

# ***CARBON TRADING SCHEME/CARBON CREDIT***



ગૃહિત્વ- “બાયોમ”

*“Balance the Innovative Opportunities into Heave for the Management of environment to protect the earth.”*

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2

## THE FIVE MANTRAS OF BIOHM

- Be Kind with Nature!
- Improve the Environmental conditions!
- Overcome the Pollution Potential!
- Hope for the Best. Do the things Right at very first.
- Manage the environment to protect the earth.



3

## ABOUT BIOHM

- Biohm Consultare Private Limited (**BIOHM-बायोम**) established in 2018 having its registered office at 705, Luxuria Business Hub, Near VR Mall, Dumas Road Surat, Gujarat.
- The legal entity of the company is private limited registered under Companies Act 2013.
- We at Biohm, are providing environmental consultancy and engineering solutions to our client.
- Our commitment towards quality services through systematic approach confirming constant development through intermittent reviews of performance.





4

## BIOHM VALUES

### ➤ *Safety*

We create a working environment that promotes safe performance.

### ➤ *Quality*

We always strive for excellence in the services we provide and in the results we produce.

### ➤ *Integrity*

We are committed to the highest ethical standards.

### ➤ *Creativity*

We believe in looking at challenges and opportunities and in exercising our curiosity.

### ➤ *Accountability*

We take responsibility for all of our decisions and actions.

### ➤ *Teamwork*

We work together to succeed.







## BIOHM POLICY

*Biohm is dealing with Environmental Consultancy and Engineering Solutions which satisfies the statutory, regulatory, stakeholders' and others' requirement. BCPL has commitment towards quality services through systematic techniques confirming constant development through intermittent reviews of performance.*



6

# BIOHM SERVICES

- Environment Clearance (EIA)
- Forest Clearance
- Wildlife/CRZ Clearance
- Modelling Studies
- Marine Studies
- Land Use /Land cover studies
- Geospatial Studies/ GIS Studies
- Geology and Hydrological Studies
- Green Building Certification
- Environmental Audits
- Green Building Certification
- Wildlife/Mangrove Mgnt. Plan
- Half Yearly Compliances
- Submission of Form V
- Waste Water Treatment
- Design & Architect
- Risk Assessment-HAZOP, Hazid, Tree analysis, etc.
- Infrastructure Development
- Environmental testing
- Safety Audit
- NOC – Forest Diversion
- NOC – PESO permission
- NOC – from Revenue Department
- Auth. for Hazardous waste
- Consent to Establish/Operate
- DPR and Feasibility Report
- Env. Legal advise
- Water audit/budgeting
- Social Impact Assessment
- R&R, RAP
- Carbon credit

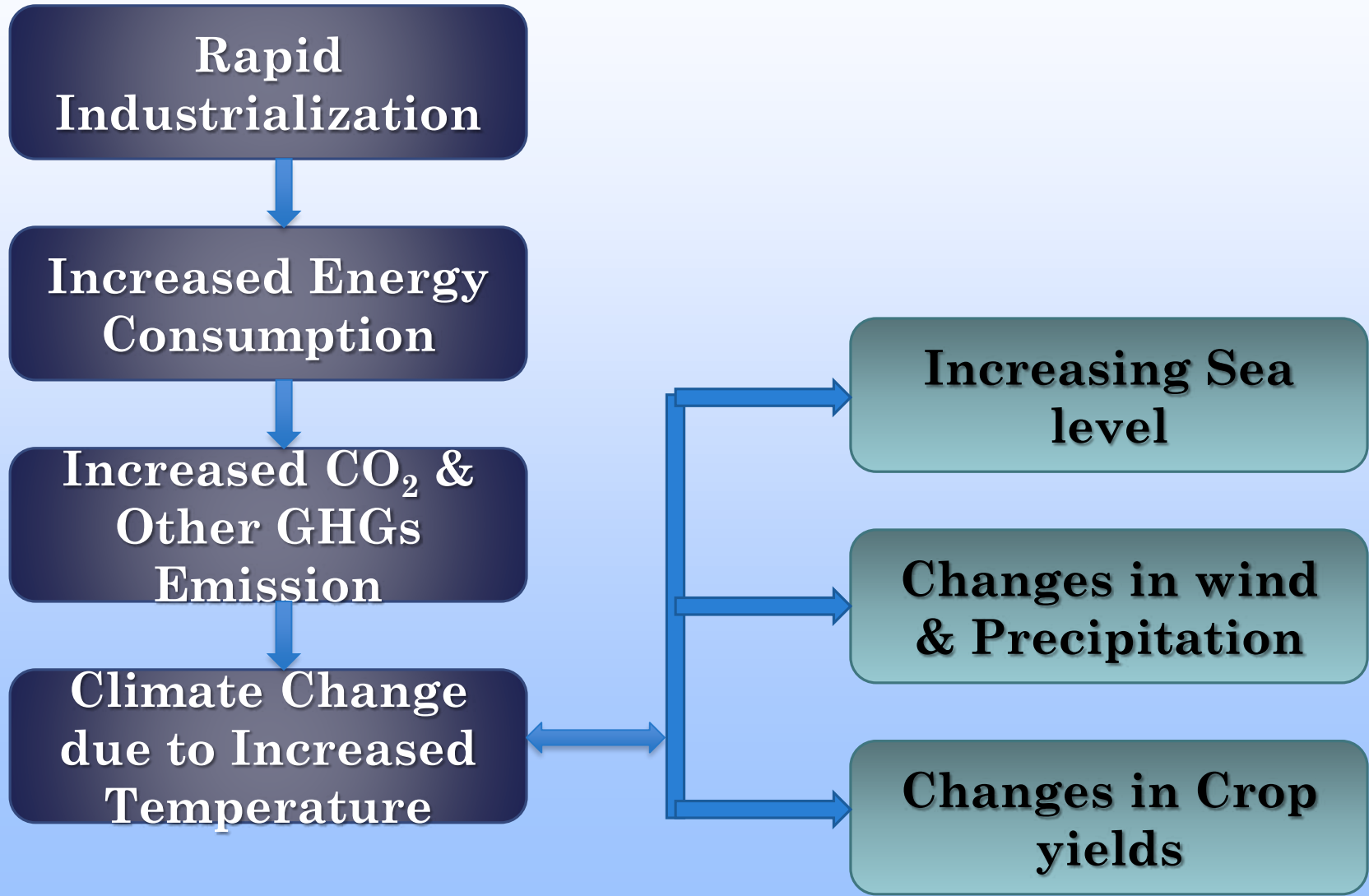


Indian Green Building Council  
FOUNDING MEMBER



7

# CLIMATE CHANGE







## KYOTO PROTOCOL: ORIGIN OF CARBON CREDIT

- The Kyoto Protocol is the first serious international attempt to address climate change through reduction of GHG emission.
- Six major GHGs are Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulphur Hexafluoride (SF<sub>6</sub>).
- Through the Protocol signatory nations have legally committed to reduce emission levels to certain levels by 2012.
- The Kyoto Protocol includes both developed and developing countries and in addition to imposing limits on GHG emission.
- So they introduce new concept of Carbon Credits and it allows for carbon trading between member nations.
- Carbon trading allows nations who are unable to meet their reduction targets to purchase carbon credits under a unified regulatory framework.
- Second commitment/meeting of Kyoto protocol was held in 2012 at Doha, Qatar. Also called as Doha amendment.
- Target/ Goal of this amendment is reduction of Carbon dioxide emission by 1.2 million tons of carbon per year by 2020.



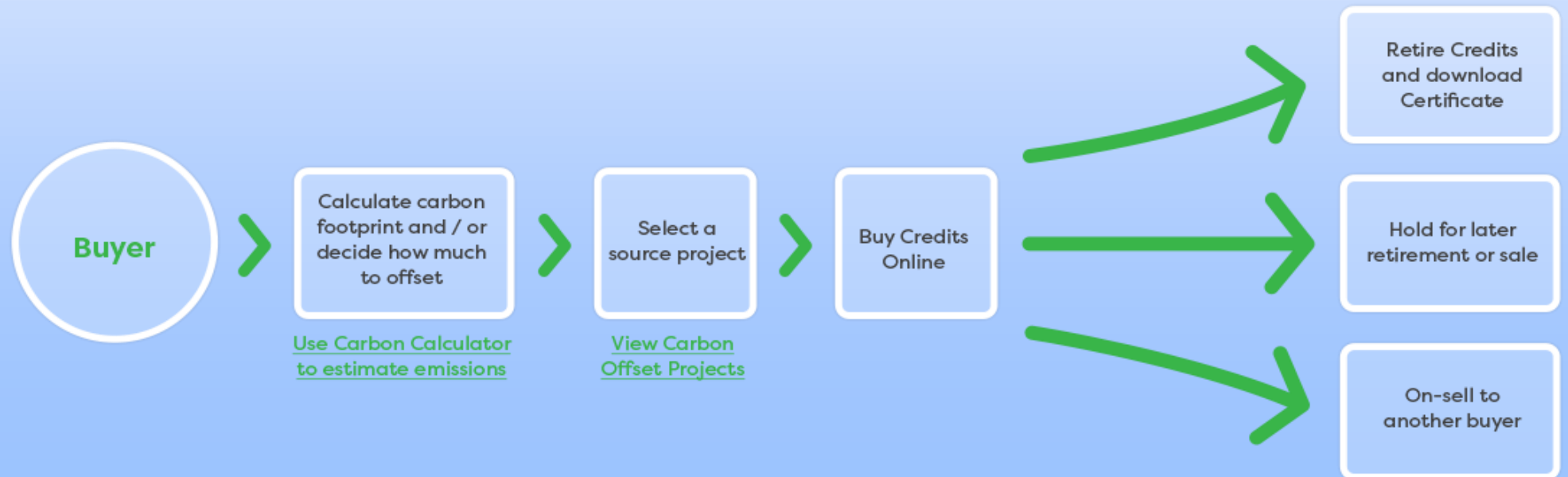


9

# CARBON CREDIT



- A carbon credit is a generic term for any tradable certificate or permit representing the right to emit one ton of carbon dioxide or the equivalent amount of a different greenhouse gas.
- Carbon Credit is “Permit that allows the holder to emit one ton of carbon dioxide, which can be traded in the international market at their current market price”.
- Carbon credits can be purchased from other member nations who own a GHG quota that they no longer require or alternatively new credits can be created through financing of projects that reduce GHG emissions.





# KYOTO'S MECHANISM FOR CARBON CREDIT SCHEME

## Joint Implementation

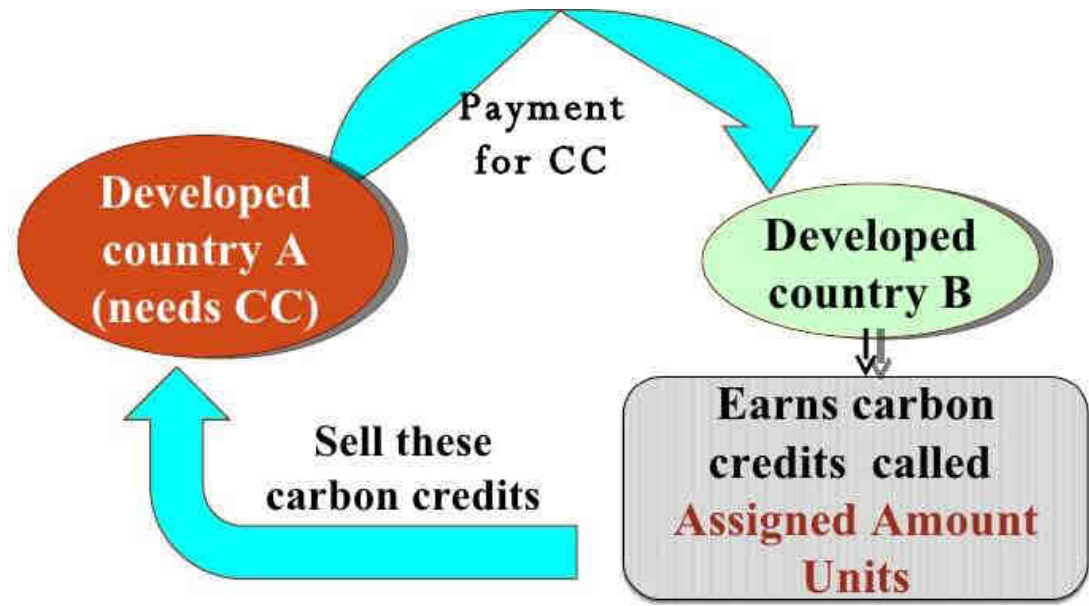
A Developed country with relatively high costs of Domestic greenhouse reduction would set up a project in another developed country.

## Clean Development Mechanism

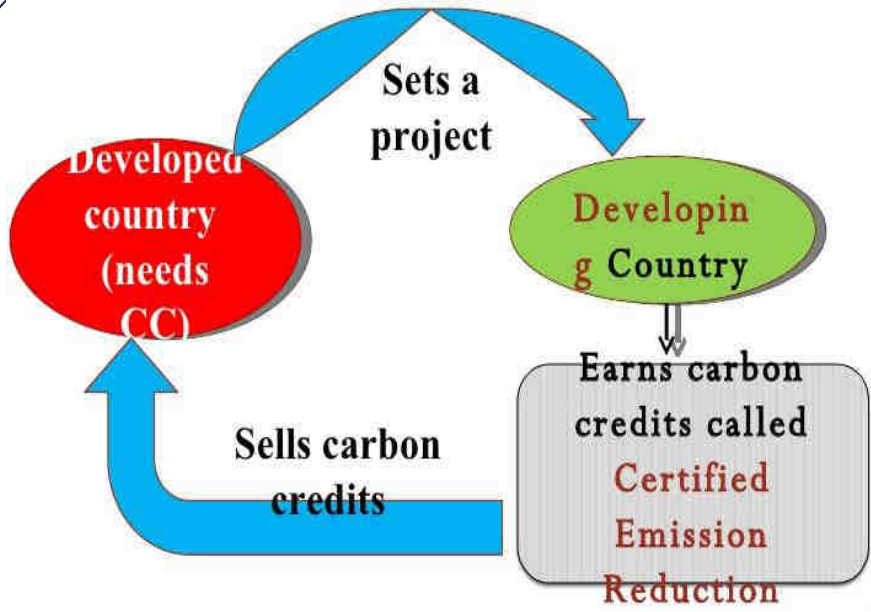
- A Developed country can 'sponsor' a greenhouse gas reduction project in a developing country where the cost of greenhouse gas reduction project activities is usually much lower, but the atmospheric effect is globally equivalent.
- The developed country would be given credits for meeting its emission reduction targets, while the developing country would receive the capital investment and clean technology or beneficial change in land use.

## Emission Trading

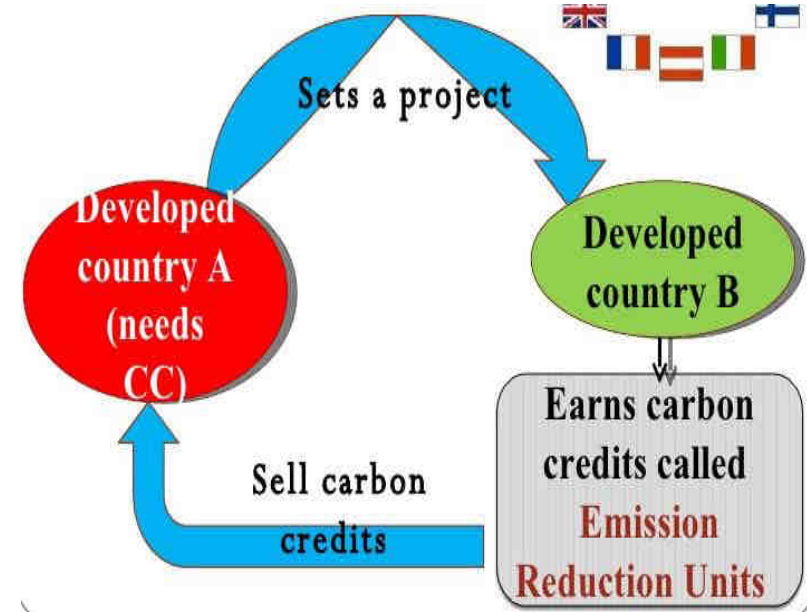
Countries can trade in the International Carbon Credit market to cover their shortfall in Assigned amount units. Countries with surplus units can sell them to countries that are exceeding their emission targets under Annex B of the Kyoto Protocol.



### Emission Trading Process



Clean Development Mechanism



Joint Implementation





# INDIAN SCENARIO FOR CARBON CREDIT

- India is a Developing country .
- So, It applies Clean Development Mechanism (CDM) for carbon trading and to meet requirement of Carbon Dioxide emission reduction target.
- The CDM projects in India include biogas, biomass, energy efficiency, waste gas, and wind energy.
- In India most of the energy sectors are the market for CDM projects.
- Indian market is extremely receptive to CDM.
- Many companies have also already entered into agreement of selling these credits in the International markets.
- Thus, India has emerged as second largest carbon market globally registered under CDM projects.
- A must mention project is the Delhi Metro Rail Corporation(DMRC).
- It has become the first rail project in the world to earn carbon credits because of using regenerative braking system in its rolling stock.
- India's goal is to reduce its emissions intensity of GDP by 20% to 25% over 2005 levels by 2020 and 175 GW renewable energy generation to 2022.





# CARBON CREDIT TRADERS IN INDIA

- **Andhyodaya Green Energy**
- **Grasim Industries Ltd.**
- **Indo Gulf Fertilizers**
- **Indus Technical & Financial Consultants Ltd.**
- **Madhya Pradesh Rural Livelihood Project**
- **Rajasthan Renewable Energy Corporation**
- **Reliance Energy Ltd.**
- **Tata Motors Ltd.**
- **Tata Steel Ltd.**
- **Bajaj Finance Ltd.**
- **Dhariwal Industries Ltd.**
- **Tata Power Company Ltd.**
- **Bluestar Energy Services Inc.**
- **Valera Global Inc.**



## NEED OF MONITORING OF CARBON FOOTPRINT

- There are typically two main reasons for wanting to calculate a carbon footprint:
  - To manage the footprint and reduce emissions over time.
  - To report the footprint accurately to a third party.
- Carbon foot printing can be a useful exercise as part of a complete environmental management system.



# CARBON FOOTPRINT MONITORING

1. Carbon Emissions Monitoring
2. Emission Factors
3. Inventory Calculation
4. Carbon Relative Footprints
5. Mobility Emissions
6. Stationary Emissions
7. Paper Consumption
8. Water Analysis
9. Waste Analysis
10. Data Centre Analysis
11. Net emission
12. Data Comparison
13. Environmental Indicator





## 1. CARBON EMISSION MONITORING

- For Carbon dioxide emission monitoring CO<sub>2</sub> Analyzer is used.
- For other GHGs multiple gas analyzer is used.
- For PM and SO<sub>x</sub>, NO<sub>x</sub>, RDS/FDS is used.



## 2. EMISSION FACTORS

- Emission factors are calculated ratios relating GHG emissions to a measure of activity at an emissions source.
- They are used to convert activity data to carbon emissions.
- The emission factors represent carbon dioxide equivalent (CO<sub>2</sub>e).
- They convert the impact of each of the six greenhouse gases covered by the Kyoto Protocol — Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulphur Hexafluoride (SF<sub>6</sub>) — into a common unit of tonnes of CO<sub>2</sub>e based on their Global Warming Potential (GWP).





## □ EMISSION FACTOR FOR DIFFERENT SCOPE OF SOURCE

EMISSION SCOPE	EMISSION SOURCE	EMISSION FACTOR
<b>Scope 1 (Natural gas through heat &amp; power)</b>	Natural Gas for heating	0.182 kgCO <sub>2</sub> e/kWh
	Natural gas for cogeneration	0.182 kgCO <sub>2</sub> e/kWh
	Owned vehicles	0.143 kgCO <sub>2</sub> e/km
<b>Scope 2 (Purchased electricity/stem)</b>	Purchased electricity	0.391 kgCO <sub>2</sub> e/kWh
	Purchased steam	0.043 kgCO <sub>2</sub> e/kWh
<b>Scope 3 (emission from Other activities like Transport of fuel, power, waste &amp; wastewater, paper consumption etc.)</b>	Business travel – Air	0.184 to 0.581 kgCO <sub>2</sub> e/Passenger/km
	Business travel – Rail	0.014 kgCO <sub>2</sub> e/Passenger/km
	Outsourced minibus	0.460 kgCO <sub>2</sub> e/km
	Employee commuting	0.225 kgCO <sub>2</sub> e/km
	Courier services	4.830 kgCO <sub>2</sub> e/shipment
	Water	1.052 kgCO <sub>2</sub> e/m <sup>3</sup>
	Waste	21 kgCO <sub>2</sub> e/tonne
Paper consumption	956 kgCO <sub>2</sub> e/tonnes	

### 3. INVENTORY CALCULATIONS

- An inventory of GHG emissions by source was calculated by applying the emission factors to relevant activity data.
- A relative footprint was also calculated using employee numbers.



## 4 CARBON RELATIVE FOOTPRINTS

- Carbon Relative Footprint is compared to number of employees measured in terms of  $tCO_{2e}$  per employee.

## 5. MOBILITY EMISSIONS

- Mobility emissions relate to the combustion of fuels in the vehicles owned or controlled by Company/Plant/Industry or third party transport for employee business travel and commuting to and from work.

## 6. STATIONARY EMISSIONS

- Stationary emissions relate to the combustion of fuels in stationary equipment owned or controlled by the Company/Plant/Industry for heating and power and from purchased heat and power.



## 7. PAPER CONSUMPTION

- Paper consumption emissions relate to the emissions released in the production of office paper that is then used by Company/Plant/Industry (not paper waste which is accounted for under waste).

## 8. WATER ANALYSIS

- Water emissions relate to the emissions of both the supply of water, as well as emissions associated with the treatment of waste water.
- It is assumed that all water supplied is eventually treated as waste water.

## 9. WASTE ANALYSIS

- Waste analysis includes All types of waste (Mixed, Organic, Paper, Glass, Plastic, Metals, Woods, etc.) of generation, treatment, transportation and disposal activities.
- From these activities, Carbon footprint emission will be calculated.
- Hazardous waste, which includes Waste Electrical and Electronic Equipment (WEEE), florescent light bulbs, batteries, toner cartridges and other harmful substances, continues to be excluded.
- Because it cannot be converted into emissions because some items are measured in m<sup>3</sup> or units rather than weight and there is insufficient information about waste treatment – it may be sent to landfill, recycled or incinerated.
- Nonetheless, it would not have a material impact on the total carbon footprint given the weight of its waste emissions– excluding waste for which weight data was not available.





## 10. DATA CENTRE ANALYSIS

- Data centres emissions relate to the consumption of electricity.

## 11. NET EMISSION

- Net emission is the sum of all emissions from an Industry/plant/Company.  
= Emission from Work place + Stack emission + Mobility emission + Paper consumption + water consumption + waste generation + From Data centre.

## 12. DATA COMPARISON

- Data comparison can be done through Software like Microsoft R, Shogun etc. with another Plant/Industry/Company.

## 13. ENVIRONMENTAL INDICATORS

- A parameter or a value derived from parameters that describe the state of the environment and its impact on human beings, ecosystems and materials, the pressures on the environment, the driving forces and the responses steering that system.
- With this concept Environmental indicators are all parameters which we will consider for emission of carbon dioxide which affects the Environment.
- Natural Gas, Transport, Purchased electricity, Steam, Cold supply, travel, Courier, waste, water, paper consumption, data centres, etc are environmental indicators.





## ADVANTAGES OF CARBON CREDIT SCHEME

- Technology transfer from developed to developing countries.
- Better technology for company.
- Can change country's financial situation.
- Development of cleaner technologies.
- Environmental benefits.
- Good alternative option for investment.
- Helps in developing extra income.

## DISADVANTAGES OF CARBON CREDIT SCHEME

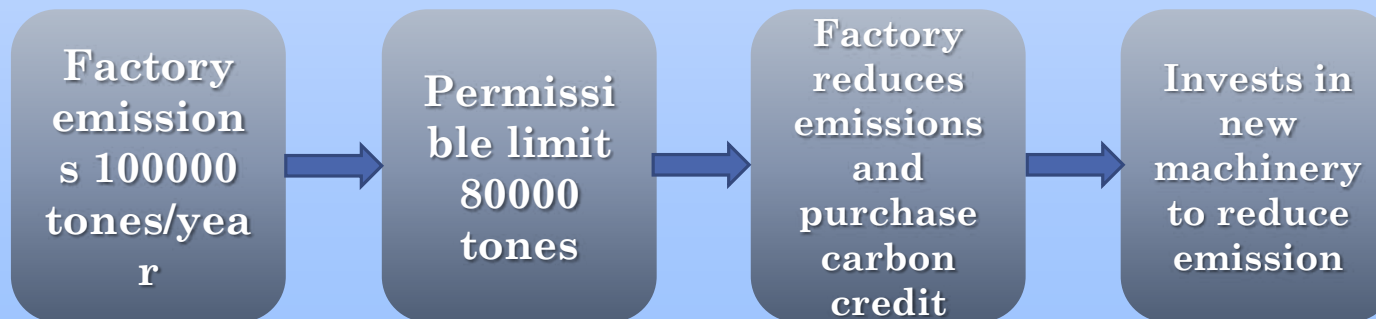
- Gives false sense of pollution.
- It is not regulated.
- Developed countries purchase CER's rather than finding new ways to reduce emissions.
- Lack of a comprehensive and structured international system.



# CONCLUSION



- Carbon Credit is helping to remove all the blackness from economy.
- Indian companies are the fore front in green parties and are beneficiating most in the world.
- Carbon trading brings forth financial incentives to reduce carbon dioxide emission and implement eco-friendly/green technologies.



**This shows how carbon credit can reduce emissions**



*THANKING YOU*