

Summary of Coimbatore City Energy Consumption and GHG Emissions (2019-20)

City Profile & Overview of GHG Emissions:

Coimbatore is the third largest city in Tamilnadu, with a population of about 1.85 million covering an area of 257 sq. km. The city is situated on the banks of the river Noyyal surrounded by the Western Ghats. Coimbatore is one of the fastest growing cities in India and a major hub for textiles, industries, commerce, education, information technology, healthcare, and manufacturing, mainly cotton production and textile industries are located in and around the city, hence called as 'Manchester of south India'. Coimbatore is also famous for the manufacturing of motor pump sets and various engineering products includes textile machinery, automobile spares, motors, electronics, steel and aluminium foundries. Coimbatore is the second largest producer of software in the state, next to Chennai. TIDEL Park and other Information technology parks in the city has aided in the growth of IT and business process outsourcing industries.

Table 1 City Profile

Local Government	Coimbatore City Municipal Corporation
State	Tamilnadu
Population	1985420
Area	257.4
No. of Zones	5
No. of Wards	100
No. of Households	4,41,204
Household Size	4.5

Table 2 GHG Emissions from Coimbatore City

GHG Emission Scenario of Coimbatore City in 2019	
Total Energy Use (GJ)	4,09,52,507.86
Total GHG Emission (tCO ₂ e)	46,38,345
Per Capita Energy Use (GJ)	20.63
Per Capita GHG Emission (tCO ₂ e)	2.34
Emissions from Waste Sector (tCO ₂ e)	2,90,183

Community-Scale Energy Consumption & GHG Emissions: Energy Consumption by Coimbatore City in (2019-20):

Table 3 Sector-wise Energy Consumption in 2019

Sector	Energy Use (GJ)
--------	-----------------

Stationary Units	2,69,44,332
Residential Buildings	57,30,194
Commercial and Institutional Buildings/Facilities	25,83,453
Manufacturing Industry and Construction (i.e. Industrial sector)	1,86,30,684
Agriculture, forestry and fishing activities (i.e. mainly agriculture)	0
Mobile Units	1,40,08,176
On-Road Transportation	1,40,08,176
Total	4,09,52,508

Waste Generated and Treated at Coimbatore City in 2019-20:

Table 4 Waste Sector Activity Data

Waste Sector Activities	Data	Unit
Solid Waste Management		
Daily MSW Generated	1100	TPD
MSW Biologically Processed - composting	519.2	TPD
MSW Disposal in landfills*	428	TPD
Wastewater Management		
Daily Waste Water Generated	231	MLD
Treatment Capacity	170	MLD
Sewerage Network Coverage	72	%
Population coverage using Septic tanks	52	%
Population coverage using pit latrines	21	%
Discharge of wastewater without treatment	26	%
Inlet BoD (Organic load)	177.71	Mg/L

*City's landfills categorised as wet/dry, shallow/deep, managed/unmanaged contribute different levels of emissions

GHG Emissions from Coimbatore City in 2019-20:

Table 5 Sector-wise GHG Emission in 2019-20

Sector	GHG Emissions (tCO ₂ e)
Stationary Units	32,62,575
Residential Buildings	7,96,886
Commercial and Institutional Buildings/Facilities	4,04,008
Manufacturing Industry and Construction (i.e., Industrial sector)	20,61,681
Agriculture, forestry and fishing activities (i.e., mainly agriculture)	

Mobile Units	10,85,587
On-Road Transportation	10,05,201
Rail	25,368
Aviation	55,017
Waste	2,90,183
Solid Waste Disposal	1,90,326
Biological treatment	73,165
Incineration and open burning	0
Wastewater	26,691
Total	46,38,345

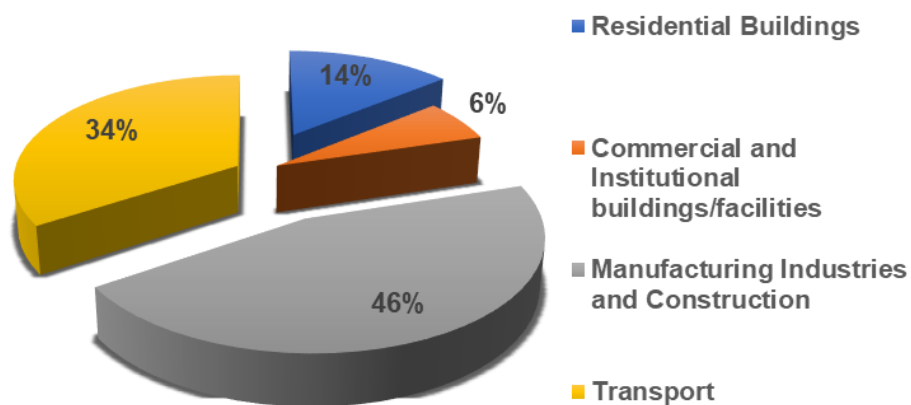


Figure 01: Sector-wise Energy consumption in Coimbatore Municipal Corporation, (2019-20)

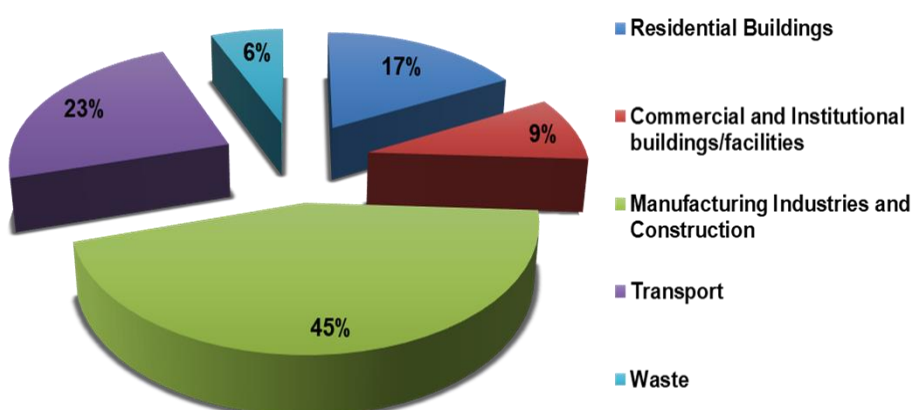


Figure 02: Sector-wise GHG emission in Coimbatore Municipal Corporation, (2019-20)

Total Community-Scale Energy use in 2019-20: **4,09,52,507.86** Giga Joules

- Largest Energy consumers: Manufacturing Industries and Construction 46%; Transportation 34%; Residential sector 14.0%; Commercial and Institutional Buildings/Facilities 6%.
- Total community-scale GHG emission in 2019-20: **46,38,344.86** tonnes of CO₂e
- Largest GHG emitters: Manufacturing Industries and Construction 44.4%; Transportation 23.4%; Residential sector 17.2%; Commercial and Institutional Buildings/Facilities 8.7%.

Trend of Energy Consumption and GHG Emission in Coimbatore City from 2015-16 to 2019-20:

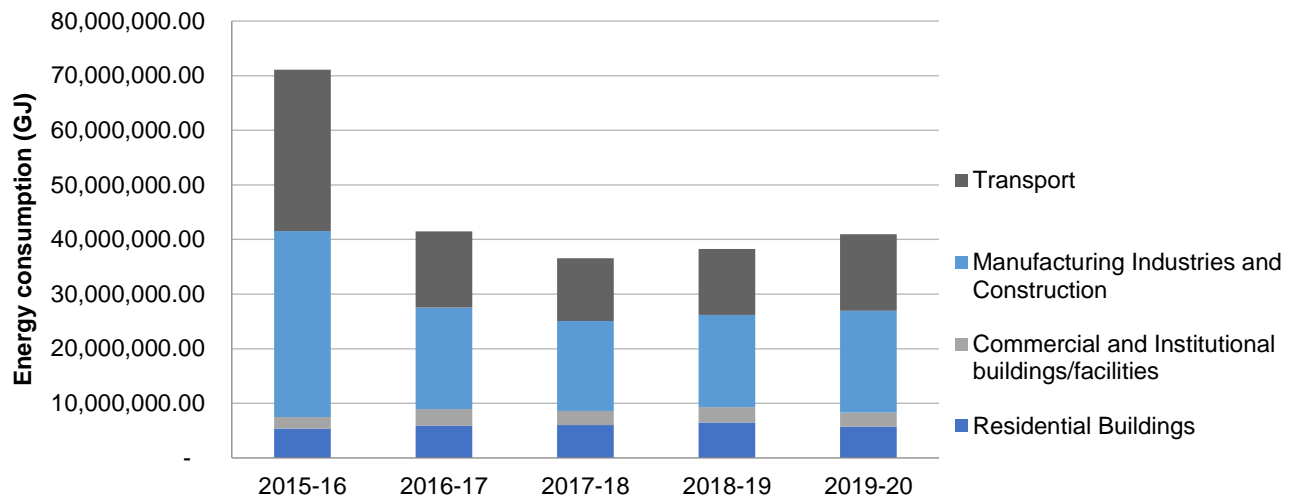


Figure 03: Trend of energy consumption in Coimbatore City during (2015-16) to (2019-20)

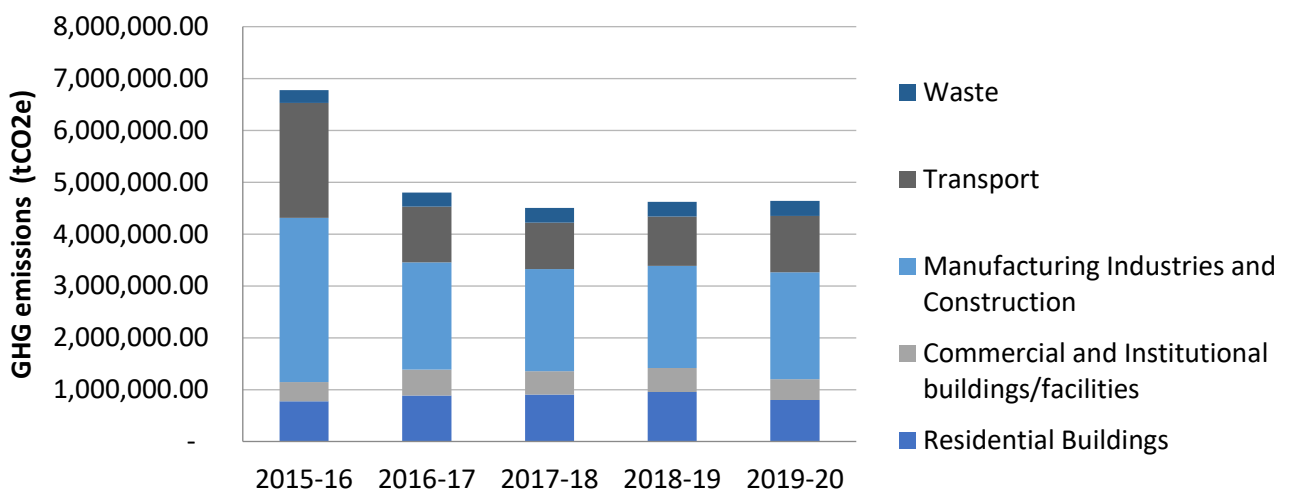


Figure 04: Trend of GHG emission in Coimbatore City during (2015-16) to (2019-20)

It is observed that there is no GHG emission variation from residential, commercial and waste sectors between 2015-16 to 2019-20 comparing with transport and industries. The transports and industries emissions are reduced during 2015-16 and the emissions are constant from 2016-17 to 2019-20. As per the data supplied by the oil companies, there is reduction in the total outlets selling petrol and diesel in the city limits due to closure of the pumps. Furthermore, due to town planning policies and guidelines majority of manufacturing industries moved out of city limits which reduced the fuel consumption from this sector within the city limit.

Supply Side Energy Consumption and associated GHG Emissions:

Primary and secondary energy sources supplied to the demand-side sectors for consumption are referred to as the supply-side sources. These include liquid, solid and gaseous fuels, electricity and renewable sources of energy. Grid electricity is the dominant energy type that is typically used in almost all sectors. Petroleum products are used extensively for community transportation in the Coimbatore city and in the industrial sector.

Energy Consumption and GHG Emission based on Energy Source in 2019-20:

Table 6 Supply side-based Energy Consumption and GHG Emission in 2019-20

Fuel/Energy Source	Energy Use by Source Category (GJ) (2019-20)		GHG emission by Source Category (t CO2e) (2019-20)	
	Stationary Units	Mobile Units	Stationary Units	Mobile Units
Diesel	77,54,094.08	77,54,094	5,76,546.36	5,76,546
Petrol	52,63,264.44	52,63,264	3,66,080.04	3,66,080
Natural Gas	0	0	3,66,080	0
LPG	51,42,967	9,90,818	2,62,228	62,574.89
Kerosene	79,602	-	5,744	-
Indirect Electricity	87,04,404	-	19,89,402	-

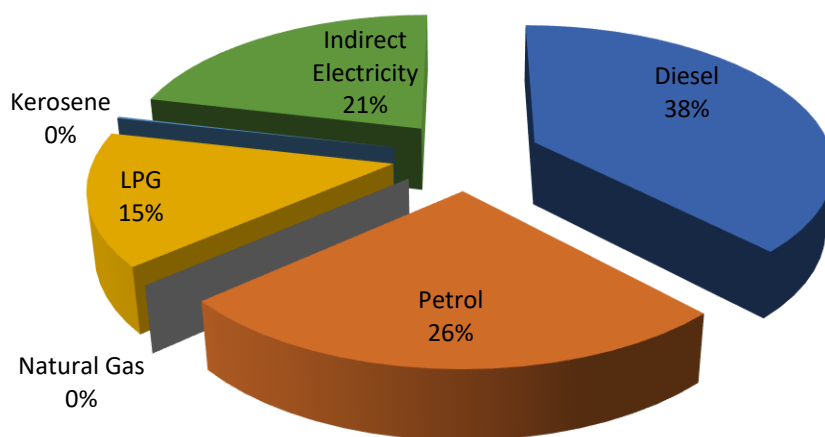


Figure 05: Source-wise supply side energy consumption in Coimbatore, (2019-20)

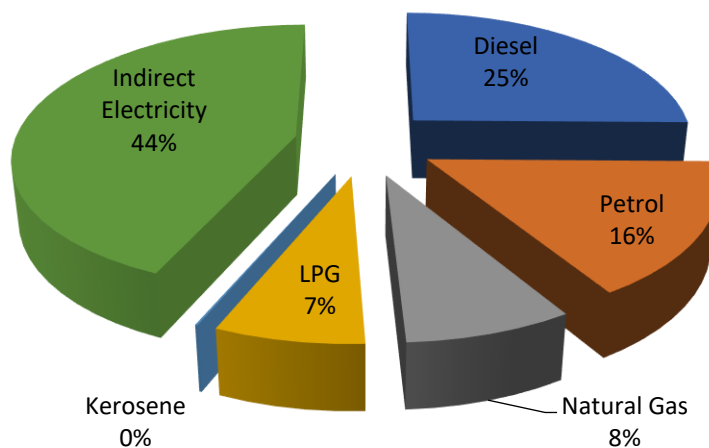


Figure 06: Source-wise supply side GHG emission based on energy source in Coimbatore, 2019-20

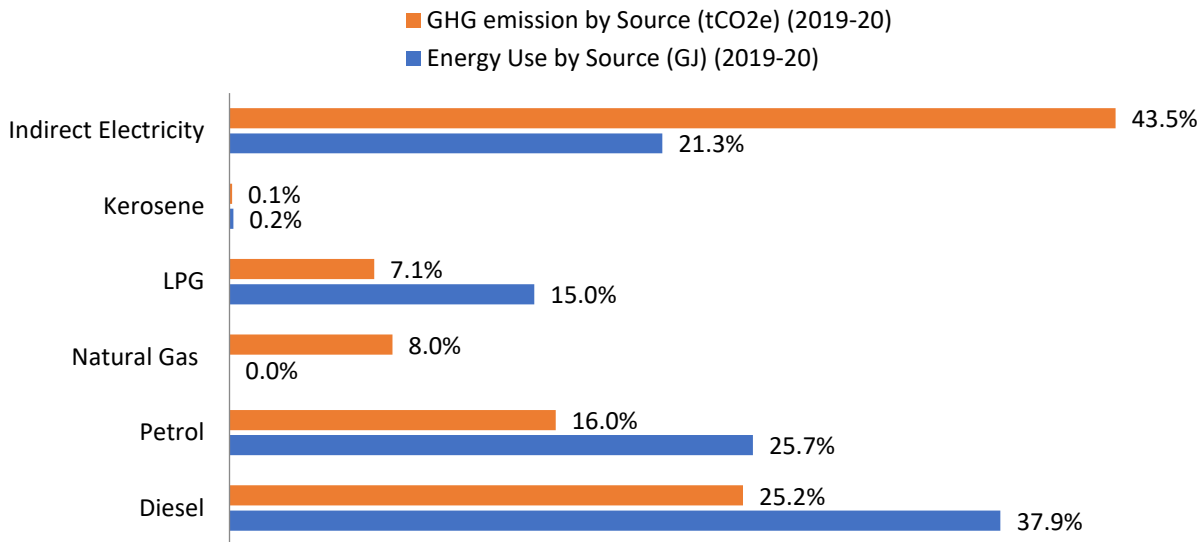


Figure 07: Source-wise supply side energy consumption and GHG emission in Coimbatore, 2019-20

- Total community-scale GHG emission from energy consumption in baseline year: 46,38,344.86 tonnes of CO₂e
- Largest GHG emitting Energy sources: Diesel 37.9%; Indirect Electricity 43.5%; Petrol 25.7%; LPG 15%.

**Local Government Level Energy Consumption & GHG Emissions:
Energy Consumption and GHG Emission by Local Government in 2019-20:**

Table 7 Sector-wise Energy Consumption and GHG Emission by Local Government in 2019-20

Sector	Energy Use (GJ)	GHG emission (tonnes of CO ₂ e)
Buildings	20,960.05	4,790.44
Waste Water Treatment	29,480.31	6,737.76
Water Supply	1,55,770.81	35,601.61
SWM	-	-
Street Lighting	81,254.10	18,570.72
Transport	1,03,446.43	7,320.92
Total	3,90,911.70	73,021.45

Share of Energy Consumption in Municipal Buildings and Facilities by Sectors, 2019-20

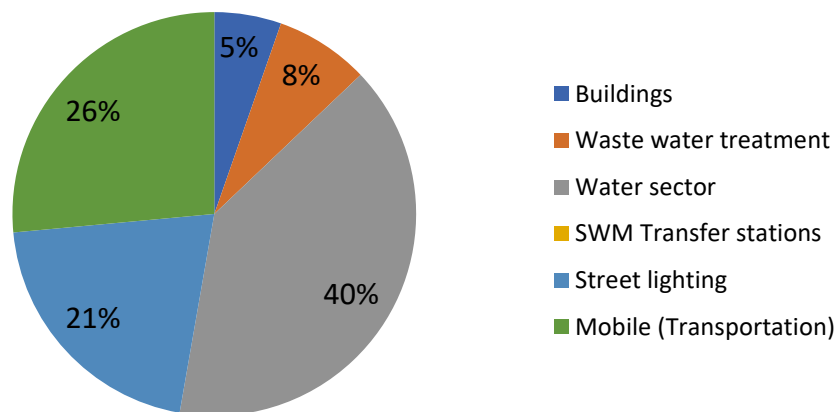


Figure 08: Energy consumption due to local government activities in Coimbatore City, (2019-20)

Share of GHG emissions in Municipal Buildings and Facilities by Sectors, 2019-20

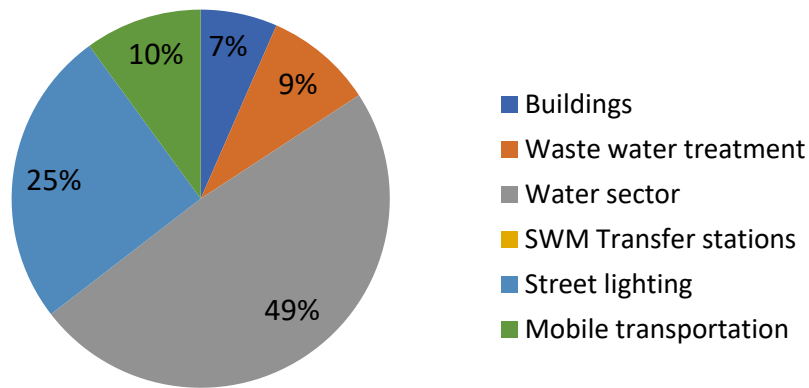


Figure 09: GHG emissions due to local government activities in Coimbatore City, (2019-20)

Total Energy use in 2019-20 by the local government: 3,90,911.70 Giga Joules

- Largest Energy consumers: Water Sector 40%; Mobile (Transportation) 26%; Street Light 21%; Waste Water Sector 8% and Buildings 5%.
- Total GHG emission in 2019-20 by the local government: 73021.45 tonnes of CO₂e
- Largest GHG emitting sector: Water Sector 49%; Street Light 25%; Mobile Transportation 10%; Waste Water Treatment 9%; Buildings 7%.

Trend of Energy Consumption and GHG Emission by Local Government:

Trend of Energy Use in Municipal Buildings and Facilities

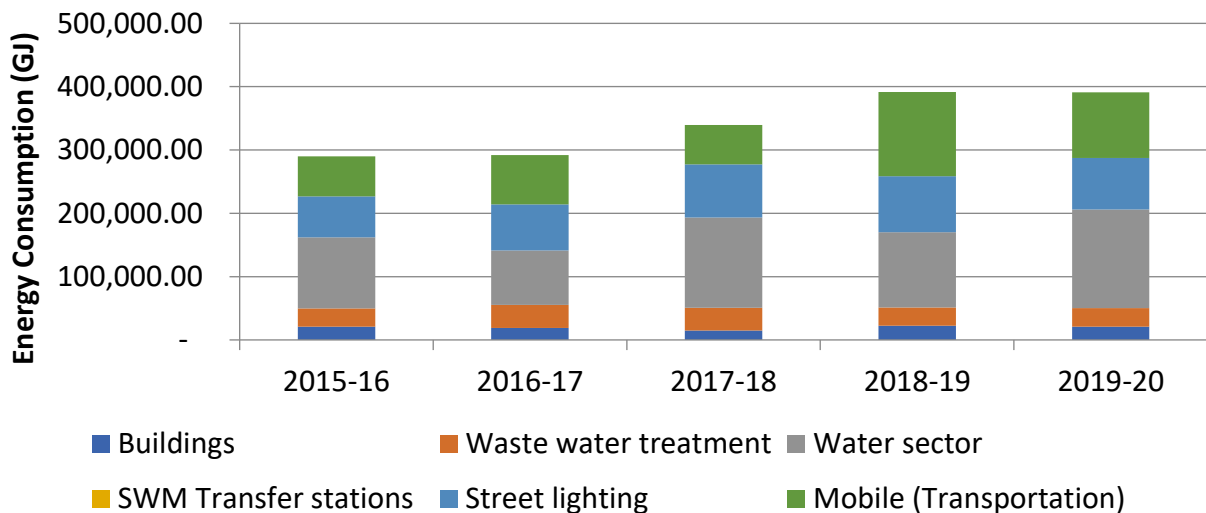


Figure 10: Trend of energy consumption due to local government activities in 2019-20 during (2015-16) to (2019-20)

It is observed that there is a vast difference in energy consumption in the Transportation and water sector between 2015-16 to 2019-20. Due to increasing of population, more supply of water to entire city is required. The rest of the sectors remain the same that is slightly increasing and also decreasing.

Trend of GHG emission from Municipal Buildings and Facilities

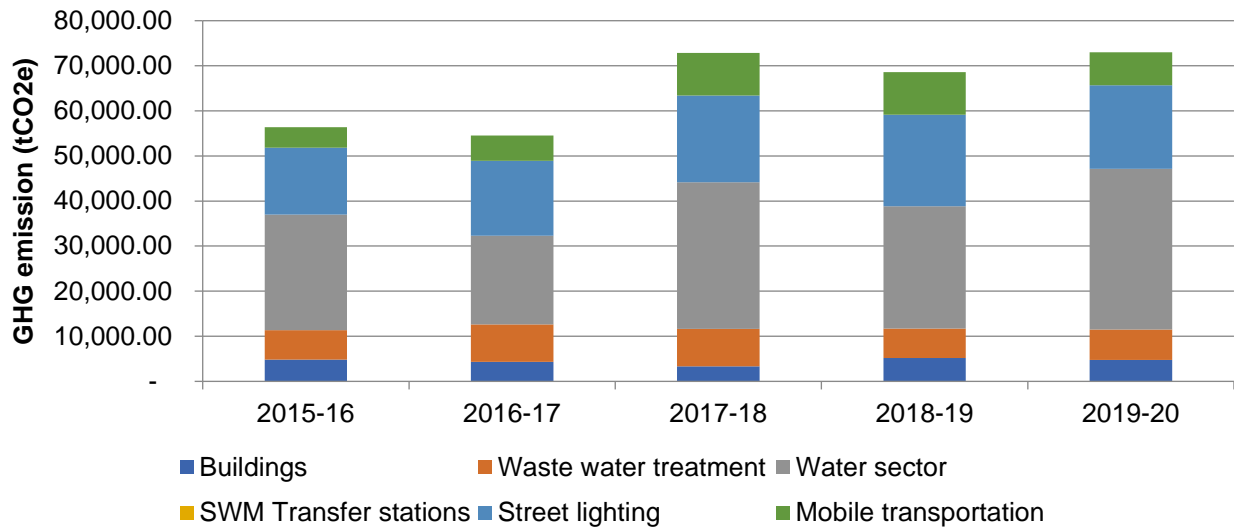


Figure 11: Trend of GHG emission due to local government activities in 2019-20 during (2015-16) to (2019-20)

It is observed that there is a vast difference in GHG emissions in the water sector between years. It has been increasing further during the year 2019-20. Due to urbanisation, more street lights were installed all over the Coimbatore City and consumption of energy also increased over the years. The emission of CO₂, a key greenhouse gas that drives global climate change, continues to rise every year due to the increase of conventional vehicles. The rest of the sectors remain the same that is increasing and also decreasing.