- Sustainability score of activities use typically involves assessing various factors such as
    1. **Carbon footprint reduction**
    2. Resource conservation (e.g. water saved)
    3. Societal impact (e.g. improved health condition by cycling …)

- Some standard that can be used as guidelines are
    1. United Nations Sustainable Development Goals (SDGs)
        i. SDG 13: Climate Action—Plantation (CO2 level, Climate change)
        - Use of Bicycles (Green House Gas Emission)
        ii. SDG 15: Life on Land—Plantation (afforestation and reforestation, contributes to restoring and preserving terrestrial ecosystems, enhancing biodiversity)
        iii. SDG 7: Affordable and Clean Energy (bicycle use)
        iv. SDG 3: Good Health and Well-being (promoting physical health, use of bicycle)
        v. SDG 11: Sustainable Cities and Communities

    2. Global Reporting Initiative (GRI)

    3. ISO 14000 Series
        I. ISO 140001—Outlines requirements for implementing an environmental management system
        II. ISO 14064--- For quantifying and reporting greenhouse gas emissions.

    4. Natural Capital Protocol
    5. Sustainability Accounting Standards Board (SASB)

- **Application is based on Co_2 Emission (Reference. ISO 14064)**
    1. Electricity consumption

    Mean value from 4 years = 354.75 gCO_2/KWh

ELECTRICITY MIX (g CO_2 / kWh)			
2018	2017	2016	2015
321	392	308	398

2. Fuel consumption

=Natural Gas emission factor has used for coding.

FUEL	EMISSION FACTOR [20]
Natural gas (m^3)	2.16 kg CO_2/Nm^3 of natural gas
Butane gas (kg) Butane gas (number of bottles)	2.96 kg CO_2/kg of butane gas 37.06 kg CO_2/bottle (considering one 12.5 kg bottle)
Propane gas (kg) Propane gas (number of bottles)	2.94 kg CO_2/kg of propane gas 102.84 kg CO_2/bottle (considering one 35 kg bottle)
Gas oil (litres)	2.87 kg CO_2/l of gas oil[21]

FUEL	EMISSION FACTOR [20]
Fuel (kg)	3.13 kg CO_2/kg of fuel
Generic LPG (kg) Generic LPG (litres)	2.98 kg CO_2/kg of generic LPG 1.61 kg CO_2/l of generic LPG[22]
Domestic coal (kg)	2.23 kg CO_2/kg of domestic coal
Imported coal (kg)	2.44 kg CO_2/kg of imported coal
Petroleum coke (kg)	3.17 kg CO_2/kg of petroleum coke

3. **Transport**

----Petrol emission factor has used.

A. Litres or kg of fuel consumed	
AVAILABLE DATA	**CALCULATION METHODOLOGY AND EMISSION FACTOR**

Fuel consumption (litres diesel, petrol, biofuel, LPG or kg of CNG)	Calculation of CO_2 emissions based on the following emission factors[33]:
	• Petrol 95 RON or 98 RON: 2.157 kg of CO_2/litre
	• Diesel: 2.493 kg of CO_2/litre
	• Bioethanol:
	  • Bioethanol 10 (E10): 2.065 kg of CO_2/litre
	  • Bioethanol 85 (E85): 0.344 kg of CO_2/litre
	  • Bioethanol 100 (E100): 0 kg of CO_2/litre
	  • Other blends: 2.295 kg of CO_2/litre[34] - % bioethanol[35]
	  If bioethanol 5 is used, it means the fuel contains 5% of bioethanol (and 95% petrol) and the emissions associated are 2.295 – (0.05 x 2.295) = 2.180 kg of CO_2/litre
	• Biodiesel:
	  • B10: 2.387 kg of CO_2/litre
	  • B30: 1.857 kg of CO_2/litre
	  • B100: 0 kg of CO_2/litre
	  • Other blends: 2.653 kg of CO_2/litre[36] - % biodiesel[37]
	  If biodiesel 20 is used, it means the fuel contains 20% of biodiesel (and 80% diesel) and the emissions associated are = 2.653 – (0.2 x 2.653) = 2.122 kg of CO_2/litre
	• Liquefied petroleum gas (LPG): 1.61 kg CO_2/litre[38]
	• Natural gas vehicle (NGV) or compressed natural gas (CNG): 2.71 kg CO_2/kg of CNG

There are multiple factors that cause distance-based emissions to vary, like the characteristics of the vehicle and the road speed limits. This table shows aggregate emission factors (g CO2/km).

4. **Rail transport**

-Long distance emission factor has used for coding.

MEANS	EMISSION FACTOR (g de CO_2/passenger *km)
RENFE AVE	31.28
RENFE AVANT	37.25
RENFE LONG DISTANCE	32.77
RENFE MEDIUM DISTANCE (REGIONAL)	34.66
RENFE COMMUTER TRAINS (RODALIES)	46.88
FGC	35.77
TRAM	80.12
METRO	50.13

5. **Waste**

Average = 242.858

A. kg of generated waste by fractions	
AVAILABLE DATA	CALCULATION METHODOLOGY AND EMISSION FACTOR
Waste generation (kg waste)	Calculation of CO_2 emissions based on the following emission factors[88]: • Glass containers: 30.50 g of CO_2 eq / kg waste • Lightweight packages 120.09 g of CO_2 eq / kg waste • Paper/cardboard: 56.41 g of CO_2 eq / kg waste • OMSW: 362.11 g of CO_2 eq / kg waste • Rest fraction: 645,18 g of CO_2 eq / kg waste

6. **Emissions derived from water consumption**

The GHG emission factor included in this section considers:

 The stages of: collection, purification, service reservoir supply and underground distribution, sewage system, wastewater treatment, discharge of filtered water into the environment and reuse.

 CO2, CH4 and N2O emissions, expressed in CO2 eq. The water cycle stages are not considered to produce fluorinated gas emissions.

AVAILABLE DATA	EMISSION FACTOR (g of CO_2 eq/m^3)[90]
Water consumption (m^3 water)	395

- **Activities that decrease CO_2 emission:**
    1. Travelling on foot/bicycle decrease level of carbon dioxide emission that is subtracted by considering equivalent with travelling by vehicle at MEDIUM. --72.16

VEHICLE	CLASSIFICATION	EMISSIONS DEPENDING ON SPEED (g CO_2/km)		
		URBAN (25 km/h)	MEDIUM (69 km/h) Remaining roads	HIGH (102 km/h) Motorways and dual carriageways
Moped	Conventional	71.29	-	-
	Average of Euro classes	57.03	-	-
Motorcycle	Two-stroke < 250 cm^3	94.32	76.57	110.83
	Four-stroke < 250 cm^3	74.54	72.16	98.54
	Four-stroke 250-750 cm^3	120.29	93.83	117.74
	Four-stroke > 750 cm^3	151.09	109.80	128.90

    2. Plantation

    Although the carbon absorption capacity can vary, it is generally considered that a tree can store about 167 kg of CO2 per year (242.858 g per day), or 1 ton of CO2 per year for 6 mature trees. This means that more than 67 trees would have to be planted a year to offset the CO2 emissions of a single Brit.

    (reference -https://climate.selectra.com/en/news/co2-tree)

- **Average value of CO_2 emission per day per person:** ----14 kg/person per day (globally)