



In the last 50 years, the mankind has prospered a lot through Industrialization & Urbanization. It has helped to increase the per capita income,

The fuel that we burn within our premises & the emissions generated within premises are called as scope 1 emissions. In India, the electricity that we consume is typically produced in coal based power generation units which have severe emissions in their plants. Thus the electricity that we consume, is calculated in to emissions & is considered as scope 2 emissions as they are not in our premises. The best way to reduce GHG & other polluting gases emissions is to reduce the consumption of electricity & oil. Under the guidance of our MD & COO, we started working in forge shop & blooming mill wherein we installed oxy fuel technology. *Using this technology we have reduced the oil consumption & hence the direct scope 1 emissions to the extent of 25 %. Also our electricity consumption is improved by 10 % on per tonne basis.* In addition, we have started using energy from *renewable sources* which do not emit pollution & reduce our prime coal based electricity consumption & hence the emissions. The best way to reduce the atmospheric pollution is to *grow trees* as they absorb these gases & emit fresh oxygen in the air. Everyone will be happy to read through this flyer our progress on GHG reductions & Pollution Reduction.

education levels & average life size.

However we kept on consuming natural resources & in turn gave back all the pollution to the mother earth. As a result, 13 Million hectares of forests are lost every year, deaths because of air pollution have increased to 3.3 million every year. Average temperature is on rise year after year, extreme climatic events are on a rise. Every one today is talking about greenhouse gas GHG emissions & other hazardous polluting gases. *Green House Gases are capable of absorbing the infrared radiations, thereby holding the heat in the atmosphere. This is nothing but the greenhouse effect that is leading to global warming. Greenhouse gases include water vapor with 3 atoms Ozone O3, carbon dioxide CO2 & methane CH4.* The source of generation of greenhouse gases, CO2 & other hazardous polluting gases like Sulphur dioxide SO2 & nitrogen dioxide NO2 are the fuel oil that we burn in our various heating furnaces & the electricity that we consume.

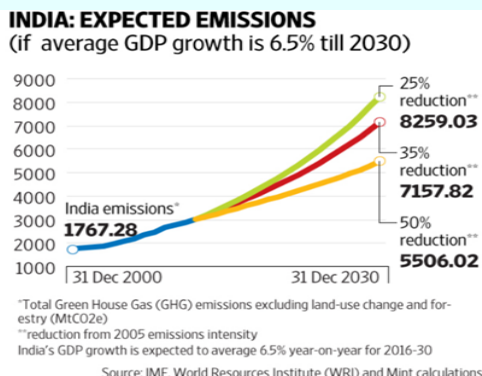
- Mr. R. S. Rane  
Business Excellence Cell

**Expert Talk**

**India's Climate Change commitments : What does the ambition mean**

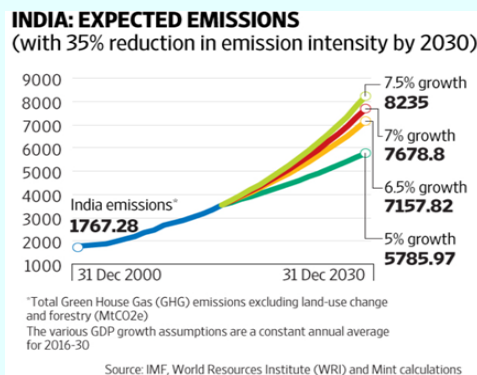
**WRI (World Resource Institute) is a global research organization that spans in more than 50 countries. Their experts and staff work closely with leaders to turn big ideas into action to sustain our natural resources - the foundation of economic opportunity and human well-being. Their work focuses on six critical issues that lie at the intersection of environment and development: climate, energy, food, forests, water, and cities and transport.**

India in COP21 which was held at Paris in 2015 has made its most ambitious, and probably one of the most significant commitments globally in addressing climate change. Invoking the way of life prescribed by Mahatma Gandhi in its Intended Nationally Determined Contributions (INDCs), *India has committed to an overall reduction in its greenhouse gas intensity by 33-35%. Additionally, the country has also listed down goals to meet its energy needs in a sustainable manner by committing to have 40% of its installed capacity from non-fossil fuel based sources* – a far reaching goal considering 250 million people still lack access to electricity and more than 80% of its energy currently is based on fossil fuels (mainly coal and gas). The commitments also focus on specifically investing into carbon sequestration and supporting an increase in relevant forest cover that brings in additional co-benefits as well.



While the latter two are more measurable the intensity goals are more important (considering a derivation of GDP, and business/economic growth).

With the scale of Indian economy (being the third largest in the world), the absolute emissions can vary significantly as can be seen from the analysis below:



- Mr. Vivek Adhia  
WRI

Increase in manufacturing growth as expected from fiscal and policy measures like "Make-in-India" put the impetus back on the business/industrial sector (both the private and public sector undertakings) in making sure, *best available technologies* are applied at a wider scale. Fortunately, with the *Perform Achieve and Trade (PAT)* scheme, renewable energy subsidies and mandates – certain sectors within Indian businesses (including cement, steel etc.) have taken a quantum leap in demonstrating measures that are not only environmentally sustainable but also positively impact the bottom line. What follows in the next 3-5 year timeframe, will clearly decide India's transformation to a low carbon economy – and yes, the most important influence would come in from businesses and GHG practitioners associated therein.



Global climate change is a matter of immense concern and public importance. There can be little doubt that human beings influence the world's climate. The greatest minds all over the world are working to better understand

climate change and its impacts on life on earth. Greenhouse gas emissions play an big role in Climate Change. Estimates for greenhouse gas emissions are the responsibility of individual Industries.

*In 2013, MSSSPL prepared 5 years strategy to deal with issues which will arise due to Climate Change. We have set an ambitious goals of achieving 50% reduction in pollution level by 2018 while we aim to reduce our GHG emissions by 60% by 2019.*

The project design and execution excellence of each aspect is finalized with a cross functional team involving members across the organizational hierarchy. With current global scenario we as a company will be facing regulatory norms in future. To meet GHG emission norms, it is essential for us to reduce our emission like carbon dioxide, NO<sub>x</sub> and SO<sub>x</sub>. We have successfully implemented Oxy-fuel solution for reheating furnace at blooming mill and forge shop in 2013, 2014 and 2015. It has resulted in reduction of hazardous

gasses like NO<sub>x</sub> to ZERO and CO<sub>2</sub> by 50 %, total flue gas volume is reduced by up to 80%.

We are looking forward to use natural gas technology for all primary and secondary furnace in our plant. Natural gas is quiet clean source which will reduce our GHG emission to atmosphere. We are waiting to receive the Natural gas through pipeline for which contact are signed with Gas Authority of India Ltd.

Sourcing renewable energy helps to minimize GHG emission related to consumption of electricity from grid. This is also the basic Clean Development Mechanism supervised by UNFCCC.

Now renewables are expected to grow faster than any other primary energy source in coming years, by an average of 6% per annum. We have set the goal to achieve energy generation through 4MW roof top and ground solar system.

*MSSSPL is confident that above initiatives will reduce the GHG emissions and it will be at par with best Sustainable Steel Industry.*

**- Mr. Shivaji Bhapkar**  
**Mentor: GHG Reduction team**

**Team Member**

Mr. Shivaji Bhapkar (Mentor)  
Mr. Utsav Tayade (Leader)  
Mr. Prasad Giri (Co-Leader)

**Supplier Corner**

**GHG & Pollution Control Measures at IFGL**



IFGL Refractories Ltd, a Rourkela - Odisha based company is a supplier of continuous cast refractories to us. IFGL REFRACTORIS LTD has on-going programmes to take care of Health, Safety and Environment

and in this connection necessary actions, including installation of pollution control equipment, as and when required are taken. Manufacturing processes undertaken by the Company generate insignificant quantity of pollutants. However to contain them soaking pits, bag filters, wet scrubber and ETP etc. have been installed. Plantation cover in and around manufacturing facilities has also been maintained. The company has obtained its Certification of Environment Management System : (EMS) / ISO 14001:2004 from TUV NORD INDIA PVT. LTD.

**IFGL REFRACTORIS LTD has taken few initiatives to reduce greenhouse gas emissions and minimize pollutants as follows:**

**Reduce, Reuse, Recycle. (3R) :** we have taken initiatives strengthening waste management system by adopting 3 R practices to prevent reduce CO<sub>2</sub> and minimize pollutions.

**Plantations :** we have planted 200 trees inside & outside factory premises and distributed 60 trees at Priyadrashini school and Slipachnchal School for plantations.

**Waste water utilization :** We are operating full fledged Effluent treatment plant (ETP), where 40 KL waste water is being treated and reused & recycled in the process, toilet flushing, road sprinkling etc. We are Zero discharge waste effluent.

**Air Pollution Measures:** We have air quality ambient monitoring and stack monitoring and fugitive monitoring at regular intervals. We always ensure pollutant parameter within the limits and adequate preventive measures have been ensured to minimize air pollutants.

**Hazardous waste:** Adequate environmental prevention measures have been taken to minimize generation by 3R's (Reduce, Reuse and Recycle). We ensure safe collection, handling, storage and safe disposal of Hazardous waste through authorized recycler or reprocessor of state pollution control Board.

**Emergency Response Plan :** we have a well-documented Emergency Response Plan. Could go a long way in containing the consequences of an emergency of hazardous and other waste and help in saving precious lives, loss of property and restoring normalcy at the earliest.

**IFGL REFRACTORIES Authority**

## Pollution Control @ MSSSPL



### MSSSPL Environmental Sustainability initiatives :

In order to protect the environment we have taken many steps to manage the impacts. For example, we have reduced the amount of water use & ensure that clean water goes back to the environment from the steel plant. We also ensure that biodiversity and air quality is not threatened by the plant

activities.

**Water Management:** Relatively large volumes of water is being used in steel making, and is mainly for non-contact cooling and is returned back to the source with no loss of quality. Proper water management is part of an effective Environmental Management System. We have installed Sewage Treatment Plant of capacity 800 m<sup>3</sup>, domestic waste water is being treated in STP and used for gardening purpose.

**Air Pollution:** As a responsible steel manufacture we are aiming to minimize our emissions to atmosphere. All Emission sources are mapped and are being monitored regularly. Emission reduction is achieved through innovation and process improvements.

We have extensive investment programs in place to improve air quality. These schemes include site greening, segregation of clean and dusty activities, installation of dust suppression systems and road infrastructure modifications. Aspect document for Pollution Control is prepared and is continuously reviewed by top management.

Primary Fume Extraction, Secondary Fume Extraction, LF Fume Extraction system are already placed and maintained well for mitigation of Air pollution. MSSSPL have also installed Shot blasting M/c (Ring Div.) & Centro Masking M/c (Cond Shop) with high technology of pollution preventions.

**We are monitoring quality of air (Ambient & Work place) on monthly basis throughout the plant. All our emissions are within statutory norms**

**Waste Management:** Our most significant by-product, in terms of volume, is EBT furnace slag. We have initiated a project by

adapting advanced techniques to extract the iron content from slag. Some waste from our operations is unavoidable, but our aim is to ensure that as much as possible is reused, recycled or recovered.

We are complying with all Legal Statutory related to Industrial Waste Management

**Biodiversity:** Within the steel industry we are examples of how companies have created natural reserves for threatened species, we have encouraged employees to join natural conservation initiatives. We have an area reserved for natural biodiversity where various kinds of plants, Climbers & reptiles can be seen.

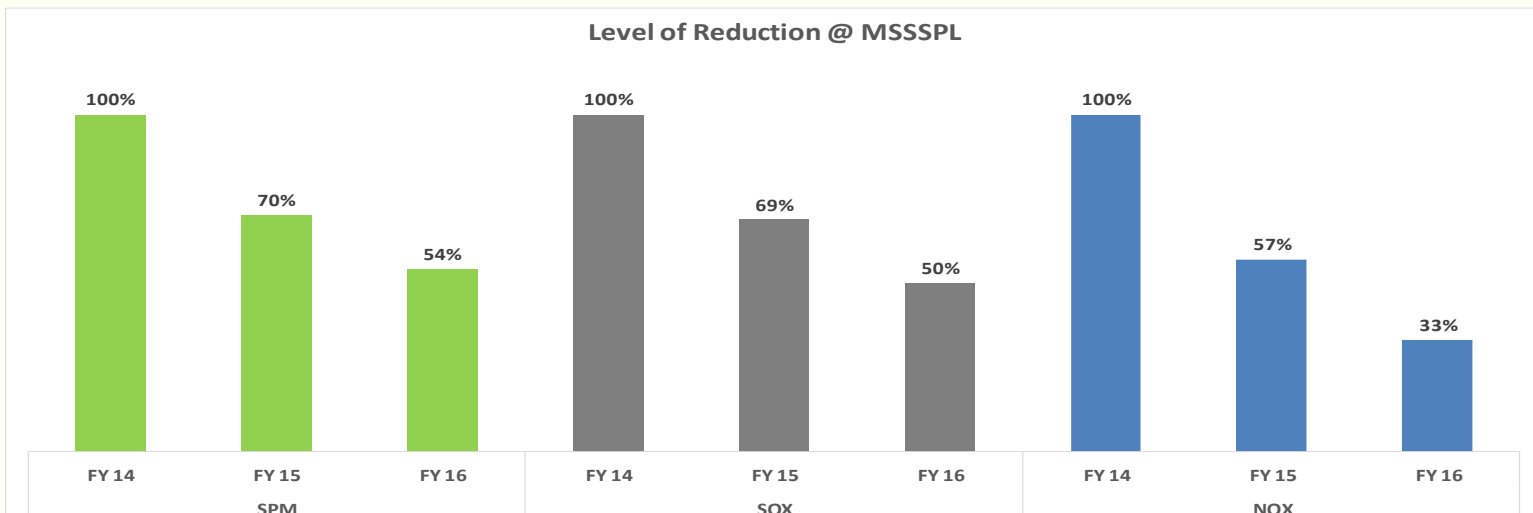
With all above initiatives, we are sure that all types of pollutions will be under Regulatory norms & under control.

**- Mr. Hanumant Chavan  
Leader: Pollution Control team**

### Team Member

- Mr. Niranjan Purandare : Mentor
- Mr. Kailasnath Uthale : Leader
- Mr. Hanumant Chavan : Co-Leader
- Mr. Arjun Nanaware : Member
- Mr. Manoj Hatankar : Member
- Mr. Vijay Prabhune : Member
- Mr. Tejas Thandar : Member
- Mr. Prabhakar Gawade : Member
- Mr. Shivaji Bhapkar : Member
- Mr. Basaprabhu : Member
- Mr. Sushil Dhake : Member
- Mr. Sandeep Shiral : Member
- Mr. Manoj Jagtap : Member
- Mr. Jayprakash Tiwari : Member
- Mr. Ravi Kamble : Member
- Mr. Vilas Ghosalkar : Member
- Mr. Ramesh Nimbalkar : Member
- Mr. Sudam Aawad : Member
- Mr. V.D.Jadhav : Member
- Mr. Sada Patil : Member
- Mr. T. S Kadam : Member
- Mr. P.V. Battewar : Member
- Mr. Ramesh Solanki : Member
- Mr. Ramesh Khanvilkar : Member
- Mr. R.K.Jain : Member
- Mr. Shivaji More : Member

Level of Reduction @ MSSSPL



**Pollution control from the eyes of employees & communities**



We have been into steel manufacturing for a long time, to be precise 54 years now. There is very strong probability that over these years our activities

and operations of our industry has degraded or polluted the environment. While the pollution in broad is divided into four air, water, noise and land. Over our interaction with the Community on various initiatives in recent past, it has been brought to our notice how the community around feels that we are contributing to air and noise pollution with our operations.

Though we have systems in place like fume extraction system ( FES) to capture the fume released from different processes, we still have a great scope to work on our fugitive fumes like those generated from dumping of the scrap and slag.

In attempt to reduce our emissions we have replaced a number of reheating furnaces from oil to liquid oxygen and this

has substantially reduced our emission from the furnaces.

The recent area of complaint is the slag dumping that is happening inside the company premises, which gets carried away by the wind and rains. It may be noted here that company has initiated a project to remove Steel/Iron content from slag. With this separation Iron will go back to melting & the balance slag will be an input to the road builders.

Major contributor of noise pollution is Scrap melting process and rolling operations. Rest all other operations do not create much of noise. Arcing between electrodes creates a noise. Employees working near furnace are provided with ear plug to safeguard their ears.

**Mr. Pramod Ingle**  
**Leader : Stakeholder Engagement & Materiality**

**SAVE Our Planet**



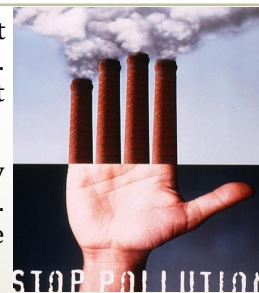
Before explaining about 'environmental balance', let me tell you something about environment and what is it all about. It is a correlation between soil water and air and its effect on living beings. To make environment ecofriendly, we have to adopt a forestation along with protection of forest and animal life.

Contaminated, polluted water & effluents being left untreated and drained into the river severely affect the biological life of animals. Also the industrial smoke cause health hazards to human life.

So there should be a proper and advance method developed to minimize the same. This can save human life from life-threatening diseases. Proper effluent treatment can save the destruction of animal life.

It is also a social responsibility of every citizen to protect our earth from pollution and other contaminations. Good forestation, controlled sound pollution and proper water quality can save our earth and enhance human & animal life.

Let us endeavor to keep balance between concretizing & forestation & be friendly with nature.



**STOP POLLUTION**

**- Mr. S. N. Pisal**  
**( Mill Operator - II )**  
**Rolling Mill**

**ENVIRONMENT SUGGESTION**



Industrial waste and effluents are to be processed or treated before draining them out in the river. Such treated industrial water basically can be recycled & used for gardening and chilling plant, wherever necessary. To treat waste industrial water at last stage, there is a process called, '**Root-Zone process**'. Here a sort of grass plantation is made on a mud-banking over a little height. Then water is supplied to the roots of grass plants. This grass has a unique tendency of absorbing oxygen from the air through its porous root-stems. This oxygen when reaches to the water through root-ends help to grow some water bodies and insects who clean the water at other end. This clean water can be used for other purposes. This grass plant species is called 'Fragments.' *We can try this for cleaner and natural eco system to improve environment balance.*

**- Mr. Vinayak Patil**  
**( Technical hand )**  
**Conditioning Shop**



**Mega Sapling Project**

To take care of various GHG emissions & other polluting gasses, forestation is the best way of offsetting. *We at MSSSPL decided to enter into an ambitious project of tree plantations with IORA Ecological Solutions Pvt Ltd, United States Agency for International Development USAID (Forest -Plus) and The Government of Madhya Pradesh.*

- August 2014** MSSSPL informed IORA about the capacity to grow 50,000 saplings for afforestation.
- May 2015** USAID & IORA sent trainer to MSSSPL for seven days on job training to develop nursery.
- Jun 2015** Bed preparation and sowing of seeds for Bamboo (80%), Teak & Sheesham trees ( 20%).
- Jun 2016** IORA sent trainer for harvesting, packing and transportation.
- 01/02 Jul 2016** 45,000 Root-Shoot of Bamboo/ Teak and Sheesham

**Harda : Madhya Pradesh**

We have provided 37,000 bamboo saplings to Harda district as a part of the district's ambitious plan to plant 3.7 million bamboo saplings during the onset of the Monsoon. The main purpose is twofold, firstly to create an asset for the farmer and secondly to protect natural rain water channels in the district. The farmers are being encouraged to plant along the rain water channels. The district administration is hand holding the project through the entire supply chain (sapling to market). Forest department is assisting the farmers in plantation and the MP state bamboo com-

mission is assisting in post plantation upkeep, is monitoring survival, training and advising on harvesting, and also creating a market for bamboo. There were talks

on exploring ways to earn and trade in carbon credits.

A cooperative credit society has also come up which provides credit against collateral of your trees.

**Village - Randhal : District - Hoshangabad : Madhya Pradesh**

MSSSPL supplied 6,000 Bamboo / Teak / Sheesham saplings to Village Randhal. The main purpose here was to create assets for the Gram panchayat through MNREGA on panchayat land. Village Randhal is a well-run village, chosen as one of the top 30 villages in the country. Located on the banks of the Narmada.

The state government aims to keep the Narmada free of all chemical toxins and is promoting afforestation and organic farming along its banks. Village Randhal has atleast two certified organic farmers.

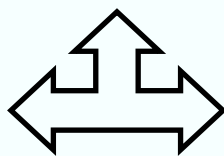
**- Mr. Rajib Basu  
Personnel & General  
Administration Depart-**



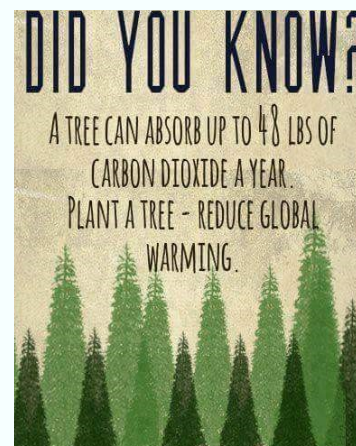
**Inconvenient Facts**

**Major Impacts of Climate Change**

- ⇒ Sea level rise
- ⇒ Warming oceans
- ⇒ Global temperature rise
- ⇒ Shrinking ice sheets
- ⇒ Extreme events



In 19 of 40 nations survey, climate change ranked as the biggest worry



**Customer Corner****GHG & Pollution control measures at Mahindra CIE Automotive Ltd. (Forgings), Chakan****Mahindra CIE**

Mahindra CIE Automotive Ltd. (Forgings), Chakan is committed to Sustainability through various measures for proper balance between Planet, People & Profit. We have prepared road map for FY15-17 wherein various targets are taken and action plan prepared to achieve the same. Under Environment Pillar, one such target was reduction in GHG Emission & Pollution control. We have tried to achieve this target through number of initiatives like :

- 1.Analyzing flue gas composition and taking necessary action for less emission of Flue gases in atmosphere.
- 2.Improving logistics through sustainable supply chain. Shifting from Wooden packing to material packing. Engaging bigger capacity vehicles for domestic as well as export consignment. e.g. 27T vehicle instead of 20T vehicle and 20T vehicle instead of 15T - 20T.
- 3.We have started practice of not sending empty vehicle, for eg. our supplier sends us Raw material and same vehicle is sent back with Scrap material being sold to the same vendor.
- 4.Developing local suppliers, encouraging car pooling.
- 5.Have developed Garden in Village Ambethan for increasing green cover.
- 6.Have Organized PUC camp for all type of vehicles coming in Fac-

tory premises.

- 7.Tree Plantations in nearby school and villages by active participation of MCIE Volunteers and local people.
  - 8.Using Bio-LDO instead of LDO resulting in decrease of SOX and NOX level creating clean environment.
  - 9.By decreasing tray height from 100 mm to 90 mm, tray weight reduced from 114 kg to 104 kg resulting in less LDO consumption.
  - 10.By introducing vertical loading for crankshaft resulting in less LDO consumption by 3000 ltrs per month.
  - 11.By closing hardening furnace blower partially reduction of O2 percentage in Furnace resulting in less consumption of LDO and emission of lesser flue gas.
- By installing Recuperator on BOFCO Hardening furnace, reduction of LDO by 5 ltrs per MT and low temperature flue gas in atmosphere & reducing global warming.

**Mr. Sanjiv Pise (Head-QMS)**  
**Mr. Bajirao Patil (Head-HT )**  
**Mr. Hemant Shinde (Sustainability Champion)**

**The following pollutant is not contained in the vehicular exhaust emissions**

**1. Lead 2. Ammonia 3. Carbon monoxide**

**Quiz Time :**

*(Be the first one to SMS the answer with your name @ 7720091891 & get a prize for the same.)*

**CARBON PRICING**

As we all are aware that GHG emissions are undesirable & Globally there has been an Universal agreement to have a tax on carbon emissions. Internationally a committee has been formed to work out an

that will speed the low-carbon transition for everyone is carbon pricing. Putting a price on carbon brings home the true cost of carbon on people's health, the state of our economies and the future of

**CARBON PRICING CAN UNLOCK CLEAN INNOVATION AND INVESTMENT : Mr. Anand Mahindra - Chairman Mahindra & Mahindra**

efficient and acceptable financial model / Carbon tax / Price on carbon. *It is a pride moment for all of us that our Group Chairman Mr. Anand Mahindra is on this Global panel.*

our planet.

The panel provides political momentum to complement the voices of government and industry leaders in the Carbon Pricing Leadership Coalition – an action based platform set up on the back of support for carbon pricing from 74 countries and 1,000 companies at the United Nations Climate Summit in September 2014.

As per latest data from CDP show that more than 1000 companies globally currently have an internal price on carbon or are planning to implement one in the next two years.

Today, nearly 40 national and 20 sub-national jurisdictions are participating or preparing for a carbon price. Business leaders are standing up in support of a price on carbon as an effective way to incentivize low-carbon growth and lower greenhouse gas emissions.

India is also starting to experiment with carbon pricing as we can see the high excise on crude and crude product is being imposed.

Increased carbon control will galvanize us towards the innovation and leading company / individual to think about energy saving and reducing own environmental footprints.

For Further details of carbon pricing panel visit :

<http://www.carbonpricingleadership.org/carbon-pricing-panel/>

**- Mr. Prasad Giri**  
**Co- Leader GHG**

Carbon price, is the amount that must be paid for the right to emit one ton of CO2 into the atmosphere. One of the most powerful tools