners and shareholders □ whereas the TBL approach is aiming towards something more inclusive, which emphasises the contributions of all groups and their long-term mutual inter-dependence.
- They miss out on a key dimension of performance, value to customers, that is highly relevant to a company□s competitive advantage over the long term (see below)
- They are derived from very varied accounting conventions both between companies and over time, particularly in the way assets are valued and amortised.
- The figures they provide are often manipulated in order to minimise tax and other fiscal levies.

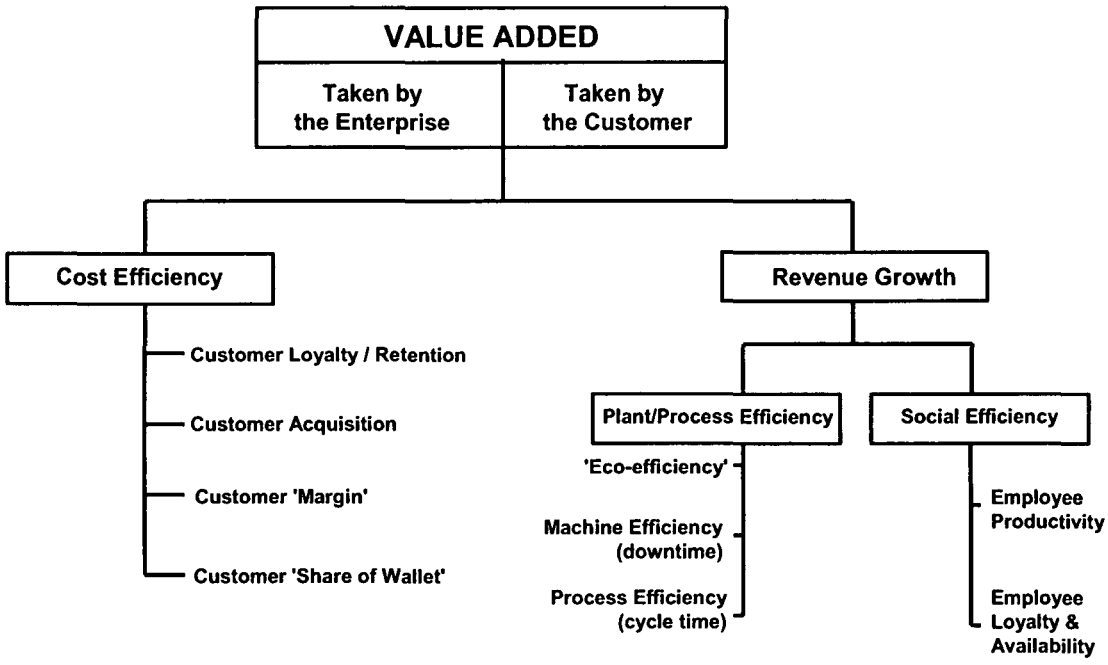
Therefore, for both philosophical and practical reasons, in its approach UNIDO has chosen to put the accent on **Value Added** as the unifying measure of performance. Moreover, UNIDO□s TBL methodology distinguishes between two types of Value Added. They both arise from the same source but flow in different directions:

On the one hand, there is Value Added earned and retained by the company, which is the difference between the sales value of the products it produces and the materials and energy used to make them. This margin provides the 'surplus□available to pay wages, taxes and remunerate shareholders / owners.

On the other hand, there is Value Added earned by the company but passed on to the customer. This is the 'surplus value□of the product to the purchasers: the difference between the price they pay and the maximum price they are prepared to pay before defecting to a competitive supplier. This value added is 'left on the table□by the supplier knowing that its size will strongly influence customer loyalty and the probability of repeat business. The buyer□s sense of the size of this value added is based on a mix of price and non-price factors, with the latter growing in importance over time as a result of consumer and investor pressure. Actions by a supplier to tackle TBL type issues therefore directly impact buyer□s perceptions of the amount of this type of value added they are receiving.

It is important to appreciate how Value Added relates back to specific issues in the environmental and social areas and how actions in those areas can impact positively on a company□s total value added. The following figure maps some of the relationships.

Value Added Relationships



The figure shows that both types of value added are built on two foundations: on one side revenue growth and on the other cost efficiency, each in turn having its sub-elements.

Revenue Growth: Actions flowing from a TBL approach can indirectly improve revenue growth (over what it would have been without them) in a number of ways. The most likely way in which this will happen is if compliance-type actions help retain existing customers or attract new customers, because of a reduction of the perceived risk status of the company as a supplier. However, if these measures raise costs □without a corresponding improvement in productivity □ then defending revenue levels will have been bought at the expense of a lower level of value added retained by the company for distribution to stakeholders (other factors, such as sales price, remaining the same).

Cost Efficiency: Cost efficiency is about reducing the cost of producing one unit or kilogramme of output. It is the result of two interconnected streams, one focusing on the company□s use of capital and the efficiency of its processes and work organisation, the other on the human factor, particularly the productivity of its labour force. The first is the realm of the Cleaner Production element of UNIDO□s TBL approach while the second is the area of operation of the Human Resources Improvement element. Successful actions in either area will directly impact the level of value added retained by the company and may also influence the level of the second type of value added retained by the customer at a result of influencing their perceptions of the supplier.

Annex 3: Memorandum of Understanding

This Memorandum of Understanding is signed between the _____ (*the institution that provides the technical support*), and _____ (*name of the enterprise*) to carry out the Triple Bottom Line project (TBL) as joint partners and to commit themselves to the following:

1. _____ (*name of the enterprise*)

   agrees to receive technical assistance under this project and also agrees to:

   a. earmark and provide necessary technical manpower for carrying out the project;

   b. designate a senior technical person to coordinate, oversee and implement the project findings;

   c. work in a cooperative and constructive manner for the success of the project;

   d. put in its best efforts to implement the Cleaner Production and socio-economic improvement options emerging out of the project at its own cost.

2. _____ (*name of the technical supporting institution*)

   agrees to provide the requisite technical assistance for successful conduct of the project and also agrees to:

   a. provide technical inputs for the monitoring and analytical work involved in the project;

   b. assist in the identification or assessment of cleaner production and socio-economic improvement options;

   c. assist technically in the implementation of viable options;

   d. prepare the progress reports on the experiences and the results of the TBL audit in the unit;

3. _____ (*name of the technical supporting institution*)

   will handle all critical information provided by

   _____ (*name of the enterprise*)

   as confidential unless explicitly cleared by the latter for the purpose of the dissemination of project achievements.

Signature	Signature
for _____ (*name of the technical supporting institution*)	for _____ (*name of the enterprise*)

Annex 4:Questionnaire on Job Satisfaction and Workers Morale

Department□ ..
Sex□ □ □ □ □ □ □ **Age**□ □ □ ..□ □ ..**Status** □ □ □ □ □ □ .□ □ □ □ □ □ □ □ ..□ .

Yes < ------------ No

N.	Description	5	4	3	2	1
1.	Your company knows that you are important and you can do the job successfully.					
2.	You□re proud that you work in this company.					
3.	Worker wages are sufficient.					
4.	Your performances are evaluated fairly.					
5.	You feel that you will be able to advance without any obstacle.					
6.	You like everything in your company such as policy, management, location etc.					
7.	Your company satisfies your performance, personality, knowledge and skills.					
8.	Your wage is enough to earn a living.					
9.	Your job is a temporary. May be transferred to other position.					
10.	Your job is boring (repetitive).					
11.	You are able to recommend the improvement for the jobs you are dealing with.					
12.	You are qualified for your job.					
13.	If the quantity of your job can be reduced, you will able to work more efficiently.					
14.	You are often to be late, or sometimes you have to leave before closing time.					
15.	You like your job very much.					
16.	You never consider changing your job.					
17.	Your surroundings i.e. light, noise, ventilation, and etc. are in good condition to support your work.					
18.	You feel that the environment you are normally working in is risky.					
19.	Although there are some disagreements in your team, then can be resolved.					
20.	Everybody can work in a co-operative manner.					
21.	You are proud to work in this current surrounding.					
22.	You feel that no one can work with you.					
23.	Your performance is not satisfied when you work with others.					
24.	You have a good relationship with your colleagues or your team.					
25.	You may propose some comments in order to improve working in your team.					
26.	Your colleagues are willing to help you when you have some problems, even in personal matters.					
27.	You are satisfied with the working environment with your colleagues.					
28.	In case that you are working in a team, your team can be successful. You like in team.					
29.	Your working group has a good knowledge and skill, so that they can complete the job successfully.					

		Yes < ---------- No				
N.	Description	**5**	**4**	**3**	**2**	**1**
30.	All colleagues in your group can work together.					
31.	Your immediate boss is kind and would like to promote her subordinates to advance.					
32.	Everybody is considered to be promoted by merit depending on their responsibility and skill.					
33.	Your boss is able to advise you or give you some suggestions relevant to your job even in private.					
34.	Your heads, colleagues and subordinates think that you are proficient and have the ability to work.					
35.	Your boss always makes a reasonable judgement if he has to discipline his employees.					
36.	You feel that the persons in your company often quit, transfer or move to work in other companies.					
37.	Your boss acts responsible in his jobs.					
38.	Your colleagues and subordinates concentrate their work.					
39.	You feel that no one in this company hates you.					

Annex 5: Examples of TBL Option Evaluation – Anticipated Benefits with Regard to Technical, Environmental and Social Aspects

TBL Option	Technical Implications			Environmental Impact						Financial Impact			Social Impact			
						Change in pollution load							Required social changes to implement the options		Total social benefits for	
	Equipment Required	Extra Manpower required	Product Quality	Energy Consumption	Material Consumption	COD	BOD	TDS	Volume of waste generated	Investment	Savings	Payback Period	Rankings 1-Essential 2- marginal 3- Nil	Requirements	Employees	Employers
Leather sector:																
De-dusting hides prior to soaking (*Better process control & optimisation of production activities*)	Brush	1 worker	Improved	No effect	Water savings of at least 4,000 l per 1000 kg hides	-	-	-	Reduced by at least 4,000 l per 1,000 kg hides	50 rupees per brush	Not quantified	Not quantified	2	None	Better working conditions	Improved labour productivity
Installing permanent system for feeding of chemicals in drums (*Changes in the equipment*)	Funnel with stands and bearing	None	No effect	No effect	Reduction in chemical spillages	Reduced	Reduced	-	-	15,000 rupees	Not quantified	Not quantified	2	Training	Increased safety, easiness in handling chemicals, better working conditions	Reduction of accident risks, higher motivation among workers, less absenteeism
Apparel sector:																
Replacing existing tube lights (*Better working conditions*)	Fluorescent lamps & chromium reflectors	None	No effect	Reduced by 50%	-	-	-	-	-	778,500 rupees	416,000 rupees	1.9 years	1	None	Better working conditions	Reductions in product rejection

TBL Option	Technical Implications			Environmental Impact						Financial Impact			Social Impact			
						Change in pollution load							Required social changes to implement the options		Total social benefits for	
	Equipment Required	Extra Manpower required	Product Quality	Energy Consumption	Material Consumption	COD	BOD	TDS	Volume of waste generated	Investment	Savings	Payback Period	Rankings 1-Essential 2- marginal 3- Nil	Requirements	Employees	Employers
Introducing automatic CAD cutting machine in cutting section replacing manual cutting (*Changes in the technology*)	Automatic cutting machine	None	Improved	Reduced (because no lighting required)	Saving in electricity and brown paper consumption	-	-	-	Fabric solid waste reduced by 10% & brown paper consumption by 35 kg/day	12.5 million rupees	1 million rupees	3 years	2	Shifting of existing cutting master to the department of CAD design by giving appropriate training	Reduction of accidents due to manual cutting machine	Savings in cutting cost
Textile sector:																
Recycling of steam condensate to boiler (*Recycle, reuse and material recovery*)	Pump, pipelines & fitting	None	No effect	Reduced	Saving in water, in WWT costs and in boiler fuel	-	-	-		500,000 rupees	210,000 rupees	2.4 years	3	-	-	-
Insulation of steam pipelines, flanges and valves (*Changes in the equipment*)	Insulation material	None	No effect	Reduced	Saving in Boiler fuel	-	-	-	Reduced solid waste (ash from boiler)	50,000 rupees	130,000 rupees	Less than 0.4 years	1	None	Reduced temperature at shop floor, improved working conditions	Higher motivation among workers, less absenteeism

Symbols:

- Not relevant

Annex 6: Questionnaire for TBL Project Evaluation

Question	Result			
	High	Moderate	Low	Other
1. Before joining the project, how was your expectation level in the following issues?				
• Cost saving				
• Increasing company efficiency				
• Reducing environmental problems				
• Development of staff and organization				
• Preparing to compete in world market				
• Increasing company competency				
2. How would you describe the value and support given by the National technical support institution during:				
• Gap Analysis				
• In-house Training				
• Brainstorming				
• Follow-up				
• Conclusion				
3. How would you describe the appropriateness of the National technical support institution in the following issues:				
• Programming of each visit				
• Instructor preparation and capacity				
• Providing documentation				
• Continuous follow-up				
• Communication with company				
4. How would you describe the project benefits on the following issues:				
• Cost saving				
• Increased efficiency				
• Better working environment				
• Better working atmosphere				
• Better communication				
4.1 Benefit from specific TBL option (if any particularly relevant □specify)				
• □				
• □				
4.2 Positive impact from selected option(s) on the following issues				
• Financial aspect				
• Environmental aspect				
• Social aspect				
5. After project completion, how is the expectation fulfilled on the following issues?				
• Cost Saving				
• Increasing company efficiency				
• Reducing environmental problems				
• Development of staff and organization				
• Preparing to compete in world market				
• Increasing company competency				
6. Do you wish the project to continue?				
7. Is it possible that you will continue the TBL project in your company?				
8. Is it possible that you will discuss TBL with other companies?				