

Greenhouse Gas (GHG) Accounting Report

An annual sustainability report of Auroville Consulting

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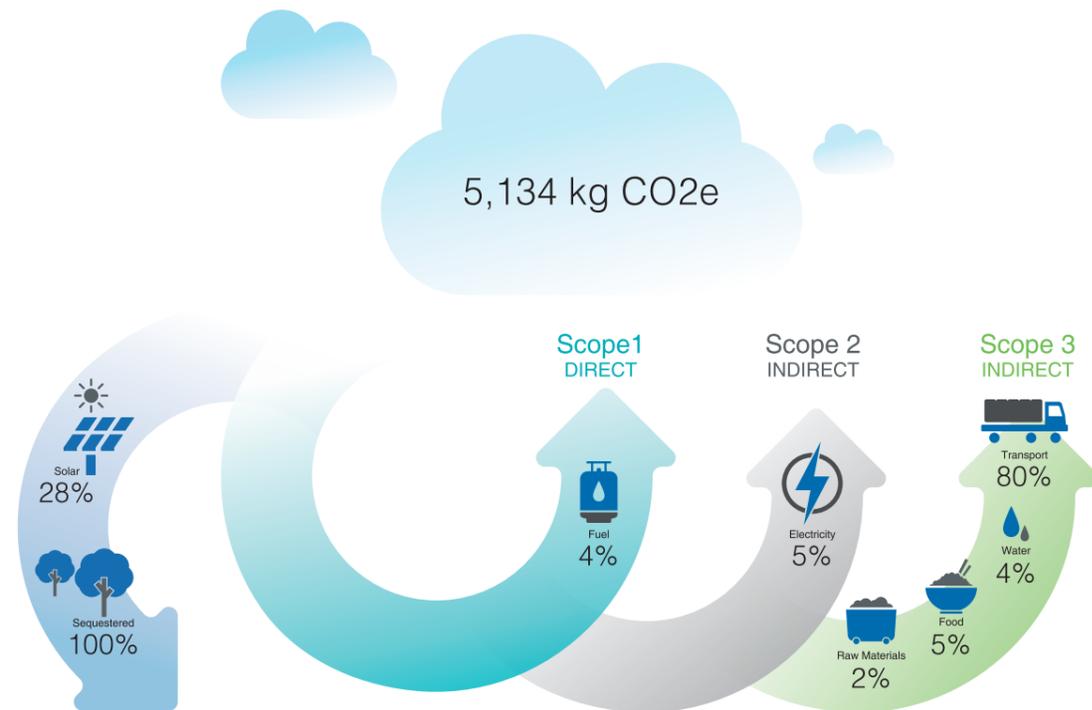


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Executive summary



Annual emissions produced and avoided by category

Highlights

- 100% of this year's emissions were offset by planting 118 trees
- 90% of energy demand was supplied by renewable energy
- 2,071 kg CO₂ was saved by generating solar power
- 9.06 kilowatt hours per square metre per year consumed – well within the benchmark for an office building in a warm and humid climate!
- 80% of operational expenditure was inside Auroville – preventing unnecessary transport emissions and stimulating local economy
- Electric bike scheme aimed at reducing emissions from employee commute to 0 is being discussed

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Templates and processes used to calculate greenhouse gas emissions and geo-referencing spending 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 details.

Background

Environmental degradation and the rapid consumption of natural resources as a result of the many of 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 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 2020-21, we conducted this practice along with the tracking of our financial transactions by geographically defined areas. AVC's primary objectives through this exercise is:

- 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, and
- d) to create a roadmap for carbon neutrality

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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbon (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃) 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.

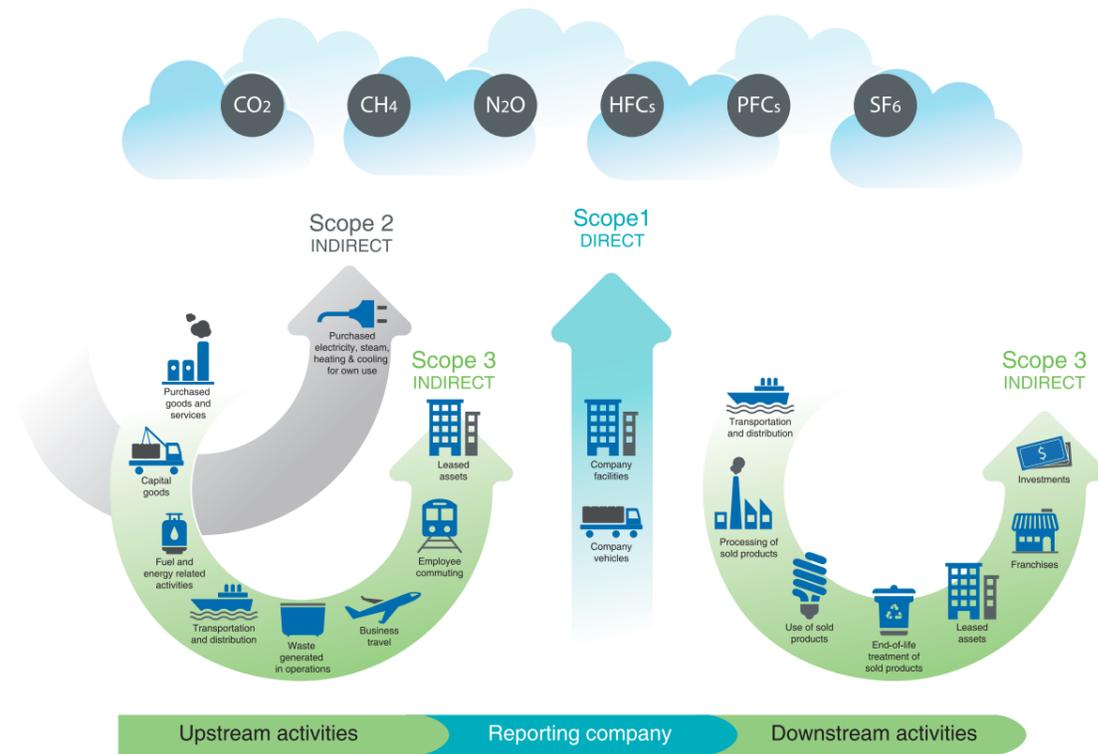
The GHG Protocol mandates that the activities of organisations be split into three categories or scopes for a more transparent accounting structure. The activities covered under each scopes are shown below in Table 1:

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

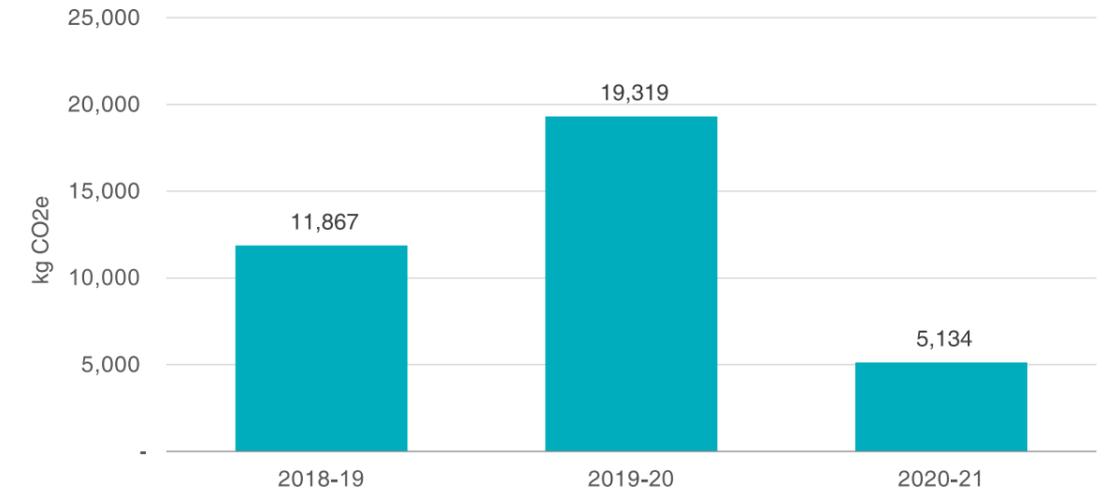


Source: GHG Protocol

Summary of the FY20-21 GHG accounting exercise

The total greenhouse gas emissions for the financial year 2020-21 is estimated at 5,134 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 decreased by 73% compared to last year, which had an estimated total emissions of 19,319 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

The sudden drop in emissions can be attributed to the COVID-19 pandemic. During the lockdown, AVC team members worked primarily from home which resulted in reduced emissions caused by commuting to and from work and travelling for business bringing down the overall emissions. In fact, a detailed break-up of emissions given as an Annexure at the end of the report, shows that the emissions is from the transport sector decreased by 77% from 17,846 kg CO₂e in the previous year to 4,107 kg CO₂e.

Geo-referencing financial transactions

AVC tracks 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 reduction in emissions, this exercise also helps stimulate the local economy.

AVC's total expenditure in FY20-21 was INR 2.02 crore, out of which 87% was spent inside Auroville. 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	2018-19		2019-20		2020-21	
	INR	%	INR	%	INR	%
Non-Auroville Payments	45,80,925	18	20,98,396	8	26,64,921	13
Auroville Payments	2,05,22,200	82	2,40,20,391	92	1,75,88,960	87
Total	2,51,03,125	100	2,61,18,787	100	2,02,53,882	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 2,525.5 kWh of electricity from its roof-top solar panels or 90% of the total electricity demand. Thus, it prevented the use of grid-supplied electricity and an additional throughput of 2,070.91 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 9.06 kWh/m²/year, which is very low for an office building in a warm and humid climate¹.

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 is exploring various avenues to help team members transition from combustion engine based two-wheelers to electric two-wheelers. We hope to implement such a programme in FY2021-22, which should also bring down its overall transport footprint, which is the largest emission contributor.

Emissions projections

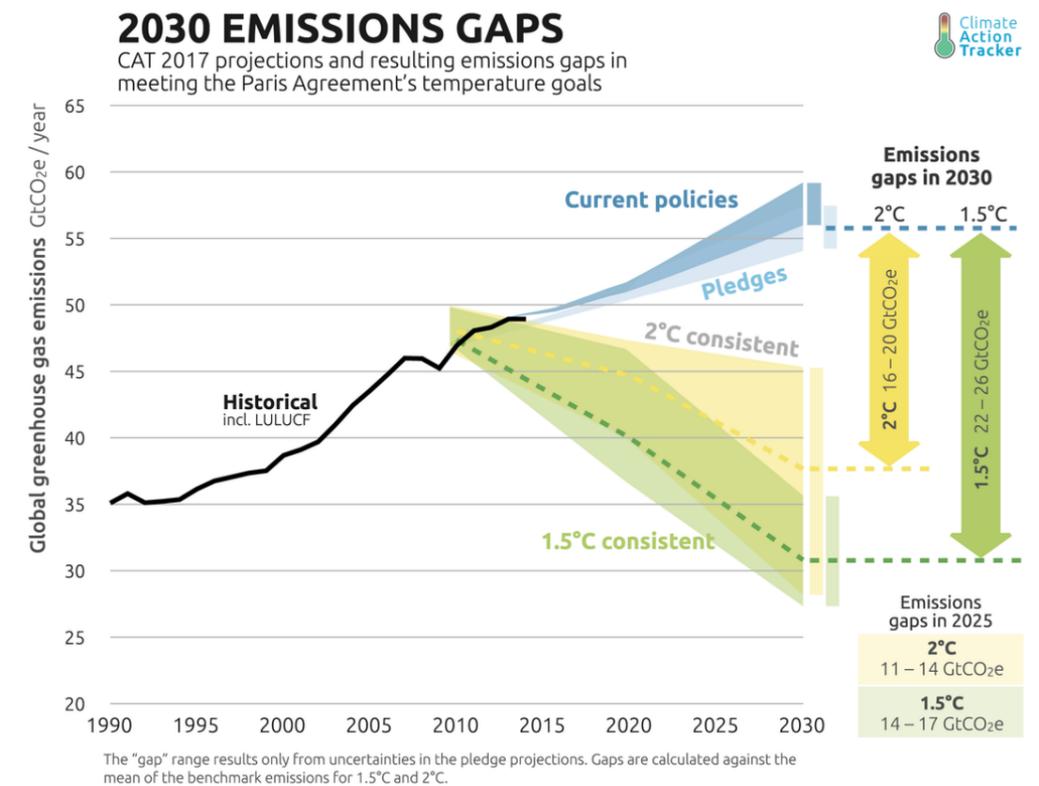
In order to keep global temperatures below 1.5 °C, net emissions need to be brought down in spite of increased economic and industrial activities. To enable such a drawdown, it's important for entities to project future emissions in order to plan for interventions. A projection and gap assessment at a global scale is shown in Figure 3.

AVC is currently putting together an emission projection till year 2030 and set a reduction goal, in line with global science-based targets. Even though these numbers aren't yet finalised, sources of potential increase in electricity demand have been identified, i.e. a cooling system for the office space and charging station for electric vehicles. Instead of meeting this demand by consuming electricity through the utility grid, AVC plan to look into increasing its renewable energy production through a larger solar rooftop installation.

Through such interventions, AVC wants to reduce its operational emissions on our journey towards net carbon neutrality.

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

Figure 3: Global emission projections and gaps



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 FY2020-21, AVC has contributed towards the planting of 118 trees; the trees will be planted during the planting season of FY2021-22.

Annexure:

Detailed scope-wise emissions report

Category	Item	Units	2018-19	2019-20	2020-21
Scope 1					
Stationary Combustion	Natural Gas	kgs	-	-	-
	LPG Fuel	kgs	72	72	72
	Total emissions	kg CO2e	212	212	212
Mobile Combustion	Gas oil	ltrs	-	-	-
	Total emissions	kg CO2e	-	-	-
Scope 2					
Energy	Consumed from Grid	kWh	584	577	294
	Total emissions	kg CO2e	479	473	241
Scope 3					
Water	Water consumed	ltrs	3,96,340	4,48,210	2,00,165
	Total emissions	kg CO2e	386	437	195
Transportation	Two-wheelers	kms	51,578	66,641	49,401
	Four-wheelers	kms	29,711	51,629	5,502
	Bus	kms	-	5,800	-
	Rail	kms	-	6,436	-
	Autorickshaw	kms	-	-	-
	Domestic Flight	kms	23,662	43,560	3,514
	International Flight	kms	-	-	-
	Two-wheelers electric vehicles	kms	2,321	163	508
	Total emissions	kg CO2e	10,511	17,846	4,107
	Materials - Soft goods	Mixed cardboard and paper	kgs	26	30
Plastics		kgs	-	-	-
Books		kgs	69	11	21
Small electrical items		kgs	-	3	18
Ink cartridges		No.	3	8	1
Total emissions		kg CO2e	93	53	108
Materials - Durable goods	Large electrical items	kgs	-	31	20
	Total emissions	kg CO2e	-	16	11
Food	Veg meal	kgs	1,923	2,898	2,693
	Total emissions	kg CO2e	187	281	261
Infrastructure	Construction maerial	Tons	-	-	-
	Total emissions	kg CO2e	-	-	-

Scope 1 emissions (kg CO2e)	212	212	212
Scope 2 emissions (kg CO2e)	479	473	241
Scope 3 emissions (kg CO2e)	11,177	18,633	4682
Total emissions for the year (kg CO2e)	11,867	19,319	5,134
Total number of trees planted	-	44	118
Number of full-time employees	25	28	38

