

2020



GREEN HOUSE GAS ACCOUNTING REPORT

An annual sustainability report for FY19 - 20

In collaboration with





Templates and processes used to capture geo-referencing for spending and GHG accounting have been integrated in our accounting system and progress is being monitored on an annual basis. Templates are available for use on request.

Contact carbonconverter@aurovilleconsulting.com for more details

CONTENTS

Background	1
GHG accounting	2
1. Summary of the FY19-20 GHG accounting exercise	5
2. Carbon sequestration through tree planing	9
Geo-referencing payments	11
Annexure	12



BACKGROUND

Environmental degradation and the rapid consumption of natural resources as a result of the many activities that we collectively undertake have been linked to the warming of our planet. In order to combat this global challenge, the majority of nations have pledged to curb temperature rise to below the pre-industrial era. Companies, as they are engaged in large industrial and commercial activities, are particularly important entities that can help meet national targets and mitigate their own climate risks by reducing the emission of greenhouses gases (GHG).

Auroville Consulting (AVC) has been identifying and calculating their emissions since 2013. It aims at reducing emissions continually and managing them more effectively and chooses to offset the unavoidable emissions by planting trees in the Auroville biosphere.

During the financial year 2019-20, it conducted this practice along with the tracking of its financial transactions by geographically defined areas. The unit's primary objectives through this exercise is:

- to assess and reduce its environmental footprint, and
- to execute most of its financial transactions within the Auroville boundary in order to limit the transportation-linked emissions.

GHG ACCOUNTING

For the inventory of its greenhouse gases, AVC refers to the guidelines of the globally-recognised tool, the GHG Protocol: Corporate Accounting and Reporting Standard. The standard helps organisations identify, calculate and report their GHG emissions in an accurate, consistent and transparent manner.

The tool incorporates national emission factors where available or default global values to convert different organisational activities into the respective greenhouse gases emitted. The six greenhouse gases reported under this standard include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbon (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆). The combined emissions are also expressed in kilograms of carbon dioxide equivalent (CO₂e), which compares all the greenhouses to carbon dioxide. The use of CO₂e helps simplify the accounting process and analysis as the emissions are represented by a single value.

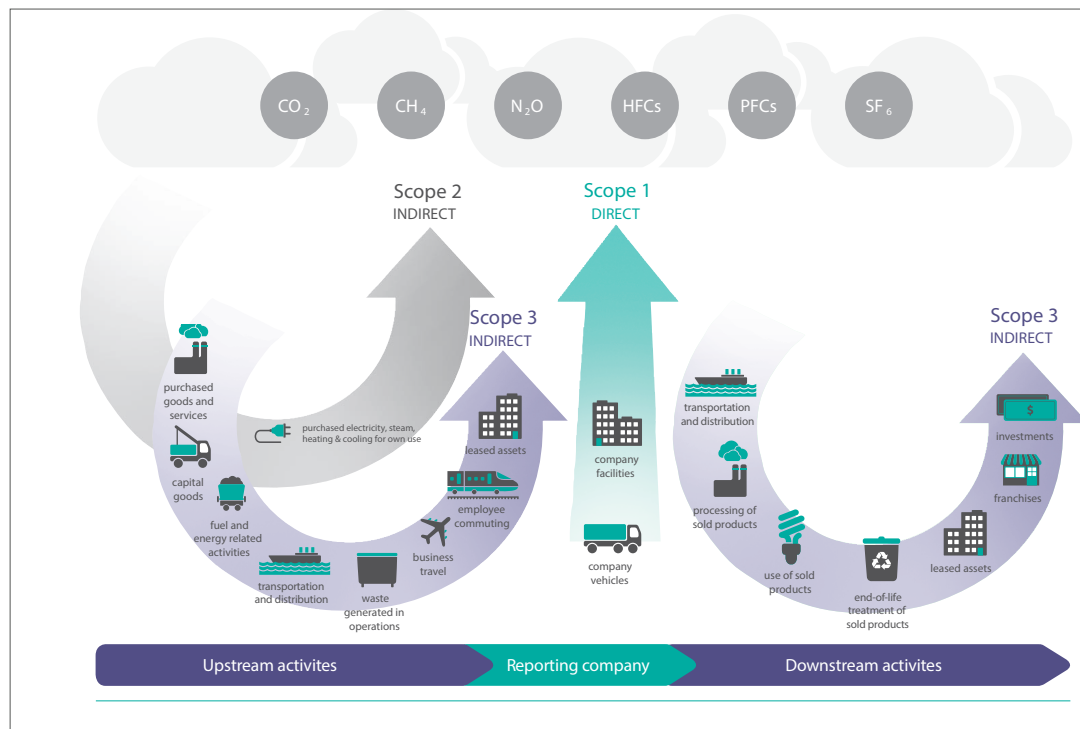
The GHG Protocol mandates that the activities of organisations be split into three categories or scopes for a more transparent accounting structure. The activities covered under each scopes are shown below in Table 1:

Table 1: Definition of scopes for corporate accounting

Scope 1	Direct emissions from sources owned and controlled by the company; e.g. emissions from equipment and vehicles owned by the company
Scope 2	Indirect emissions from the generation of purchased electricity consumed at company facilities
Scope 3	Other indirect emissions that occur as a consequence of the company's activities, but from sources not owned by the company, e.g. transport of purchased goods, work-related travel

The figure below further illustrates the scopes and emissions across the value chain of a company.

Figure 1: Overview of scopes and emissions across a company's value chain



Source: GHG Protocol

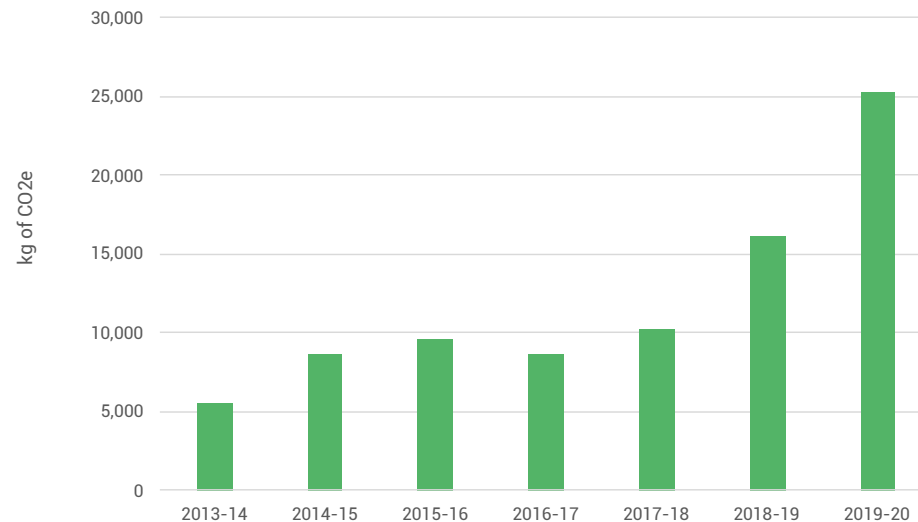
1. Summary of the FY19-20 GHG accounting exercise

The total greenhouse gas emissions for the financial year 2019-20 is estimated at 25,241 kg CO₂e. The aggregated total includes emissions from the consumption of grid-connected electricity, work-related travel and team member commute, purchase of consumer goods and perishable items and combustion of fuels among others. This year's emissions have increased by 56% compared to last year, which had an estimated total emissions of 16,104 kg CO₂e as depicted in Figure 2. This increase may be attributed to the growth in the number of team members and quantity of work.

Albeit the increase in overall emissions, we do find solace in the fact that AVC consumed 2,268.9 kWh of electricity from its roof-top solar panels or 81% of the total electricity consumed. Thus, it prevented the use of grid-supplied electricity and an additional throughput of 1,860.5 kg CO₂e into the atmosphere. It is also interesting to note that our total energy consumption (grid-supplied and renewable) per square meter of office space is 7.07 kWh/m², which is very low for an office building in a warm and humid climate . [1]

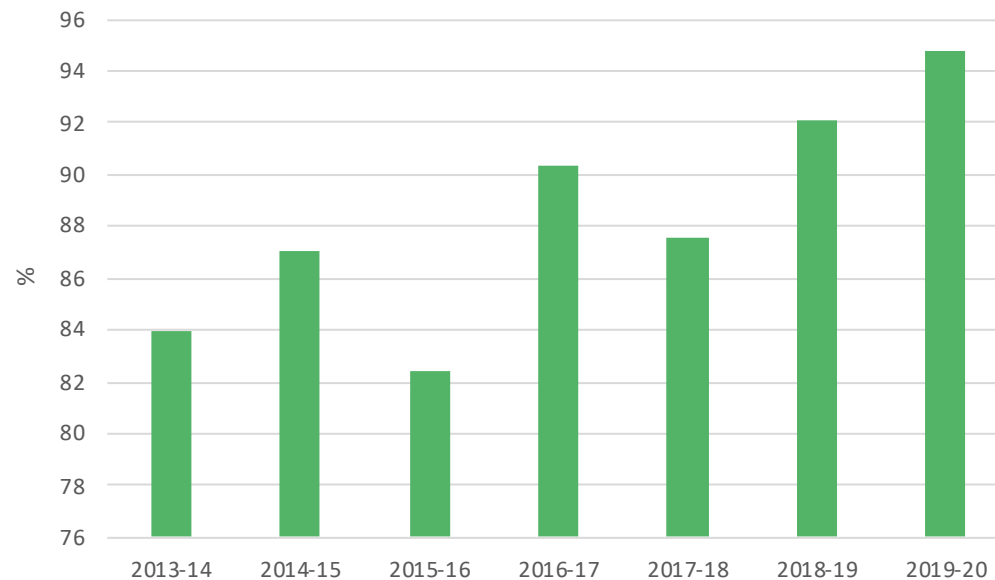
[1] As per Bureau of Energy Efficiency (BEE) the benchmark electricity consumption for a 5 star rated office building in a warm and humid climate is 101 kWh/m²/years. Refer to: Bureau of Energy Efficiency (2020). Energy benchmarks for commercial buildings. Available at: <https://beeindia.gov.in/sites/default/files/>

Figure 2: Comparison of annual emissions



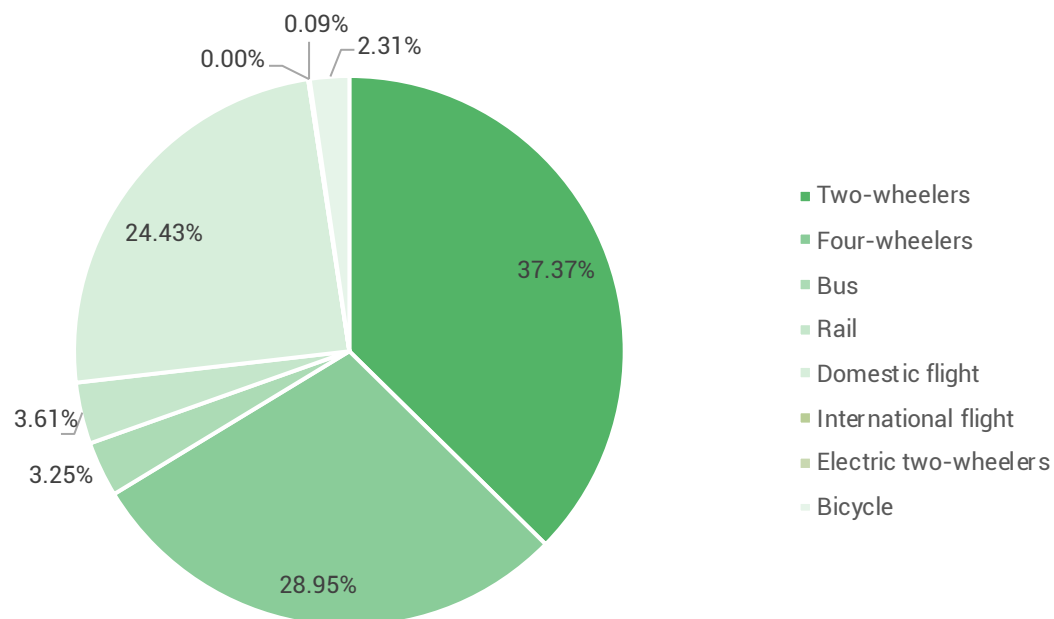
A detailed break-up of the emissions by category given as an Annexure at the end of the report, shows that the most significant jump in emissions is from the transport sector, increasing from 14,850 kg CO₂e to 23,911 kg CO₂e. In fact, transportation has been the biggest driver of emissions for the unit since the base year constituting between 82-95% of all emissions as illustrated in the Figure 3.

Figure 3: Share of transportation emissions over total emissions



Transportation covers travel induced by the unit; it comprises of team member commute from home to work and back and all work-related travel. The modes of travel covered in the report are two-wheelers, four-wheel vehicles, rail, bus and aeroplane. Carbon-intense fuels such as petrol, diesel and jet fuel, which are consumed by two-wheelers, four-wheelers and aeroplanes comprise 38.25%, 29.63% and 25% respectively of the total distance travelled as seen in Figure 4. Conversely, electric two-wheelers and bicycles which have no tailpipe emissions, constitute a mere 0.09% and 2.31% of the total category respectively.

Figure 4: Overview of distances travelled by mode of transport



It is clear that there is a scope for reducing emissions under the transportation category. More than half of all emissions under transport pertain to work-related travel, which majorly includes domestic flights and taxis booked for outstation travel. Although a good deal of meetings are conducted over calls to avoid travelling, the necessity of travelling for work needs to be ascertained more closely on every occasion. Much of the possibility of reducing emissions is also dependent on the personal vehicles that team members purchase for their office commute. Although a number of team members cycle and use electric vehicles, the high cost of electric vehicles, the limited number of charging stations and the long commute often discourage the purchase of sustainable modes of transport.

AVC has provided two electric cycles and is encouraging its team members to use them during office hours for meetings that take place within Auroville. We hope that when team members cycle down the picturesque and winding cycle paths in Auroville, they are inspired to cycle more and make other carbon positive changes in their lives and that eventually we also see a gradual change in the overall emissions of the unit.

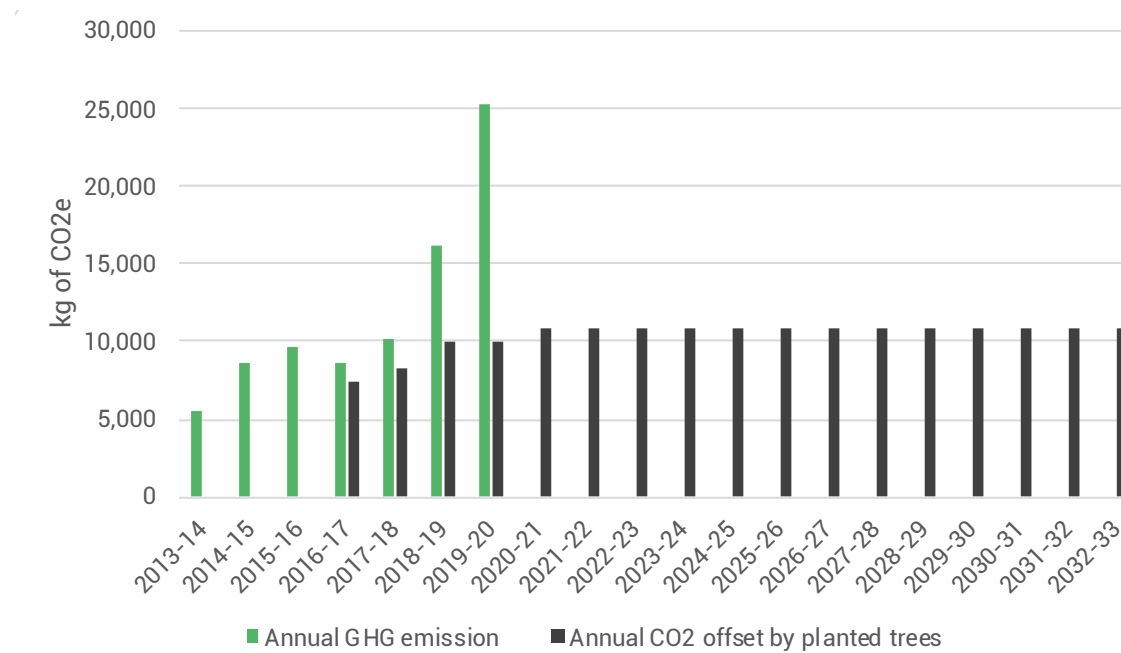
2. Carbon sequestration through tree planting

AVC contributes funds to the Auroville Forest Group for the planting of trees in the biosphere. Trees absorb carbon dioxide as a part of their metabolic cycle and release oxygen making them one of the most important organisms that help maintain the health of the planet. The unit's donation towards the planting of trees promotes the growth of forest and offsets the emissions caused by its operational activities.

AVC has planted 532 trees since 2015 to offset its operational emissions*; these trees continue to absorb carbon dioxide through their lifetime and are estimated to offset a part of this year's emissions as seen in Figure 5. Assuming that a tree absorbs 22 kilograms of carbon dioxide a year and lives for an average of 20 years with a survival rate of 80% per sapling, the unit will need 44 seedlings to offset the rest of the emissions, i.e. 15,293 kg CO₂e. A donation for the planting of 44 trees has been made to the Auroville Forest Group and they will plant saplings during the planting season later in FY20-21 .

* In addition to offsetting its annual operational emissions, AVC, when it acquired a new office in Kalpana, offset the emissions incurred during the construction of the building estimated at a total of 79,789.87 kgCO₂e by commissioning the planting 227 trees which was completed in FY18-19.

Figure 5: Comparison between annual emissions and offsetting



GEO-REFERENCING FINANCIAL TRANSACTIONS

AVC tracks its financial transactions by geographically-defined areas and aims at executing at least 80% of its transactions within the Auroville township in an attempt to reduce transportation-linked emissions made during the acquisition of products and services. In addition to the potential reduction in emissions, this exercise also helps stimulate the local economy.

The unit's total expenditure in FY19-20 was INR 2.61 crore, out of which 92% was spent inside Auroville. As Table 2 indicates, the unit has so far succeeded in achieving its objective since 2015-16 by consistently spending over 79% of its expenditure within the city's boundary.

The primary transactions made outside Auroville were taxes paid to the Government of India, work-related travel and equipment cost.

Geo-referencing	2015-16		2016-17		2017-18		2018-19		2019-20	
	INR	%	INR	%	INR	%	INR	%	INR	%
Non-Auroville Payments	20,63,980	21	24,64,357	19	33,16,081	21	45,80,925	18	20,98,396	8
Auroville Payments	78,34,251	79	1,02,02,924	81	1,23,19,322	79	2,05,22,200	82	2,40,20,391	92
Total	98,98,231	100	1,26,67,281	100	1,56,35,403	100	2,51,03,125	100	2,61,18,787	100

ANNEXURE

Detailed Scope-Wise Emissions Report

GHG emission are accounted in three categories:

- Scope 1 (direct emission)
- Scope 2 (indirect emission)
- Scope 3 (emission by activities)

GHG emissions consist of six gases: Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbon (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluoride (SF₆)

Categories	Item	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Stationary Combustion	Kgs of Natural Gas	0	0	0	0	12	0	0
	Kgs of LPG Fuel	0	13	14	13	12	0	72
	Total (CO₂e)	0	20	21	20	18	24	108
Mobile Combustion	Number of liters Gas oil	0	0	0	0	0	29	0
	Total (CO₂e)	0	0	0	0	0	115	0

Categories	Item	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Energy	Number of kWh consumed from Grid	750	750	894	400	698	584	531
	Total (CO₂e)	615	615	733	328	573	479	436

Categories	Item	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Water	Number of liters water consumed	81,110	1,21,665	3,97,242	3,98,800	3,41,810	3,96,340	4,48,210
	Total emissions (CO2e)	79	119	387	388	333	386	437
Transportation	Kms driven on two-wheelers	0	0	0	0	27,421	51,578	66,641
	Kms driven on four-wheelers	9,801	24,831	23,010	29,745	22,462	29,711	51,629
	Kms driven by bus	940	416	500	0	470	0	5,800
	Kms driven by rail	2,158	0	0	0	10	0	6,436
	Kms on domestic flight	6,710	12,321	7,762	11,470	2,646	23,662	43,560
	Kms on internation flight	10,300	6,500	13,840	3,520	4,820	0	0
	Kms driven on two-wheelers electric vehicles	0	0	0	0	2,640	2,321	163
	Total emissions (CO2e)	4,666	7,468	7,891	7,724	8,964	14,850	23,911
Materials Soft Goods	Kgs of mixed cardboard and paper	7	3	8	0	73	26	30
	Kgs of plastics	0	2	1	9	0	0	0
	Kgs of books	14	17	175	0	87	69	11
	Kgs of small electrical items	5	12	38	2	1	0	3
	# ink cartridges	1	5	2	3	2	3	8
	Total emissions (CO2e)	30	53	244	36	154	92	52
Materials Durable Goods	Kilos of large electrical items	0	0	0	0	12	0	31
	Total emissions (CO2e)	0	0	0	0	6	0	16
Food	Total Kilos of veg meal	1,692	3,156	2,986	570	1,896	1,923	2,898
	Total emissions (CO2e)	164	306	290	55	184	187	281
Infrastructure	Tons of construction material	0	0	0	0	0	0	0
	Total emissions (CO2e)	0	0	4	0	0	0	0

TOTAL

Total emissions for the year (CO2e)	5,553	8,580	9,570	8,551	10,232	16,133	25,241
Total number of trees planted	0	0	395	50	87	0	0
Number of full-time team members	8	14	13	25	21	25	28

