iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** V **Month of publication:** May 2018

DOI: http://doi.org/10.22214/ijraset.2018.5317

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

Carbon Footprint of International University Dr. D. Y. Patil, Akurdi, Pune

Mr. Amol More[1], Mayur P. Patil[2], Niraj S. Shinde[3], Shashank G. Waghere[4], Kanak D. Dharwal[5], Sanket S. Bhave[6]
[1, 2, 3, 4, 5, 6]*Assistant Professor, Civil Engineering Department Dr.D.Y. Patil Institute of Engineering Management and Research Akurdi,Pune.(MH) India*

***Abstract:** Since the beginning of 20th century there has been a rapid increase in emission of carbon at individual and global level due to greenhouse effect and improper use of resources leading to global warming. So it becomes a major responsibility of the institute to analyse and reduce its carbon levels. As India is a developing country carbon emission levels are quite high leading to adverse effect on environment. Delhi is quite good example for extent of pollution levels in our country. So it is necessary to spread awareness of pollution levels, as a result of it various industries started using carbon footprint as a major tool to calculate the total amount of greenhouse gases released. Carbon too is emitted through vehicles on large content due to increased use of private vehicles on large scale. This paper focuses solely on the amount of CO_2 emission in the institute through various resources & vehicles. The project majorly involves three steps - assessment, calculation and estimation of data.*
Carbon footprint is measured by considering green house gases and so extent of emission of various gases is measured by classifying the various sources included in analysis in two types - direct and indirect. Several free online carbon footprint calculators along with reference data is used in emission of gases. This paper focuses on the analysis of total amount of CO2 released through various sources and once the size of carbon footprint is known, specific strategy are planned suggest to reduce it by developing suitable techniques and spreading awareness.

I. INTRODUCTION

In general carbon footprint is the art of calculation of the amount of carbon gases emission by considering all sources of carbon emission caused by an individual or an organization, their effect on environment and various remedial measures to control it.
In recent years, the environmental changes in the climate not only depend on the earth systematic responses but mainly on the lifestyle & the technology by the mankind. Action should be taken immediately as the limits have been already postponed due to increased carbon levels in atmosphere.
Strict decisions are to be made, more delay in decisions can lead to increase in atmospheric temperature resulting global warming. The increase in global warming is due to an increase in the consumption of fossil fuel at excess level which resulted in increase in release of amount of CO2 in India boosting the amount of greenhouse gases produced.
This can be reduced though if we start identifying the root cause at basic institutional level. So it becomes an important factor to calculate the total amount of carbon consumption of the institute.
The primary footprint is a measure of our direct emissions of CO2 from the burning of fossil fuels by domestic energy consumptions and transportations.
The secondary footprint is a measure of indirect CO2 emissions from products associated with their manufacture and eventual breakdown. But our project focuses on primary footprint due to direct emissions, burning of fossil fuels for transportation and energy consumption because we can control these emissions. Following are the sources of primary footprint:-

A. Direct Emissions that Result from Activities that the Organization Controls

The majority of direct emissions in our campus will result from combustion of fuels such as petrol or diesel used by vehicle transport which produce CO_2 emissions.

B. Emissions From the Use of Electricity

Workplaces generally use electricity for lighting and equipment. Electricity generation comes from a range of sources, including renewables. Although not directly in control of the emissions, by purchasing the electricity the organization is indirectly responsible for the release of CO_2.

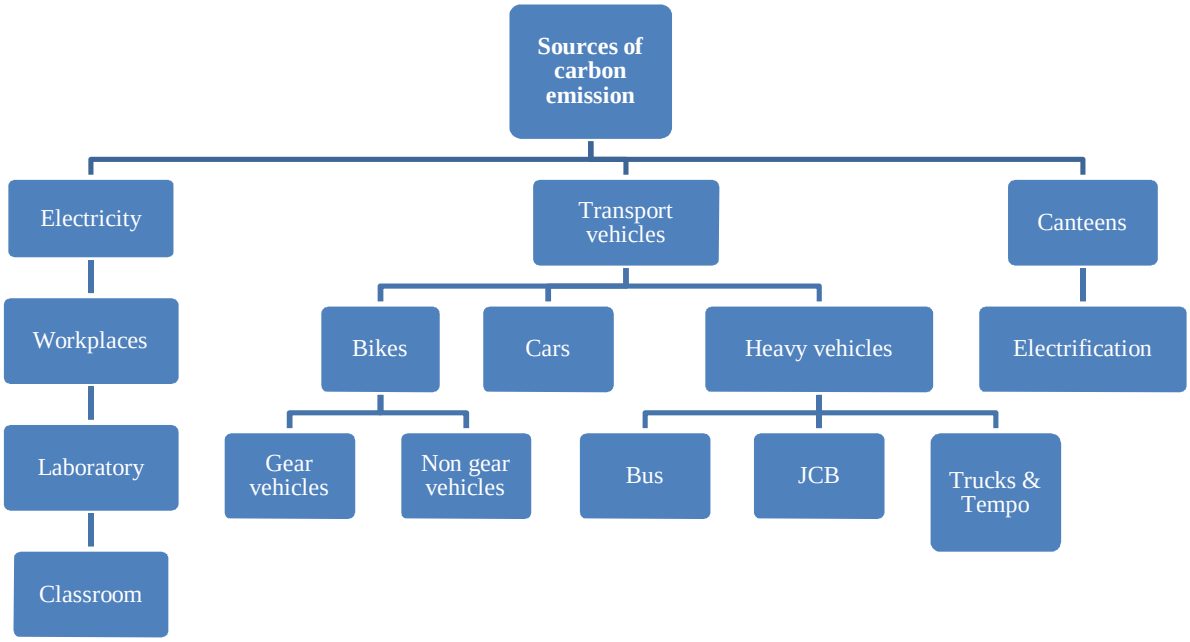
©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

II. METHODOLOGY

Development of carbon level in our college campus depends on the characteristics of vehicles and other factors considered in the project. Thus it is necessary to carry out certain test to determine the atmospheric characteristics in order to decide effective treatment process. Hence we have to analyse the sources of carbon emission through our campus.

For this analysis we bifurcated the sources of carbon emissions depending on their raw materials used for their processing. The sources used for the analysis were divided into 3 parts: transport, electricity and canteens. These sources are bifurcated as:



Thus after analysis it helps to study various parameters contributing various carbon levels. The present study focuses on the analysis, measurement & remedial measure of carbon levels.

III. EXPERIMENTAL STUDY

As per the requirement, primarily the sources of the carbon emission are marked out and classification is done. These sources were divided into 3 types as mentioned above, as per the bifurcation the daily count of vehicles depending on gear & non-gear, cars, trucks, bus, JCB & tempo were collected and mentioned roughly to get idea about the variation in count according to peak days & hours. All these vehicles were categorized under passenger car unit as it is difficult to analyse these vehicles separately. With help of PUC (pollution under control) the percentage of carbon emission for specific passenger car unit were measured. These approximate percentages of specific passenger car unit helped to find total carbon emission in metric tonnes of CO2 using carbon footprint calculators. Thus these readings of carbon emission were compared with the existing ISO standards for life cycle assessment (LCA) for greenhouse gas accounting ISO14040/44, ISO14025 & ISO14064 as it is most acknowledged existing ISO standards. As the electricity used in our campus is generated by hydropower station, result of it carbon emission level due to electricity were null, so the parameter of carbon emission through electricity were not considered in our project. Similarly in case of canteens in our campus the electricity is generated by hydropower so carbon emission are not considered and all the canteen kitchen uses CNG fuel so the carbon emission is not considered through it.

IV. CONCLUSION

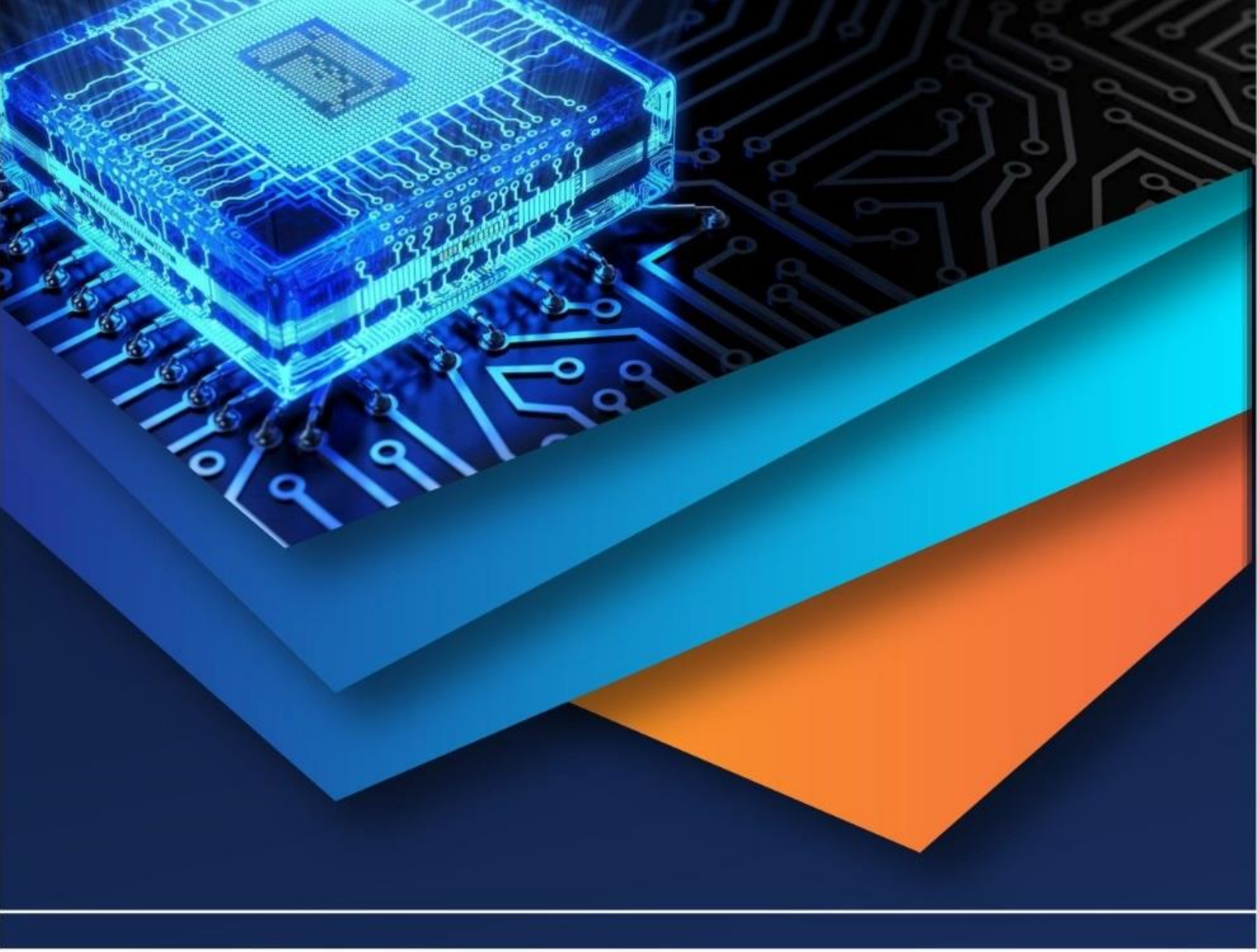
The carbon levels are rising daily due to improper use of transport services, private vehicles, etc. The problems of global warming, improper weather is arising mostly seen in cities like Delhi, Mumbai, etc. In order to reduce these levels awareness should be spread among people to use more public transport avoiding single vehicle use. The goal of this project is to help people understand, calculate and shrink their carbon footprint. Also by shrinking footprint we can reduce contribution our lifestyle makes to climate change. The carbon footprint study is the basis of carbon emission research. The carbon footprint has been utilized by commercialized to count themselves and their products carbon and adopt the preventive measures to reduce the carbon emission and achieve a sustainable development.

©IJRASET: All Rights are Reserved

REFERNCES

[1] Carbon trust, Carbon Footprint Measurement Methodology, Version 1.1
[2] Sheikh Shueb, (2014) "Carbon footprint in knowledge sector: An assessment from cradle to grave", University of Nebraska-Lincoln.
[3] T.V. Ramchandra, K. Sreejith, H.A. Bharath, (2014) "Sector-wise assessment of carbon footprint across major cities in India"
[4] U.P. Bhautmage, A.R. Tembhurkar, S.Sinha, S. Adarsh, (2011-12) "Carbon footprint by transportation activities of an institutional campus", dept. of civil engineering, visvesvaraya national institute of technology, Nagpur, India.
[5] International journal of low-carbon technologies, volume 9, issue 3, 1sept.2014, pg 237-243.
[6] Rober S. Brewer (2008), the carbon footprint calculation and analysis.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)