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TRIPLE BOTTOM LINE: A STUDY OF M/S. CHANDERIYA SMELTING COMPLEX, HZL

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Abstract

Since the introduction of Cleaner Production (CP) to industrial sectors in India, much effort and resources from various stakeholders have been to speed up its implementation. CP took a slow but steady start with quite a few demonstration projects, followed by capacity building activities. Even though the industries were convinced to use CP for productivity improvement, it has not been really sustained in companies and the multiplier effects are slow. The lack of a human dimension probably is a significant hindrance in making CP self-sustained in Indian industries. A few organizations took the initiative to test this hypothesis, supporting a demonstration project on financial, environmental and social issues which is called "Triple Bottom Line (TBL)". The thrust of this TBL project was to use CP as a baseline and extend its concepts to cover social issues also.

The demonstration industries undertook TBL assessment including CP and social issues like employee work hrs, compensation & benefits, freedom of association, health & safety, harassment & abuse, discrimination, use of child or bonded labor etc. The TBL assessment of CSC has provided breakthrough opportunities of improvement in non-ferrous sector. Out of these several opportunities were implemented. Preliminary results suggested that both manager and employee of CSC were satisfied with results of the project and can be depicted from the Award given by Hewitt's for Best employer also. Results indicated that not only did management enjoy the savings in each case, but also the employees got a more enjoyable working environment. Thus we can conclude that a key factor to keep CP momentum is the social and environmental bottom line, which has direct impact on employees, who are the actual implementers of CP.

Keywords: Cleaner Production (CP), Triple Bottom Line (TBL), Environnemental Botton Line

1.0 INTRODUCTION

1.1 What is TBL? TBL is the process of evaluating company performance in three dimensions: financial, environment and social using a set of indices to identify problem/focus. Consequently, systematic measures to prevent or alleviate the problem following CP procedures were applied, considering not only the economic and environmental aspects but also social issues. The three sets of indices are:

- **Financial Bottom Line:** The primary concern of the financial bottom line in the TBL context is not the accounting figures but the indicators reflecting the long term

economic value of investing in the company. The indicators employed also represent efficiency and effectiveness of resource utilization, i.e. those relating to purely finance, resource utilization efficiency, resource utilization indicator, turnover and overall effectiveness. The key figure in TBL is "Value Added", which in this context means revenue minus cost of raw material and energy. This allows us to visualize operational performance in all three dimensions, which traditional terms such as profit cannot.

- **Environmental Bottom Line.** The fundamental principle here is to minimize waste generation per functional unit. As a result, production cost decreases and environmental impact is prevented at source. Indicators employed for this bottom line are production related environmental indicators, which includes both generic parameters and those specific to each industry. In other words, CP should be employed to address environmental issues in the company.

- **Social Bottom Line.** This new area is all about labor and the quality of life in the work environment. There are eight areas of major concern, i.e., hours of work, payment and compensation, freedom to communicate, health and safety, harassment and abuse, discrimination, child labor, and bonded labor. The criteria for this bottom line are to act in accordance with national laws and registration and international labor standards.

1.2 Methodology of TBL Demonstration: Methodology of TBL consisted of five steps, i.e. gap analysis, in-house training, brainstorming, follow- up, and conclusion. Each company's TBL team assessed the condition of their business in three dimensions. Then CP procedures were used to improve existing conditions from TBL options.

1.3 Application of TBL concept: The primary purpose of TBL approach is to bring enterprises to see international pressures 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 a company like HZL 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. The two primary building blocks of improvement methodology in 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:

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

Table 1.1 Main Stages in the Cleaner Production and Social/ Human Resource Development Process for TBL

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

(a)Preparatory Phase: 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 and Releases of key Air Pollutants. An additional indicator is compliance with all applicable environmental rules, regulations and standards. The social 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 and Use of forced/bonded labour.

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. 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. The **Leading Indicators** (or **benchmarks**): 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 **Lagging Indicators** (or **benchmarks**) 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.

(b)Application phase: In This phase, the TBL teams evaluate the results of the gap analysis. 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. 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.

Gap analysis: Once the baseline data were collected, 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.

TRIPLE BOTTOM LINE REPORTING STUDY OF CHANDERIYA SMELTING COMPLEX

2.0 People Dimension: Social Bottom Line

2.1 Profile of the employees: People empowerment - We influence and get influenced for betterment

On account of expansion of Hindustan Zinc Limited there is large scale recruitment of professional from different discipline on regular basis from premier institutes and once they are exposed to basic training these individuals are deployed on various assignments in different units.15% women are contributing effectively & efficiently for the growth & development of this location. Always there is an attempt to ensure balanced amalgamation of young & experienced professionals to achieve the organization goals.

In order to provide ample growth opportunities to Non-Executives, the company has devised a Junior Executive Training Process (JET Process), to promote these Non-Executives into Executive cadre. To further enhance their qualification. Management has also launched a scheme whereby these individuals absorbed in to executive cadre are provided another opportunity to pursue their education by joining a Bsc Engineering course conducted in collaboration of BITS Pilani in CSC Colony Campus HZL ensures its compliance to employee welfare related activities. Some of the benefits offered to employees are listed below: Personal Accident Insurance, Mediclaim Insurance, Annual medical checkup, Medical Bill Reimbursement.

HZL is following group HR policy in providing services, benefits to employees. Food allowance is provided to all employees. Refreshments, Transport, uniform are provided free of cost to employees. “Zinc Nagar” - HZL Township is provided with Swimming pool, Gym, Shuttle court, Children’s Park, Indoor games etc., to enhance quality of life of employees. We have a programme called Employee Contact Programme (ECP) in which couple of members of the HR team interacts with the employees at shop floor and give feedback on their problems at work place and solutions thereof.

We grow together- Support of Key Communities

2.2 SOCIAL POLICY

At HZL/CSC, we believe in sustainable development and are committed to raise the quality of life and social well-being of the communities where we operate. Towards this, we will be guided by following:

(a) Our community development initiatives will be prioritized based on local needs. Broad areas of focus will be

- **Social Investment** – Health, Education, Livelihood, Social Mobilization & Infrastructural Development
- **Bio Investment** – Water harvesting, agriculture and animal husbandry.
- **Environment Conservation**- Social forestry

(b) All operating locations will incorporate CSR activities as an integral part of their business plan and have an appropriate organization to implement the same.

(c) We will be open to working with like minded associates, Government bodies and other volunteer organization in pursuit of our mission.

(d) We will measure and report progress as per social accounting systems and encourage third party reviews for effective delivery and measurable impact.

(e) We regularly communicate with all our stakeholders on the progress and performance on social management.

2.3 Social Vision a part of Business Vision.

Driven by this philosophy, Hindustan Zinc has been planning, designing and implementing CSR Projects on a sustainable basis. We work in partnerships with local communities whereas positively impacting their quality of life and contributing to their sustainable development, avoiding long term dependency on our operations. We also take care of human rights, respecting cultural considerations and diversity across all units in the country.

At the outset of each Community Development project we adopt a mechanism which incorporates deliverance of sustained benefits to the community. Stakeholders feedback are taken into account in the process of decision making and business planning and provide lasting benefits for the local communities through our corporate social involvement and community development programmes. We believe in the stake holder’s willingness to transform through continuous communication. Our determination is driven by the community’s commitment in owning our projects with a common goal and interests which would eventually facilitate our graduation.

We also measure and report the progress as per social accounting system for that we appoint third party/ reputed external agency for review, study and audit of our social projects. The outcome of the study helps in applying timely corrective measures and documenting measurable impact.

Right from planning to execution as well as monitoring of all the social projects we involve the Panchayat, Govt. Bodies, Community as well as other likeminded NGO's in view of our philosophy to play a role of catalyst in social initiatives as a whole.

3.0 Planet Dimension: Environmental Botton Line

3.1 Signifiant Environmental Initiatives

- DCDA Tech. with cesium based V2O5 catalyst at all Acid Plants
- Tail Gas Treatment (TGT) Plant – based on Japanese Tech. (Mescon) at all smelters.
- Cansolv Technology to concentrate lean & varying SO2 gas at Ausmelt.
- Integrated ETP with Storm Water Ponds having auto sampler, online pH and water level indicators & GSM network.
- Reverse Osmosis Plant (298 m3/hr) – largest in Rajasthan. Achieving Zero Discharge.
- Dry Fog Dust Suppression Systems at Material Handling Areas
- De-dusting and Ventilation Systems in each plant.
- Building Ventilation & Column Ventilation systems at refinery plant
- Full fledged Environment Management Cell & sophisticated laboratory.
- 3 Online AAQM Stations
- Online Multi Parameter Analyzers
- Online Stack Analyzers
- MoEF approved Agency for Environment monitoring & analysis.
- Intranet based website on HSE

We are committed to efficient resource utilization through environment conservation and protection. We were a signatory to a voluntary initiative named Corporate Responsibility for Environment protection, (CREP) in 2003.Initiated by the ministry of MoEF. We have developed a very strong CREP compliance comprising a significant reduction in Sulphur dioxide emissions and zero waste water discharge. Secured Land Fill & Jarofix Process for disposal of eco- friendly waste. We are the first in Asia and Third in world to adopt this state of art technology.

3.2 Waste Management

- **Reduce:** Notable among these projects are increasing the cycle of concentration in cooling tower of power plant in CSC, standardisation of slag granulation operation in CSC, leak arresting drives in all units, etc. Rainwater harvesting schemes are being implemented in new projects.
- **Reuse:** Waste water is utilized in plant operations, greenbelt and de-dusting operations. Used oil and waste oil are reused by disposing to registered recyclers.
- **Recycle**: Entire fly ash is disposed to cement industries. Permission has been taken permission from State Pollution Control Board to use slag in cement manufacturing. About 3 lac MT of ISF slag (CSC) was given to the cement industry to use as raw material in cement making. In a major development, Indian Road Congress (IRC) has directed NHAI to prepare test bed of sub layer and embankment by using ISF slag.

3.3 Sustainable Development at CSC

- 100% EOHS Compliance
- Aspire 10% reduction in water and Energy consumption every year
- Encourage to discover and innovate ideas for CDM Credits
- Find beneficial use of solid waste like Jarosite and Slag

- Accelerate social development initiatives around CSC
- Operational excellence
- Bottom-up Improvement Methodology
- At least two improvement projects for all
- Green belt training for all (Six sigma)
- 5S at CSC location
- Online Tracking System
- Management employee engagement and facilitation framework
- Bench Marking and best practice implementation

4.0 Economic Dimension: Profit

One of the key drivers of sustainable development i.e. financial performance is well taken care and same is depicted through following tables and graphical presentation. Financial aspects are planned, managed & reviewed at unit levels but same are prepared in an integrated manner at corporate level for the organization as a whole.

There is an impressive performance of CSC/HZL during last five Years as this has enhanced by four & five folds respectively. The exciting increase in revenue and profit is on account of increase in production, hike in LME price of Zinc & Lead, higher realization against acid sale and operational excellence.

HZL has achieved record Zinc & Lead Metal Production in FY 2007-08 of 426323MT & 58247Mt respectively, an increase of 22.4% and 30.7% as compared with the previous year. The increase in production was primarily on account of production from the newly commissioned Hydro-2 smelter and the improved performance of the existing smelting units.

We sold 338000MT of Zinc metal during FY 2007-08 an increase of 65.7% as compared to FY 2006-07, by improving sale to major domestic customer and during above period there was export of 88000 MT of Zinc metal.

Every organization is having a potential risk and HZL is also not an exception as in the recent past there was adverse impact of lowering of Zinc LME price and appreciation of rupee against U.S dollar but it was a sound conceptualization of situation which help us to overcome the adverse effect of the above by increasing the volume through operational excellence and expansion.

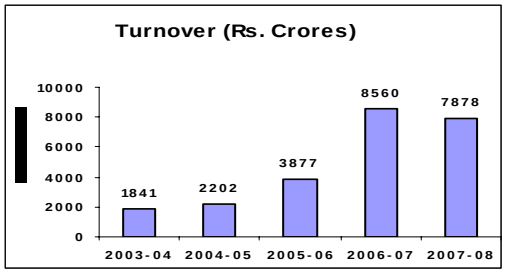

Table 4.1 Turnover of HZL for 5 years

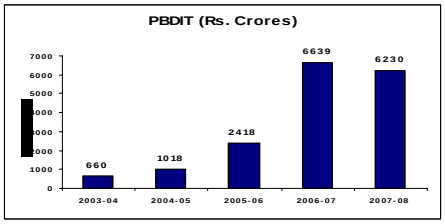

Table 4.2 PBDIT of last 5 years

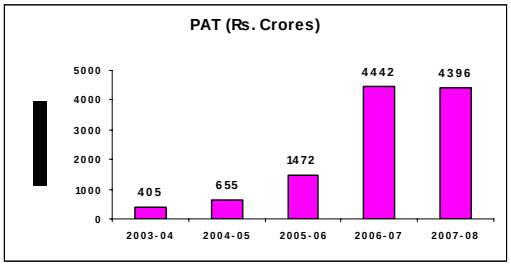

Table 4.3 PAT for 5 years

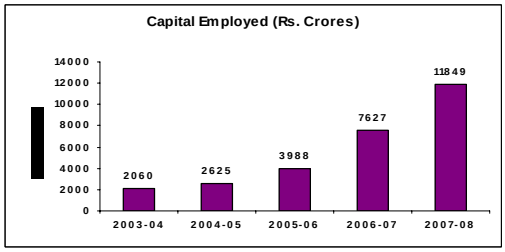

Table 4.4 Capital Employed

5.0 CONCLUSION

From the experiences in the TBL Demonstration Project in CSC, we can conclude that the results of the demonstration project have proven the importance of promoting TBL among non ferrous metal sector to improve their environmental performance and make their practices more acceptable in a manner that is financially advantageous. The TBL approach 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).

TBL approach represent a starting point to move forward and provide to Indian metallurgical sector a simple and practical tool to respond to national or international pressures on their environmental and social performance in a proactive manner. Thus the social dimension helps to sustain CP in companies. This is because it has direct impacts to employees, who are the actual implementers of CP in the firms.

The Triple bottom line (TBL) approach introduces the concerns relating to the environment and society alongside the usual business concept of profitability (the economic bottom line). However, the TBL concept suffers from at least four main intricacies:

1. Companies cannot simply put profitability on the same level as social and environmental considerations, as a company cannot survive by behaving in a socially or environmentally responsible manner while making losses.
2. Social and environmental benefits tend to be long-term before impacting on stakeholder value.
3. TBL equates social with environmental, whereas social clearly encompasses environmental as one among many other concerns.
4. Therefore, let corporations focus on creating stakeholder value as measured by profits, but in a socially responsible manner. Let us not add on a “surplus fewer deficits” approach based on environmental or social considerations. A company that does poorly on one line, namely profits, but wonderfully on the environment or social component of TBL, is not going to last long in a competitive world!

5.1 Linkages between CP Process and the Social/Human Resource Development Process: Since the CP process and that of HR Development have been designed in 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:

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

Table 5.1.1 CP and HR options at different stages in TBL implementation

The balance of emphasis that a team will give between CP 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 focus more on HR issues than CP, 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.

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