CLIMATE CHANGE

I. Introduction

Earth's average temperature has risen by 1.4°F over the past century, and is projected to rise another 2 to 11.5°F over the next hundred years. Small changes in the average temperature of the planet can translate to large and potentially dangerous shifts in climate and weather. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more floods, droughts, or intense rain, as well as more frequent and severe heat waves. Scientists are confident that many of the observed changes in the climate can be linked to the increase in greenhouse gases in the atmosphere, caused largely by people burning fossil fuels to generate electricity, heating and cooling systems in buildings, and power vehicles. These changes will impact our food supply, water resources, infrastructure, ecosystems, and **even the survival of human life.**

Over the past few years, this issue of climate change has been gaining more and more importance thanks to the efforts of a variety of governmental and nongovernmental organisations. These have been successful in sensitizing the previously oblivious members of our world society towards changes happening around them. There is an increased willingness amongst the people to make their contribution in what has very quickly emerged to be a global movement .The sensitivity of the situation is now being recognized by institutions and individuals throughout the global community, there is now a greater eagerness amongst the people to try and find a solution to this delirious problem.

This eagerness amongst the people has resulted in the issue being the hot topic of debate everywhere, ranging from the high level discussions is a national parliament, to the meeting room of an IT MNC, or the dining table of an ordinary global household.

While people are talking at great lengths to try and find the solution, we say

"Identify the problem first"

There can be no written down way for dealing with this problem. Obviously, the source of emissions for an IT solutions company, where business involves long distance travel cannot be the same as that for a restaurant.

Identifying "the problem: sources of emission" , which may not be the same for everyone owing to the difference in occupation type will help to obtain more effective and worthwhile results when we get down to dealing with it.

We very well understand this practical limitation.

I. Description

Our *green house gas emission calculator* is a practical, effective and reliable, scientifically designed tool to help you identify the key sources of emissions related to your occupation and lifestyle.

The GHG emission calculator has been designed taking into considerations the guidelines of the Defra, the numerical data for equating the CO_2 eq. being provided from the research papers of their scientists. The current model has been designed specifically for schools and universities and can be tweaked to be extended to other forms of institutions as well.

The fields in the tool are classified into the three scopes based on their sources of emissions:

> Scope 1 emissions are direct GHG emissions from sources that are owned or controlled by the entity.
>
> Scope 2 emissions are indirect GHG emissions resulting from the generation of electricity, heating and cooling, or steam generated off site but purchased by the entity, and the transmission and distribution losses associated with some purchased utilities
>
> Scope 3 emissions include indirect GHG emissions from sources not owned or directly controlled by the entity but related to the entity's activities. These include transmission and distribution losses associated with purchased electricity, employee travel and commuting, leased space, vendor supply chains, outsourced activities, and site remediation activities**.**

The calculator as been designed as an HTML app by using HTML, CSS, JavaScript and PHP. The program is open source and can easily be tweaked by users with little knowledge of the languages to suit their needs and requirements.

On the face of it however the calculator is represented in a very user friendly manner so as to ensure maximum comfort for the sensitive soul willing the work towards the improvement of the condition of earth.

When the user enters the data in the given field, he gets the corresponding GHG emissions in terms of CO_2 and CO_2 equivalent by a mathematical formula designed using factors considering the current global CO_2 levels determined using high levels of research and technological facilities. This data helps in identifying the sectors which need attention and then work towards cutting down emission levels.

While it is impossible to completely eliminate emissions one can always cut down on them. The analysis on the basis of the results obtained can be extremely beneficial in the case. For example, a firm where the majority of the emissions are concentrated in the field of business travel can look for greener alternatives to this. They may consider adopting video conferencing techniques wherever possible. This analysis uses both a practical approach and intricate mathematics of optimization and linear programming to determine the steps to be taken to reduce emissions without affecting productivity. For example, In case of a school, there is utilization of both recycled paper and virgin paper. Linear programming can be used to calculate the optimum amount of papers to be used so that school requirements are met and emissions are minimized.

This analysis is not a free feature yet as we as students don't have the professional know how on how to conduct this complex analysis. However, by providing the calculator, we have largely reduced the total cost of the complete survey which is carried out by companies and where each component is charged separately.

Further, we can apply the same principle to domestic use as well where school students can perform surveys for a week or two at their own houses and by analyzing on their own the data can determine the appropriate changes in their family lifestyle.

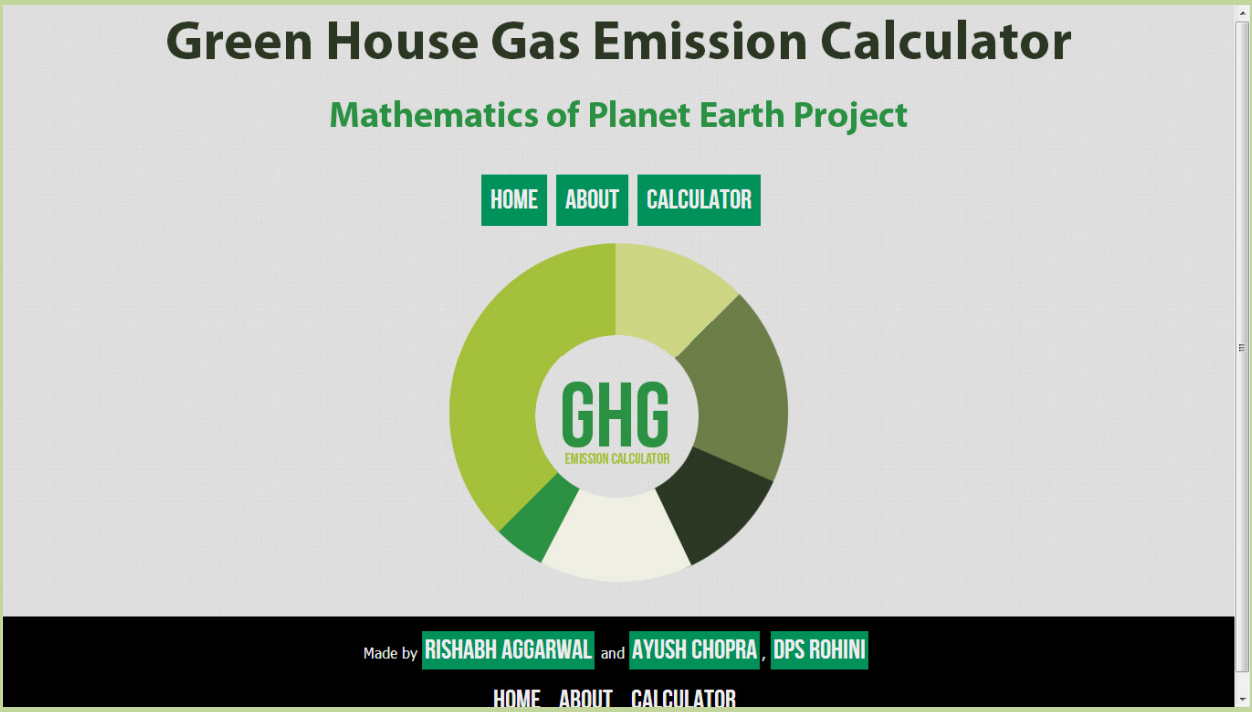
Thus, our tool ensures a safer and healthier environment in a cost effective and efficient way by tackling the global problem of greenhouse emissions from its roots.

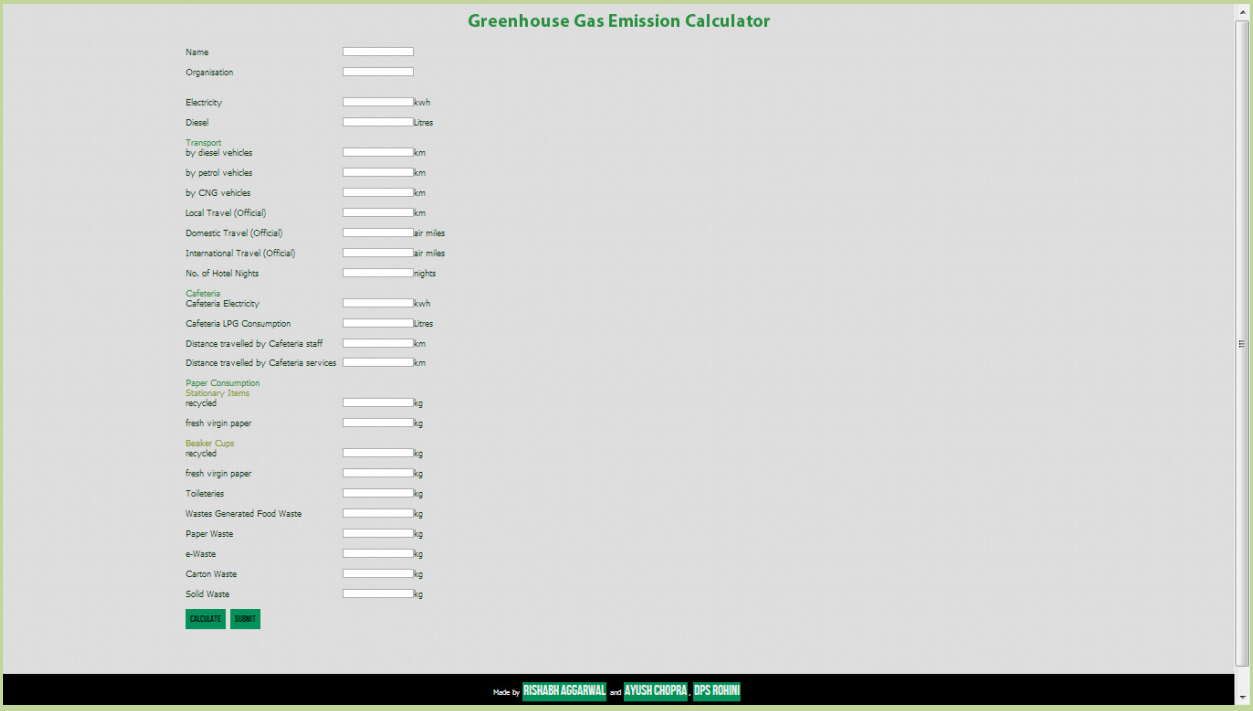
II. References

http://www.defra.gov.uk/

www.epa.gov/climatechange/

III.Annexure





GHG EMISSION CALCULATOR

PROBLEM:
EXCESSIVE POLLUTION
AND GREENHOUSE EMISSIONS

SOLUTIONS

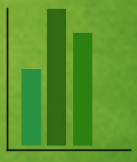
MEETINGS, DISCUSSIONS, DEBATES

TACKLE THE PROBLEM FROM THE ROOTS

NO RESULT!

USE GHG EMMISSION CALCULATOR TO IDENTIFY THE CAUSE OF PROBLEM:
SOURCES OF EMISSION

DIRECTED MEETINGS AND DISCUSSIONS
A CAREFUL ANALYSIS OF COLLECTED DATA USING OPTIMISATION AND LINEAR PROGRAMMING TO DETERMINE WAYS TO MINIMISE EMISSIONS WITHOUT AFFECTING PRODUCTIVITY



A SAFER AND HEALTHIER ENVIRONMENT