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## Integrating Climate Change Mitigation and Adaptation in the Business Strategy: Perception Vs Reality

'Change' is inevitable and so is growth in attaining development for human beings. Increased population and human desire to improve the current living condition drives growth of GDP, increased use of motor vehicle, increased number of ships in operation, urbanisation and so on. It finally impacts our environment heavily. Use of natural resource, fossil fuel, electrical energy, industrial products increases and part of the flora and fauna are sacrificed for human living (dwelling and agriculture). Use of higher quantity of fossil fuel and other natural resource, generates higher volume of CO2 emission (Green House Gas) and depletion of forest deprives us from absorbing part of the GHG generated and makes the situation even worse.

The basic cause of climate change and global warming is continuous increase in GHG (Green House Gas) in the atmosphere. Impact of global warming is well known to us. It not only destabilises the ecological system (severe and frequent floods, draughts, hurricanes, heat waves, wild fires etc.), but also causes many types of new and unknown tropical diseases. Many living species, fruits, vegetables and crops are likely to get extinct due to global warming if appropriate action for controlling and mitigating GHG generation not taken immediately. Any delay in control action may be too expensive and may become irreversible.

Global level talks are on for developing good understanding about the severity and agreement between nations for contributing positively towards mitigating global warming. Commitments at the level of various governments are not enough to curb climate change and global warming to a level to provide a safe and healthy environment to living beings. We need to create mass awareness about the impact of global warming amongst people, mainly from developing countries, impressing them to adopt sustainable life style based on the principles of 3R- reduce, reuse, and recycle.

The concept that buying raw food items from market is a green practice, which supports sustainable living, compared to buying processed food needs to be impressed. Processed food consumes lot of electric energy which results in CO2 emission and global warming.

As per IPCC, individuals could contribute towards lower emissions by changing their diet, reducing food waste, and modifying consumption patterns such as mobility demand and modes, energy use in households and choice of longer lasting products. Such changes in behaviour may improve energy efficiency by 20 to 30 % in 2030 (medium evidence, medium agreement).

In developed countries, lifestyle and behavioural changes could reduce energy demand in buildings by up to 20% in the short term and by up to 50% by mid century.

Climate change is a fact of life. We need to act urgently if we are to

avoid an irreversible build-up of greenhouse gases (GHGs) and global warming at a potentially huge cost to the economy and society worldwide. It is time to commit for green and sustainable economy by all the nations, all the corporates and business owners and by all the individuals.

As per IPCC report without mitigation efforts beyond those in place today, greenhouse gas concentrations would reach 750 to over 1300 ppm CO<sub>2</sub>eq by 2100 (versus 400 ppm now). Global surface temperature would increase by 2.5 to 7.8 °C over pre-industrial levels (high confidence).

Scenarios limiting CO<sub>2</sub>eq concentrations to about 450 ppm by 2100 – necessary to limit global warming to 2 °C above pre-industrial levels – require greenhouse gas emissions that are 40% to 70% lower in 2050 than in 2010, and near zero in 2100. This requires large scale global changes in the energy supply sector.

OECD analysis suggests that if we act now, we have 10 to 15 years' "breathing space" during which action is possible at a relatively modest cost. But every year of delay reduces this breathing space, while requiring ever more stringent measures to make a difference.

By 2050, the emissions from the energy supply sector are projected to triple compared to 2010, mainly from the electricity used in buildings and industry. Emissions from transport and buildings are projected to almost double, unless improvements in energy efficiency are accelerated.

Apart from individual commitment to support sustainable and green economy, commitment from business houses and governments is of utmost important. Government must come out with incentive policies, R&D initiatives and policies in terms of taxation which can curb production GHG.

A holistic approach to curb climate change is to commit to "Sustainable Development" and follow triple bottom line concept. It should be made mandatory to publish Sustainable Report for all the entities, private as well as state owned.

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED 1987-2)

SD focuses on three major component of business – Commitment to protection of Environment in which the organisation is operating and likely to affect the climate and the ecological aspects, commitment to People around business operation: wellbeing and development of employee as well as the society around and also to improve the business results by adopting improved business tools and installing culture of continuous improvement.

Sustainable development aims at finding a balance between social-wellbeing, ecological quality and economic prosperity (Cramer 2006). This balance of economic environmental and social responsibility in an integrated management concept is called triple bottom line (Panwar et al. 2006)

Why organizations, particularly SMEs, are hesitant to integrate Sustainable Development into their business strategy? There are some misconceptions like -

- SD is unproductive,
- it shifts the focus away from business,
- it is a financial burden,
- it is anti-growth
- SD is for big corporate houses only.

The fact is that in developing countries, more than 90% of all firms outside the agricultural sector are SMEs and microenterprises, generating a significant portion of GDP. In Bangladesh, enterprises of less than 100 employees account for 99% of firms and 58% of employment. Commitment of SMEs for Sustainable Development principle and integrating Climate Change in the business strategy is a must for safe living tomorrow. Government has to think of policies and measures to involve SMEs for such commitment.

Of course, poverty remains a major challenge to sustainable development, environmental security, global warming. Global wealth has almost doubled since 1990, but nearly half the world's population still survive on less than US\$ 2 per day. The key to poverty eradication is economic growth that is inclusive and reaches the majority of people. Improving the performance and sustainability of local entrepreneurs and small and medium enterprises (SMEs), which represent the backbone of global economic activity, can help achieve this type of growth.

It is also true that -

"Many leading corporations are no longer seeing environmental stewardship (or responsibility to stakeholders other than shareholders) as a cost- a necessary evil. They are seeing these responsibilities as opportunities, a potential source of competitive advantage. Although this is not yet true for the vast majority of smaller firms to the extent that leading companies change and set the terms of engagement and proactively address their social impacts to reduce costs and risks, win customers, and win reputation, the smaller firms will have to follow in order to stay in the game." (Steve Percy cited in Laszlo 2003, p.xiii)

Summary:

- A. Integrating Climate change in business strategy and committing to Sustainable Development principle can curb global warming by preventing climate change, if followed by all business houses and individuals.
- B. SD responsibilities should be viewed as opportunities, a potential source of competitive advantage. Proactively addressing the social impacts reduces costs and risks, win customers, and win reputation.
- C. Climate change issues cannot be pushed for tomorrow, we need to act now.

*"The future is literally in our hands to mold as we like. But we cannot wait until tomorrow. Tomorrow is now."* - Eleanor Roosevelt

A case study of a Mid-size manufacturing entity:

Imerys Steelcasting India Pvt. Ltd.

#### Introduction:

Imerys Steelcasting India Pvt Ltd is in the business of manufacturing continuous casting fluxes (CCF) for the steel industry. The company was incorporated in 1999 in Kolkata as Stollberg India private Limited as a 100% subsidiary of Stollberg GmbH, Germany under the aegis of the Degussa, Germany.

Commercial production started in 2002 complying with the strict specifications of Stollberg GmbH. In 2002, Fosco India's Mould Flux (AFAX) related business was acquired, giving Indian customers a wider choice of Product and Technology through a single window.

In March 2015, Stollberg India Pvt. Ltd. has become a 100% subsidiary of IMERYS Group, the world leader in Industrial Minerals having Headquarters in France. From April 2016 name of our Company has been changed to IMERYS STEELCASTING INDIA PVT. LTD.

Steel industry is the second most contributor to Global warming after fossil based Power plants. More than 3 MT of CO<sub>2</sub> is generated for making 1.00 MT of steel in the emerging countries, through the amount of GHG is little less for developed countries, due to strict norms for emission control. Any improvement in yield or quality of steel mitigates GHG emission substantially.

#### Journey through 2002 to 2011: Early days

Imerys Steelcasting India (formerly Stollberg India Pvt Ltd) started operations in 2002 at Durgapur, West Bengal, manufacturing continuous casting fluxes. It was awarded with Golden Peacock Award for Innovative Product/Service in the first year of operation. The realisation that consistent Quality standards makes one leader in the industry and preferred supplier to the steel industry has been there since inception. Consequently, it worked for developing Quality Management System and was certified as a ISO 9001:2008 complied company in 2004.

With increased business and consequent competition, SIPL (Stollberg India) continued its commitment to Quality, and expanded its horizon to environment and Safety Management System and certified with ISO 14001:2004 for Environment Management in 2007 and OHSAS 8001:2007 for Safety & Health Management System in the year 2009.

From 2006 the steep growth in Chinese economy, which continued till end of first decade of 21<sup>st</sup> century, caused sharp rise in price of commodities and all kinds of natural resources, which are the basic input material for our product. It also had unprecedented rise in freight cost led to increased production cost. However, to protect market share and to cope up with the pressure from local competition, product pricing could not be increased resulting in depletion of margins.

#### Journey through 2012 to 2015: towards Sustainable Development

In the year 2012 there was a change of leadership with a challenge to get back lost margins at the soonest possible. New Management had no other option than to think of giant leap through effective change management implementation. Extensive training was organized for developing skills and basic understanding/competence of the managerial as well other employees. Employees were trained on effective use of lean manufacturing tools to improve efficiency and

contribute to bottom line of the company.

New management also decided to integrate climate change mitigation and adaptation into the business strategy and stressed on following Sustainable Development practices for developing competitive edge and lowering the cost of production. Emphasis was given on Reuse, Reduce and Recycle policy and consequently bring down production cost. People were taught to think differently and work differently.

Improvement projects were identified for mitigation and adaptation of climate change, quality improvement, cost reduction, creating additional value to customers, improving productivity and yield of product, making work place safer etc. Focus was shifted to employee welfare, employee participation and employee empowerment.

Some of the projects related to GHG mitigation are -

1. Preservation of natural resource - promotion of Auto Flux Feeder
2. Increased use of industrial waste for our product (>15%) - product formulation optimization
3. Projects related to electrical energy saving (at least 5% over 3 years) - LED, Turbo ventilator, transparent sheet
4. Projects related to reduction of fuel (CBM) (at least 5% over 3 years) - Process optimization and redesigning
5. Reduction of water (at least 7% over 3 years) - process optimization and
6. Zero effluent discharge policy -
7. Reduce waste in process - yield improvement
8. Increase productivity - process improvement
9. Emission below 2/3 of statute - policy

In 2014, ISIL put forth a major global warming mitigation plan - It substituted manual feeding of fluxes with Auto Flux Feeders (AFF). This reduced flux waste over 12% resulting in saving of natural resources to produce these fluxes. Each AFF reduces caster defects up to 0.5%. Assuming 0.1% of quality improvement for a 1.0 mtpa caster, it is equivalent to 2500 MT of steel per year. Since steel production in India results in about 3 MT of CO<sub>2</sub> generations, each AFF contributes to saving of 7,500 MT of CO<sub>2</sub>/yr. Last year we have installed 7 such feeders in the steel plants contributing to reduction of 52,500 MT of CO<sub>2</sub>/yr. This is a tremendous saving compared to our own factory contribution of only about 6,000 tons CO<sub>2</sub>/yr.

These change initiatives resulted in extremely motivated employee ready to take up challenges, innovative approach towards problem solving, higher level commitment towards safety and health, commitment to ethical business practices, human rights issues etc. It also resulted in improved and consistent quality of product with reduced cost of production. We are able to combat any challenge from local competition, be it a price issue or locational advantage.

We received SA 8000 certification in 2016.

Some of the initiatives related to adaptation of GHG are -

1. Preservation of wood (forest) - Replacing paper carton for packaging by bulk bag Each carton saves about 12 kg of paper. 1000 Carton boxes save 144 trees equivalent to 3 tons Co<sub>2</sub>. We are using 14000 cartons/year which is equivalent to preservation of about 2000 trees or 42 MT of CO<sub>2</sub> equivalent
2. Rain water harvesting - It has already conceived this project this

year which will be executed in 2017.

3. Tree plantation
4. Use of renewable energy - Solar energy and wind-solar energy are other sources of energy which ISIL is actively considering for implementation in 2017

ISIL's journey continues. It started working for Energy Management System ISO 50001:2011 last year. Planned to get certified by Q3 of 2016.

Sales policy was modified. Emphasis was given on building long term relationship and partnership rather than selling product. Sales concept was changed to Solution Provider from Supplier of product. To create additional value to customers, many additional services were designed and provided to customers, which was not possible to provide by the competitors.

The result is continuous double digit growth of market since 2013 though actual growth of steel industry has been less than 5% for last so many years. We could manage to get unprecedented price increase from our customers. Our margins are back to expectation (Ref. Fig. 1). Company EBIT grew more than 10 fold in three years (Ref. Fig. 2). All these could be done through improved trust and confidence of the customers adopting transparency, honesty and partnership as business policy.

Figure - 1  
(Trend of Sales volume, price and Margin - Pre and Post implementation of Change initiative towards Sustainable Development)

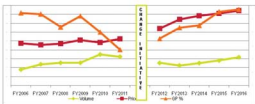
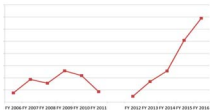


Figure 2 - Trend of EBIT of the company



#### Conclusion:

The general perception that commitment to Sustainable Development and combating Climate Change is waste of time, manpower and resources has been proved otherwise by ISIL as can be seen by its business performance from 2012 till date as shown above.

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