AurovilleConsulting

Greenhouse Gas (GHG) Accounting Report

An annual sustainability report of Auroville Consulting

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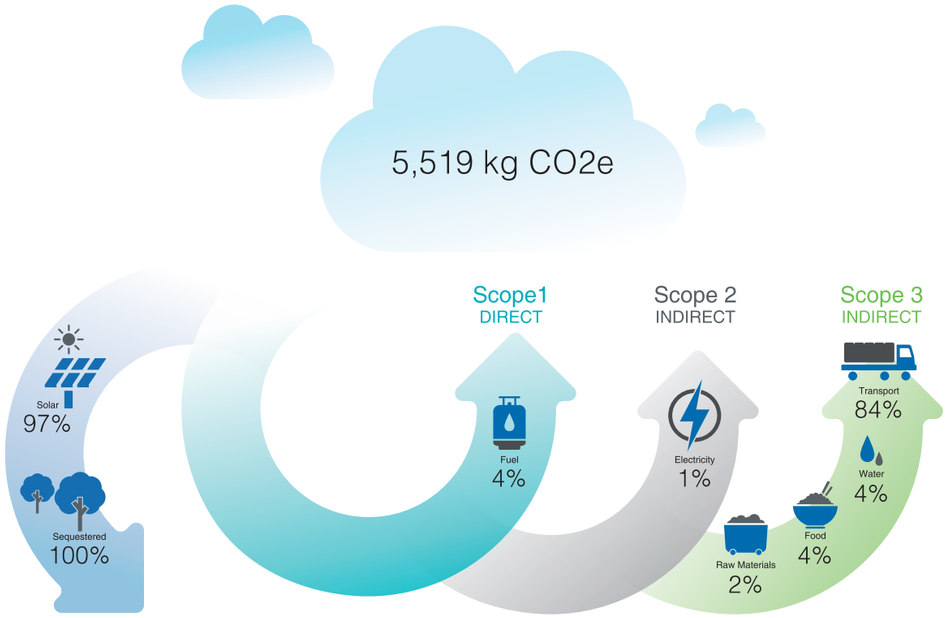
Executive summary



Annual emissions produced and avoided by category

Highlights

- 100% of this year's emissions were offset by planting 195 trees
- 97% of energy demand was supplied by renewable energy through rooftop solar
- 2,324 kg CO2 was saved by generating solar power
- 9.76 kilowatt hours per square metre per year consumed – well within the benchmark as per Bureau of Energy Efficiency (BEE) for an office building in a warm and humid climate!
- 95% of operational expenditure was made in local areas, with 71% inside Auroville and the remaining in Pondicherry and Tamil Nadu – preventing unnecessary transport emissions and stimulating the local economy
- An electric bike scheme aimed at reducing emissions from employee commute has been implemented in March of 2022 and is projected to drop transport-related emissions by 40% in the coming years.

Contents

Templates and processes used to calculate greenhouse gas emissions and geo-referencing spending have been integrated into our accounting system and progress is being monitored on an annual basis. Templates are available for use on request. Contact ghg@aurovilleconsulting.com for details.

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 greenhouse gases (GHG).

Auroville Consulting (AVC) has been identifying and calculating its emissions since 2013. We aim at reducing emissions continually and managing them more effectively and choose to offset the unavoidable emissions by planting trees in the Auroville biosphere.

During the financial year 2021-22, we conducted this practice along with the tracking of our financial transactions by geographically defined areas. AVC's primary objectives through this exercise are:

a) To assess and reduce its environmental footprint

b) To execute most of its financial transactions within the Auroville boundary in order to limit the transportation-linked emissions

c) To offset its operational emissions by planting trees

Greenhouse gas 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 seven greenhouse gases reported under this standard are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbon (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF_6). The combined emissions are also expressed in kilograms of carbon dioxide equivalent (CO_2e), which compares all the greenhouses to carbon dioxide. The use of CO_2e helps simplify the accounting process and analysis, as the emissions are represented by a single value.

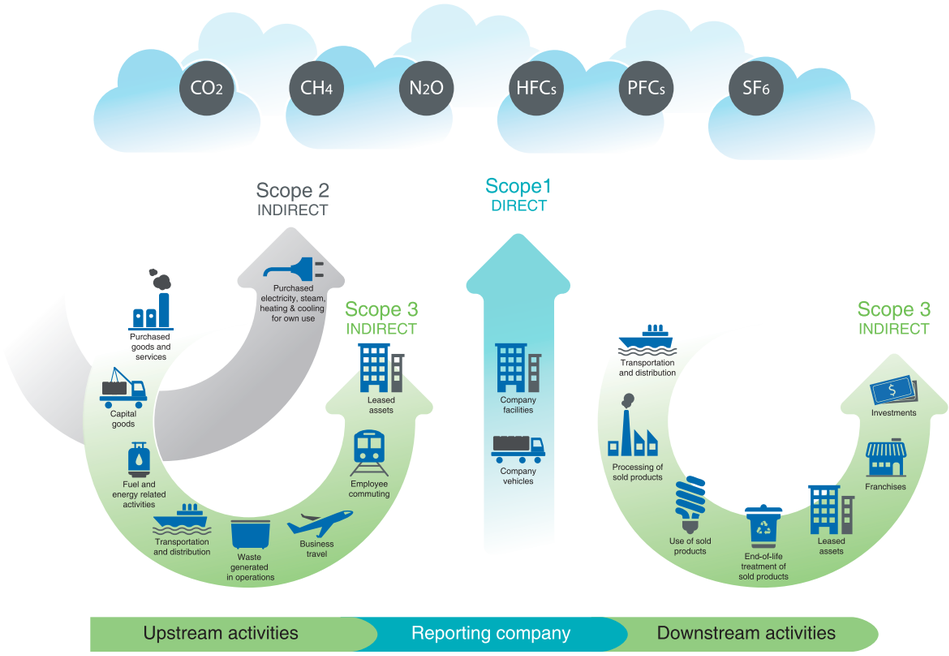
The GHG Protocol mandates that the activities of organisations be split into three categories or scopes for a more transparent accounting structure. The activities covered under each scope are shown below in Table 1:

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

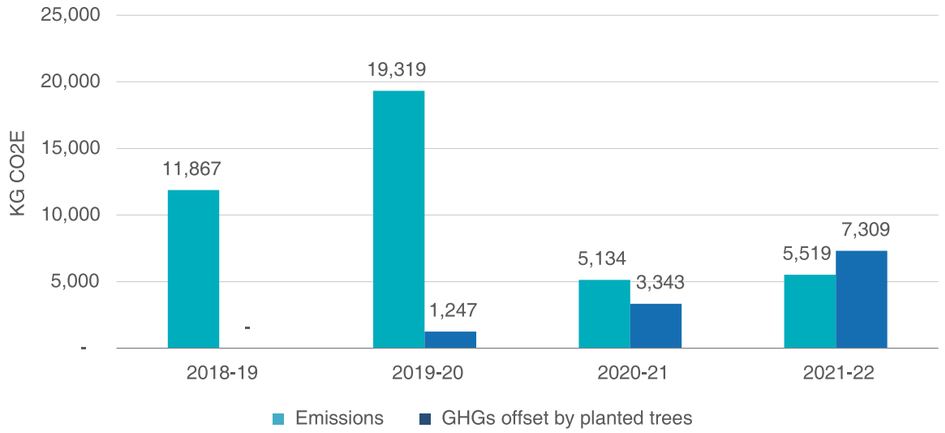


Source: GHG Protocol

Summary of the FY20-21 GHG accounting exercise

The total greenhouse gas emissions for the financial year 2021-22 are estimated at 5,519 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 7.5% compared to last year, which had an estimated total emission of 5,134 kg CO2e as depicted in Figure 2.

*Figure 2: Comparison of annual emissions**



**AVC has revised its baseline year from FY2013-14 to FY18-19. As we changed our office premises, it significantly affected overall emissions and made comparisons from the previous years dissimilar*

Geo-referencing financial transactions

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

AVC's total expenditure in FY21-22 was INR 3.14 crore, out of which 71% was spent inside Auroville and 24% in local areas around Auroville, amounting to 95% of expenditure occurring to stimulate the local economy. The primary transactions incurred outside Auroville were taxes paid to the Government of India, and equipment cost. As Table 2 indicates, the unit has so far succeeded in achieving its objective by consistently spending over 80% of its expenditure within the city's boundary.

Table 2: Geo-referencing financial transactions

Geo-referencing	2019-20		2020-21		2021-22	
	INR	%	INR	%	INR	%
Other Payments (Other states, international)	20,98,396	8	26,64,921	13	17,39,908	5%
Local Payments (Pondy, TN)					74,55,129	24%
Auroville Payments	2,40,20,391	92	1,75,88,960	87	2,22,22,508	71%
Total	**2,61,18,787**	**100**	**2,02,53,882**	**100**	**3,14,17,546**	**100%**

Mitigation measures

The chief reason for calculating emissions is to identify sources of emissions and reduce them. This section explores areas of intervention adopted by AVC and future mitigation measures.

Renewable energy generation

AVC consumed 2,848.5 kWh electricity or 97% of the total electricity demand from its roof-top solar plant. Thus, it prevented the use of grid-supplied electricity with an associated emission of 2,324.42 kg CO2e. It is interesting to note that the total energy consumption (grid-supplied and renewable) per square meter of office space is 9.72 kWh/m2/year, 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/

Electric mobility

For a number of years, AVC has provided an electric cycle for team members to use for meetings that take place within Auroville. In addition to this, AVC explored various avenues to help team members transition from combustion engine-based two-wheelers to electric two-wheelers. From March 2022 onwards the organisation provided electric two-wheelers to all its full-time team members. This scheme is proposed to reduce the overall organisational emissions of AVC by 40% and the transport emissions by 46% compared to FY 2020-21.

[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/Flyer_22nd%20Jan.pdf

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. AVC's contribution towards the planting of trees promotes the growth of the forest and offsets it partially or in full the emissions caused by its operational activities.

This year, AVC updated the sequestration rates from an average global default value to one that is specific to the Tropical Dry Evergreen Forest (TDEF), prevalent in and native to Auroville. As per information given by the Forest Group, 30 TDEF trees sequester 1 tonne of carbon dioxide during their lifetime. Since the forest land is a dedicated or permanent space of forestry activities in Auroville, lifetime removals of emissions for the plantation activity can be accounted for. In order to offset in full emissions for FY2021-22, AVC has contributed towards the planting of 195 trees; the trees will be planted during the planting season of FY2022-23.

Annexure:

Detailed scope-wise emissions report

Category	Item	2019-20	2020-21	2021-22
Scope 1				
Stationary Combustion	Kgs of Natural Gas	-	-	-
	Kgs of LPG Fuel	72	72	72
	Total emissions (CO2e)	**212**	**212**	**212**
Mobile Combustion	Number of liters Gas oil	-	-	-
	Total emissions (CO2e)	**-**	**-**	**-**
Scope 2				
Energy	Number of kWh consumed from Grid	577	294	93.8
	Total emissions (CO2e)	**473**	**241**	**74.10**
Scope 3				
Water	Number of liters water consumed	4,48,210	2,00,165	2,15,370.00
	Total emissions (CO2e)	**437**	**195**	**209.80**
Transportation	Kms driven on two-wheelers	66,641	49,401	4,289.00
	Kms driven on four-wheelers	51,629	5,502	9,024.00
	Kms driven by bus	5,800	-	1,435.00
	Kms driven by rail	6,436	-	632.00
	Kms driven by autorickshaw	-	-	
	Kms on domestic flight	43,560	3,514	3,520.00
	Kms on international flight	-	-	
	Kms driven on two-wheelers electric vehicles	163	508	2,965.00
	Total emissions (CO2e)	**17,846**	**4,107**	**4624.25**
Materials - Soft goods	Kgs of mixed cardboard and paper	30	58	56.80
	Kgs of plastics	-	-	
	Kgs of books	11	21	1.40
	Kgs of small electrical items	3	18	30.43
	# ink cartridges	8	1	
	Total emissions (CO2e)	**53**	**108**	**109.00**
Materials - Durable goods	Kgs of large electrical items	31	20	6.00
	Total emissions (CO2e)	**16**	**11**	**3.22**
Food	Total Kgs of veg meal	2,898	2,693	2,871.60
	Total emissions (CO2e)	**281**	**261**	**278.55**
Waste Disposal	Waste disposed in Landfill	-	-	16.73
	Waste composted			120.83
	Total emissions (CO2e)	**-**	**-**	**8.53**
Total emissions for the year (CO2e)		**19,319**	**5,134**	**5519.11**
Total number of trees planted		44	118	195
Number of full-time employees		28	38	35

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