

Annual Sustainability Report

Auroville Consulting

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Authors:

Devi Manasa Palakodeti
Martin Scherfler
Mohan Murali
Raghav Nandakumar

Designer:

Thiagarajan Rajendiran

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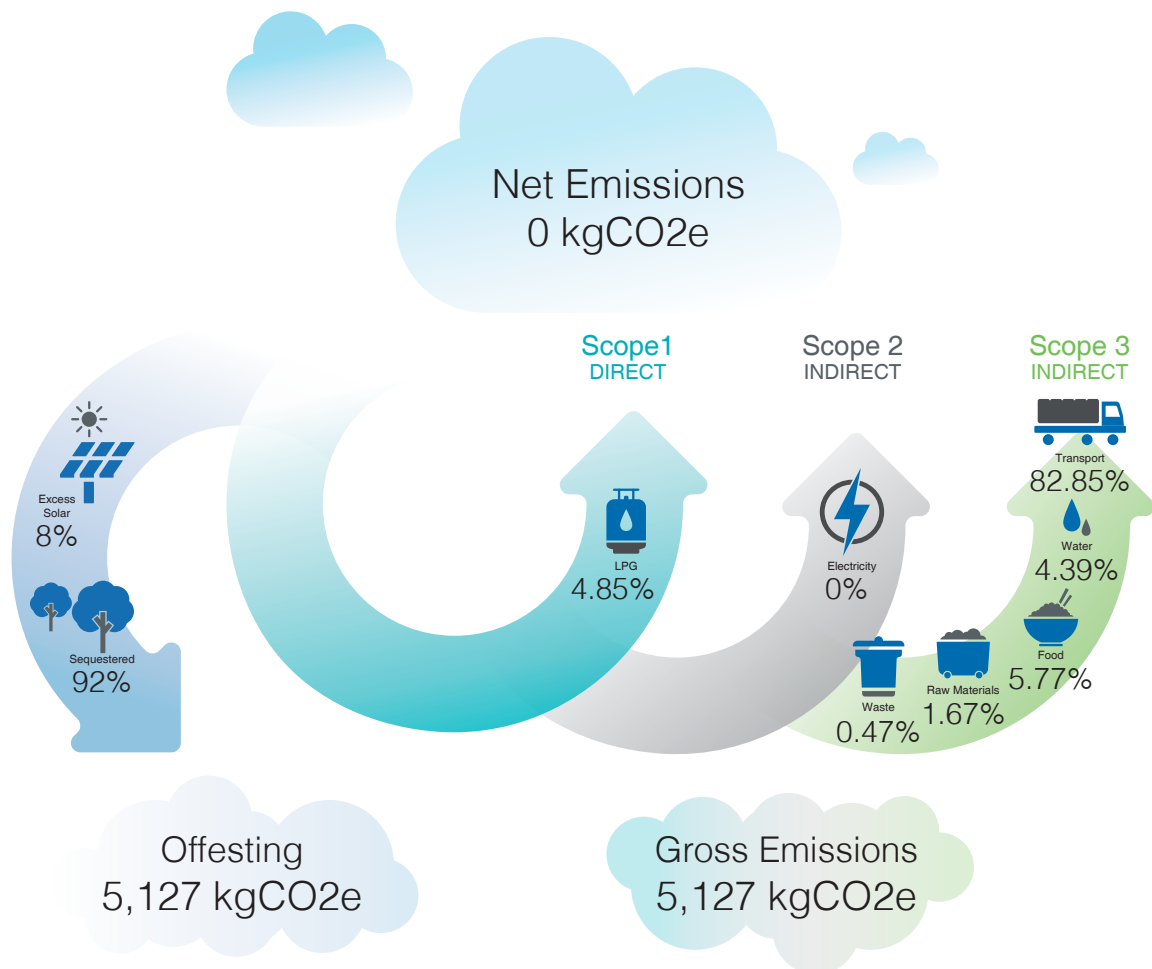
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Executive summary



Highlights

- Auroville Consulting (AVC) has achieved a net zero emission balance for FY 2022-23. This was made possible through planned interventions and implementation of good practices to reduce gross emissions, followed by investment in long term effective carbon positive projects.
- 92% of this year's gross emissions were offset by planting trees and the remaining 8% was offset by excess solar generation, making AVC a carbon net-zero organisation.
- 100% of electricity demand was supplied by renewable energy through rooftop solar.
- 25.58 kWh of electricity was consumed per square meter of office space, which is 86% lower than the benchmark of Bureau of Energy Efficiency (BEE) for an office building in a warm and humid climate (Benchmark: 182 kWh/sq. m/yr).

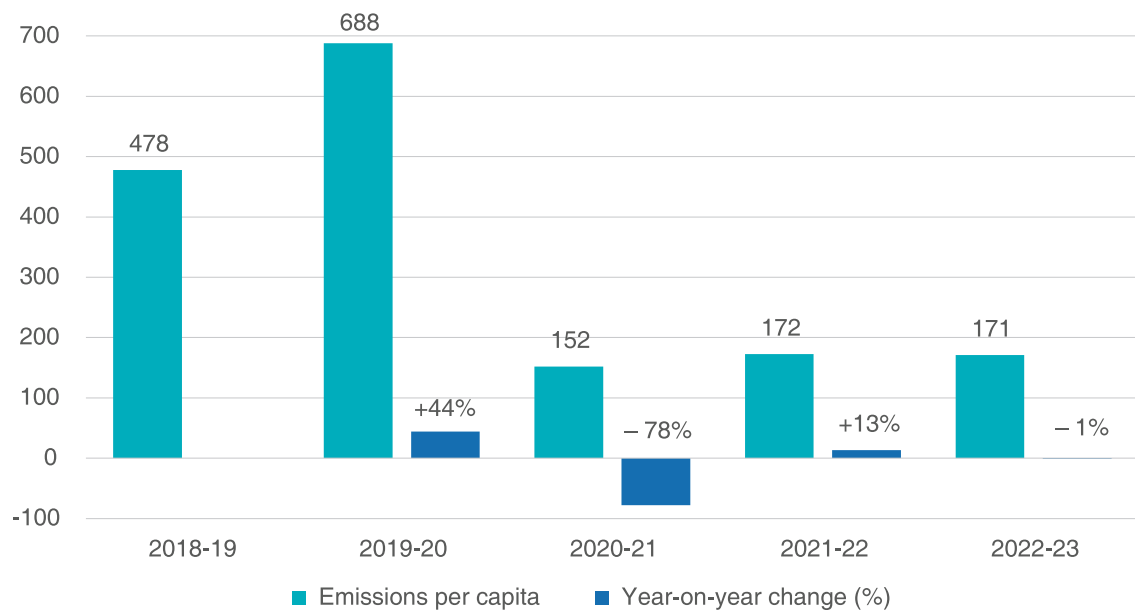
- From March 2022 onwards, the organisation has been providing electric two-wheelers to all its full-time team members for their daily commute to and from office and for their own personal use, along with a charging facility supplied by an additional installed capacity of rooftop solar. This initiative resulted in :
 - An emission reduction of 2,584 kgCO₂e for their daily commute to and from office, which is an 88% decrease in comparison to the previous year, and
 - An emission reduction of 6,309 kgCO₂e, which was achieved by converting the personal commute of our team members to e-vehicles and charging them through renewable energy. This is a value higher than the total gross emissions of the organisation.
- 98% of the operational expenditure was made in local areas, with 91% of this incurring inside Auroville; and the remaining 2% in Pondicherry and Tamil Nadu – preventing unnecessary emissions and stimulating the local economy.

Human Math:

- The total gross emissions of the organization can be offset by installing a solar PV system spanning an area of 34.01m².
- The total gross emissions from transport for the year was equal to travelling four times around the world on an e-bike.

In order to highlight our relative emissions, we compared our per capita gross emissions from FY 2018-19 till FY 2022-23, shown in Figure 1:

Figure 1: Annual per capita emissions (2018-19 to 2022-23)





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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.

Introduction

Using our expertise in ecological and socially responsible development, we work for a prosperous eco-system that supports all life on this planet. Our approach is multi-faceted: We collaborate with academic, private, and public sector partners both in India and internationally, helping to develop sustainable urban and industrial development policies, ecologically friendly technologies – and the minds of future leaders. The latter we do with inspirational thought leadership and courses in aspects of sustainability. We live and work in Auroville, a developing township dedicated to manifesting the vision of Sri Aurobindo and the Mother, and a centre for sustainable practices. We have been identifying and calculating our emissions since 2013. We aim at reducing emissions continually and managing them more effectively while choosing to offset the unavoidable emissions by planting trees in the Auroville biosphere.

Figure 2: The Auroville Consulting team



During the financial year 2022-23, we intensified this practice along with the digital footprint through network usage and website hosting, understanding the impact of our recently installed HVAC system, and emissions avoided by providing e-bikes to all our team members. Our primary objectives through this exercise are:

- a) to assess and reduce our environmental footprint,
- b) to offset our operational emissions by planting trees, and
- c) to create a roadmap for carbon neutrality,

Projects in FY 2022-23:

This year AVC worked on a wide variety of projects in the field of sustainable development over our various disciplines. Here is a list of some of the projects we undertook in the previous year.

● **Fourth Partner Energy Pvt. Ltd. (FPEL)**

The sustainability report of FPEL was prepared based on the guidelines of the Global Reporting Initiative (GRI). The report broadly focuses on the economic, environmental, and social impacts of the organisation as a result of its business activities.

🔗 **Rajapalayam GHG Emissions Inventory 2021**

AVC established a Greenhouse Gas (GHG) emission inventory for Rajapalayam Local Planning Area for 2021. The GHG inventory was established based on the Global Protocol for Community Scale Greenhouse Gas Emission Inventories.

● **JetSetGo (JSG)**

JSG's carbon management program aims to provide increasingly low to gradually net-zero carbon flights to all its flyers from 2025 onwards. AVC is currently involved in:

- (i) preparing a historic greenhouse gas emissions inventory to estimate impact, and
- (ii) forecasting operational emissions in line with JSG's business plan and thereby assessing their offsetting requirements.

🔗 **LeBracs Rubber Linings Progress Report 2022**

LeBracs Rubber Linings Private Limited, a manufacturing company in Pondicherry, decided in the financial year 2021-22 to quantify their progress post their previous emissions inventory in the financial year 2019-20. AVC, using the guidelines of the globally recognised tool, the GHG Protocol: Corporate Accounting and Reporting Standard, helped the organisation to identify, calculate and report their GHG emissions in an accurate, consistent, and transparent manner.

● **Straive**

Straive (formerly SPi Global) is a market-leading content technology enterprise, with the help of AVC, established their first Environmental, Social and Governance (ESG) report along with a detailed benchmarking study of their electricity related emissions and a science-based target.

🔗 **Teddy Exports**

Teddy Exports, a fairtrade export company based in Madurai, Tamil Nadu decided to put together a GHG emissions inventory report for the financial year 2021-22. The report identifies and quantifies the organisation's operational carbon emissions. A strong focus of this report was to identify opportunities for streamlining and improving data collection and data accuracy.

🔗 **Auroville Green Practices (AGP)**

AGP is an experiential learning and educational platform developed by AVC in 2010. AGP brings different experts, units, and projects from the community to create awareness around green growth and sustainable development, including solar power, ecological sanitation, water security, organic farming, and earthen architecture. The AGP vertical conducted 38 workshops during the last financial year and changed perspectives of over 362 students and working professionals.

🔗 **Sustainable Energy Transformation, Tamil Nadu (SET-TN)**

An initiative to facilitate, develop and support progressive policies and financial, technical and stakeholder engagement strategies for a sustainable energy transformation in the state of Tamil Nadu. SET-TN is a collaborative initiative by Auroville Consulting (AVC), Consumer and Civic Action Group (CAG), and the World Resources Institute India (WRI).

Renaissance Project

Renewable integration and sustainability in energy communities. Renaissance project works to deliver a community-driven scalable and replicable approach, to implement new business models and technologies supporting clean production and shared distribution of energy in local communities. The project is lead the University of Brussels and is supported under the European Union Horizon 2022 initiative. Auroville served as a pilot site under Renaissance Project.

PRANA

In consultation with the Ministry of Environment, Forests and Climate Change (MoEFCC) of India, UNEP, Auroville Consulting and Tabreed India developed the Prāna project. Prāna is a demonstration project for integrated, market linked and localized cold chain services for the agricultural and vaccine supply chain in Villupuram District, Tamil Nadu, India.

Smart Mini Grid

The Auroville Smart Mini Grid project seeks to develop a scalable and financially viable example of resilient, smart, and interconnected community mini-grids, to tackle issues of energy security, affordability, climate resilience and mitigation. It is foreseen that this approach can be adapted by campuses, urban centres and by electricity utilities at a wider scale and will serve as a case study to inform policy makers and urban decision makers. As of March 2023, 543 kW of grid interactive rooftop solar PV systems, 60 kWh of grid-active Li-ion battery energy storage and 235 smart energy meters have been installed. Additionally, the Auroville internal electricity distribution system that provides interconnectivity for these systems has been expanded.





LILA


LifeLands (LiLa) is an innovative digital tool that helps with decision-making with regards to land-use and land-use planning using satellite imagery, AI & GIS Mapping. It (i) creates land-cover maps at high spatial resolution for any area of interest, (ii) detects degraded/unused land and (iii) evaluates these lands in regard to climate mitigation and adaptation interventions such as sustainable water management, reforestation and solar energy generation. Land suitability assessments for 3 districts in Tamil Nadu and one district in Madhya Pradesh have been undertake so far.

Design services

AVC provides graphical designing services for internal and external reports. Apart from this, we provide web designing, branding, architectural documentation and video documentation services.

AVC provides design services for both external and internal organisations. Our services range from graphic design for reports, brand designing, web designing and video and photo documentation services. The projects undertaken in FY 2022-23 included:

- Gate of Dreams: Web and brand designing. 
- Mandala Pottery: Video and photography documentation. 
- Rajapalayam: Infographics and designing for the town planning report.
- Samangal: Architectural documentation.
- Tapasya Design Studio: Architectural documentation. 
- Thamarai: Video documentation for educational center. 

 Click to be redirected to the relevant project document



Geo-referencing financial transactions

We have been tracking our financial transactions by geographically defined areas since 2013 and aim at executing at least 80% of our 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.

Our total expenditure in FY22-23 was INR 3.14 crore, out of which 91.39% was spent inside Auroville and 6.37% in local areas around Auroville, amounting to 97.76% of expenditure, stimulating the local economy. The primary transactions incurred outside Auroville were taxes paid to the Government of India, and equipment cost. As Table 1 indicates, We have exceeded our objective by consistently spending over 80% of our expenditure within the city's boundary.

Table 1: Geo-referencing financial transactions

Geo-referencing payments	2019-20		2020-21		2021-22		2022-23	
	INR	%	INR	%	INR	%	INR	%
Other (Other states, international)	20,98,396	8	26,64,921	13	17,39,908	5	20,00,513	6
Local (Pondicherry, TN)					74,55,129	24	7,02,541	2
Auroville	2,40,20,391	92	1,75,88,960	87	2,22,22,508	71	2,86,95,160	91
Total	2,61,18,787	100	2,02,53,882	100	3,14,17,546	100	3,13,98,214	100

Greenhouse gas accounting

Background

Scientists and researchers around the globe have reported uncharacteristic variations in temperatures on land and in the ocean, as well as irregular seasonal patterns, rainfall and in most of the safe and just Earth System Boundaries (ESBs). The science on climate change is very evident and clear. The snowball effect of greenhouse gases emitted from anthropogenic activities is leading to global warming causing abnormal and unsustainable change. To address these issues globally, an international climate regime has been developed. Intergovernmental, Governmental, non-governmental organisations, research institutions, businesses, civil societies, and many other groups are working together to build the science and knowledge that allow us to mitigate the threats of climate change.

Key underlying facts are:

- Burning of fossil fuels and changes in land use are the major human activities leading to increased concentrations of GHGs in the atmosphere.
- The average global temperature is directly linked to the concentration of GHGs in the atmosphere. Even slight variations in the global temperature will have adverse effects on weather and climate systems, causing detrimental impacts on life and society.
- While mitigation of emissions by reducing the concentration of GHGs is the urgent need, we equally need to be prepared to adapt to the current and approaching impacts of climate change.

Methodology

For the inventory of our greenhouse gas emissions, we refer to the guidelines of the globally recognised 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 standard 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.

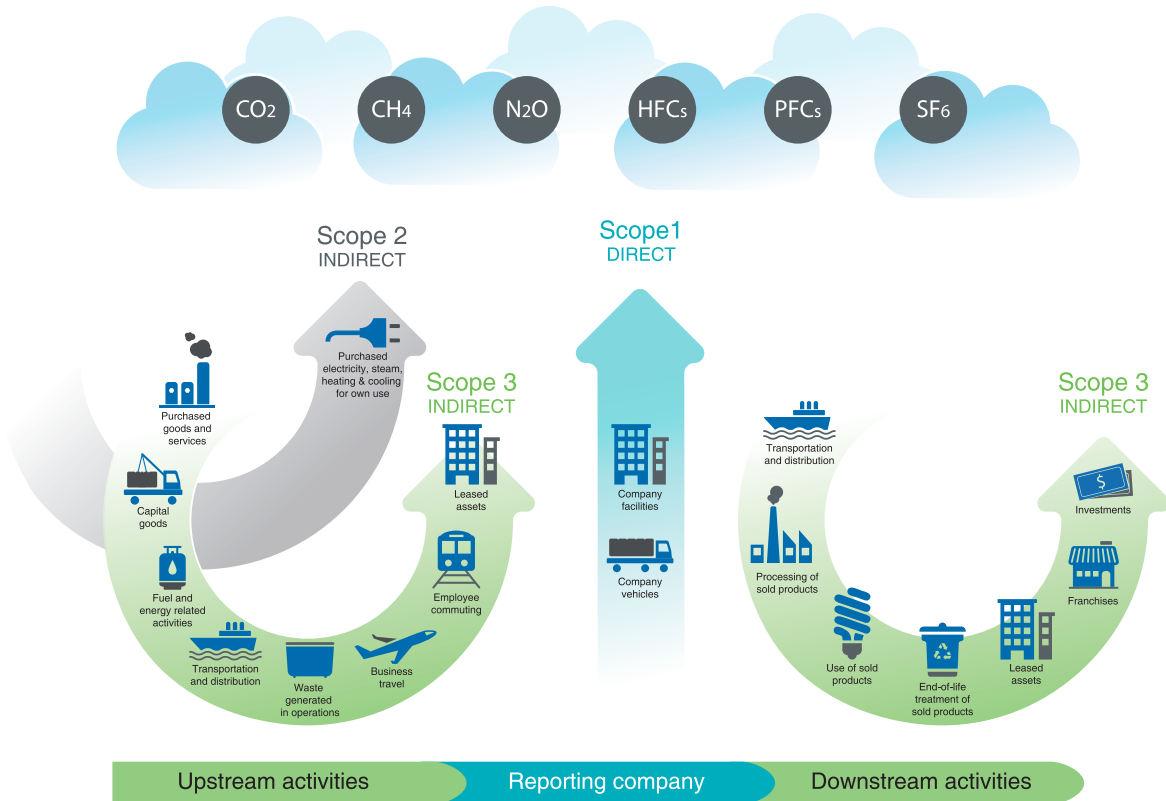
The GHG Protocol mandates that the activities of organisations be split into three categories or scopes for a more transparent accounting structure. The activities covered under each scope are shown below in Table 2:

Table 2: 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 3: Overview of scopes and emissions across a company's value chain



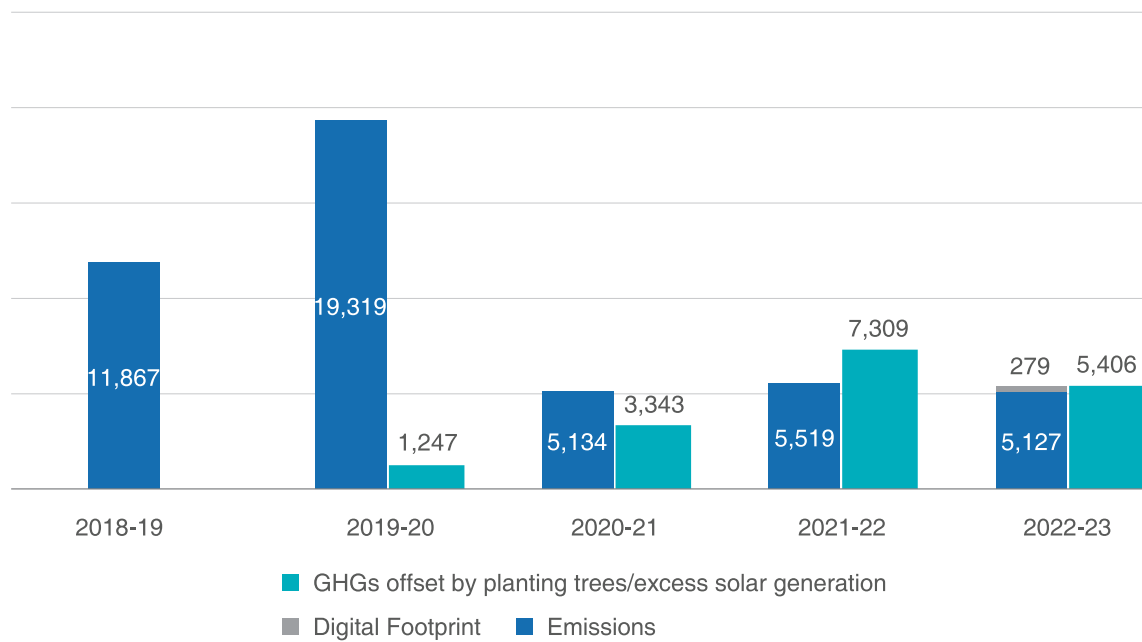
Source: GHG Protocol

A detailed breakup of the scope-wise emissions has been provided in the Annexure.

Summary

The total greenhouse gas emissions for the financial year 2022-23 are estimated at 5,127.03 kgCO₂e. The aggregated total includes emissions from work-related travel, team member commute, purchase of consumer goods and perishable items and combustion of fuels among others. The emissions related to network usage and hosting of websites has been calculated for this financial year, but not included in the total gross emissions in order to maintain consistency in the year-on-year comparisons and will be incorporated in the following reports. This year's emissions have decreased by 7% compared to last year, which had an estimated total emission of 5,519 kgCO₂e as shown in Figure 4.

Figure 4: Comparison of annual gross emissions (kgCO₂e)



**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 year's dissimilar*

Benchmarking

For this year, we looked at benchmarking our emissions with relevant companies in the same field to understand and showcase our efforts. As there were no other Indian organisations of a similar scale reporting on their GHG emissions, we benchmarked ourselves with larger scale organisations.

The per capita electricity consumption of AVC was 65% lower than Mitcon India and 86% lower than RELX and can be attributed to investment in energy efficient appliances and systems.

Table 3: Benchmarking electricity consumption

Organisation name	No. of team members	Total electricity consumption (kWh)	Per capita electricity consumption	Electricity consumed from renewable sources (%)
AVC	30	14,236	475	100
Mitcon India	169	2,27,849	1,348	51
RELX	33,500	117,161,000	3,497	n/a

The per capita GHG emissions were 90% lower compared to Mitcon and RELX; and 98% lower compared to McKinsey and Co. This can be attributed to the long-standing effort to calculate and reduce our emissions over the past 8 years.

Table 4: Benchmarking per capita emissions

Organisation name	No. of team members	Scope 1 emissions (tCO2e)	Scope 2 emissions (tCO2e)	Scope 3 emissions (tCO2e)	Total emissions (tCO2e)	Per capita emissions (tCO2e)
AVC	30	0.25	0	4.88	5.13	0.17
Mitcon India	169	54.69	182	45.00	281.97	1.67
RELX	33,500	5,226	43,445	5,032	53,703	1.60
McKinsey & Co.	31,857	12,000	3,000	208,000	223,000	7.00

Source:

https://www.mitconindia.com/wp-content/uploads/2022/10/Annual-Report_2021-22.pdf

<https://www.relx.com/~media/Files/R/RELX-Group/documents/responsibility/download-center/2021-cr-report.pdf>

https://www.mckinsey.com/~media/mckinsey/about%20us/environmental%20sustainability/carbon-foot-print_social-responsibility-report-2020.pdf

Good practices adopted

The main reason for calculating emissions is to identify sources of emissions and reduce them. This section explores good practices adopted by AVC in order to reduce our overall emissions.

Renewable energy generation

In FY22-23, we consumed 14,236.30 kWh of electrical energy, while the solar PV system on the roof of our office generated 14,779.30 kWh. Therefore, for our own electricity consumption, we prevented the use of grid-supplied electricity with associated emissions of 11,531.40 kg CO₂e. The excess of 543 kWh of solar energy that we produced contributed to emissions offset of 440 kg CO₂e or 8% of the emissions for the year.

The total energy consumption per square meter of office space is 25.58 kWh, which is 86% lower than the benchmark of an office building in a warm and humid climate¹. AVC hopes to reduce its electricity consumption per square meter through further energy efficiency measures along with matching its rooftop solar PV system capacity in line with its growth.

Figure 5: Rooftop Solar panels at Kalpana



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 182 kWh/m²/year. Refer to: Bureau of Energy Efficiency (2020). Energy benchmarks for commercial buildings. Available at: <https://beeindia.gov.in/sites/default/files/>

Electric mobility

For several years, AVC has provided an electric cycle for team members to use for meetings that take place within Auroville. In addition to this, we explored various avenues to help team members transition from combustion engine-based two-wheelers to electric two-wheelers. From March 2022 onwards, we have been providing electric two-wheelers to all our full-time team members for their daily commute to and from office and for their own personal use. Parallely, a charging facility supplied by an additional installed capacity of rooftop solar was also set up that mitigates any emissions attributed to charging from the public electricity grid. This initiative resulted in an emission reduction of 2,584 kgCO₂e for their daily commute to and from office, which is an 88% decrease in comparison to the previous year.

Converting our team members to electric vehicles for their personal commute resulted in a reduction of 6,309 kgCO₂e, an emissions reduction higher than the total gross emissions of the organisation.

Figure 6: E-bike fleet connected to the solar power-based set of chargers



Mitigation measures

This section covers activities currently being explored by AVC as potential areas for further intervention and emissions reduction.

Waste management

For many years, AVC has been segregating its waste into wet and dry waste. All wet waste is composted, and all dry waste is further segregated and sent for recycling. Food waste generated by AVC contributed to about 5.80% of the total emissions from the organisation, or 297.11 kgCO₂e and, paper and plastic waste contributed to a negligible 0.06% of the total emissions which was sent to Ecoservices for further segregation and recycling.

Figure 7: Waste bins used for segregation



Digital Footprint

AVC decided to calculate the emissions related to data consumed for its work and to the hosting of its websites. The total emissions for these two categories amounted to 279.15 kgCO₂e. Of this, 77% was attributed to the network usage emissions and 23% from hosting of websites. The emissions for the network usage have been highlighted in Figure 8 and the breakup of emissions related to hosting websites has been highlighted in Figure 9. We have set up an internal communication and project management system with the hope of making online communication and data sharing more efficient and reducing their overall footprint. From the data collected this year on the footprint of AVCs website visits, there is a clear indication of the hosting platforms which have a higher footprint. AVC hopes to shift its website hosting to less carbon intensive platforms and further reduce its digital footprint.

Figure 8: Emissions from network usage (kgCO₂)

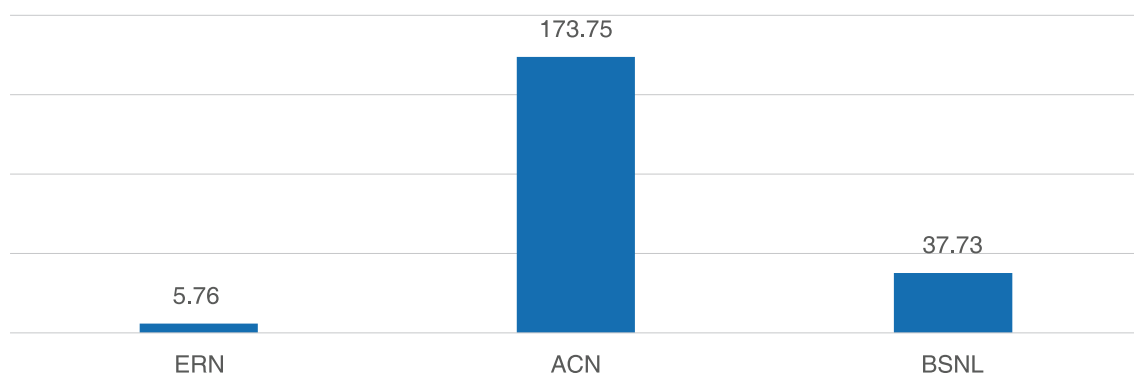
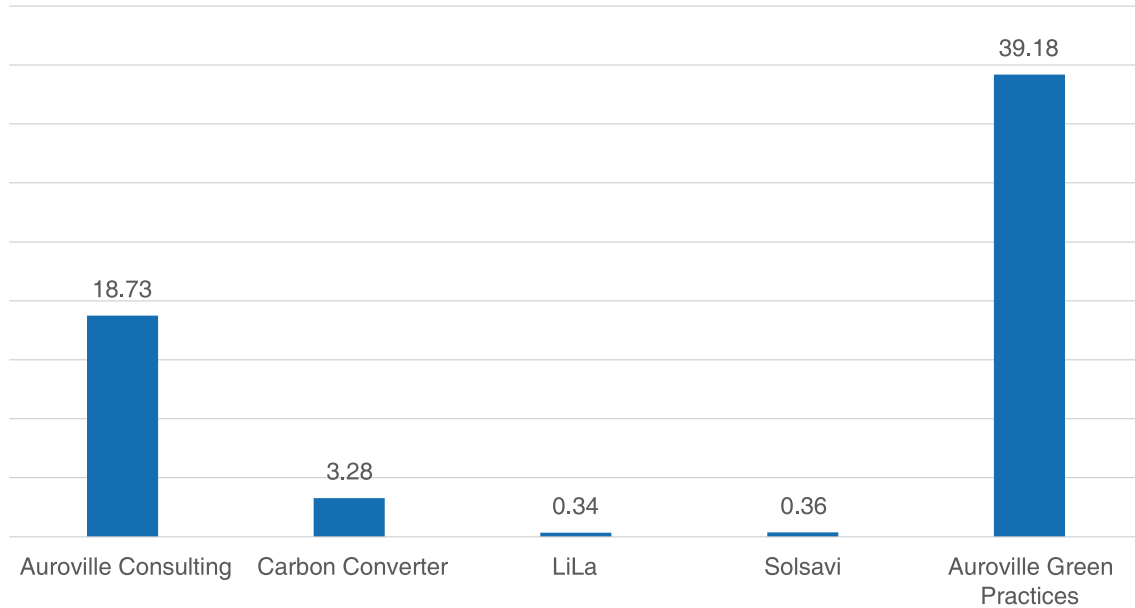


Figure 9: Emissions from website visits (kgCO2e)



HVAC system

In the previous year, AVC installed an integrated cooling system (HVAC) post a thermal comfort analysis, conducted in December 2020. The lifecycle emissions from manufacturing and installation of the HVAC system will be offset over a period of 10 years, which is the expected life of the system. The total emissions from the installation of the system, were 47,667 kg CO2e, and emissions on account of the refrigerant alone were 41,760 kg CO2e. Besides offsetting the lifecycle emissions of the installation of the HVAC system we have installed additional rooftop solar panels to account for the increased electricity consumption of the system. Team members are encouraged to maintain the temperature above 27 degrees and to switch the system on only on days where the outside temperatures are high. When the office space is not occupied, the system is shut down i.e., during breaks and lunch time.

Improved cooking efficiency

A total of 250 kgCO2e were emitted due to the use of LPG in the canteen of AVC. This was mainly used for making tea for the team. We have planned to purchase and incorporate an electric kettle, and an induction stove in the upcoming year to mitigate these emissions.

Reduction in business related travel emissions

The second biggest contributor to transport related emissions were the business-related travel emissions, which contributed to 92% of all transport related emissions in the previous year. For the upcoming year, we have planned to reduce these emissions by minimising business-related travel by switching to online meetings wherever possible. For the unavoidable travel, we are exploring the option of leasing an electric vehicle to substitute four-wheeler travel, and to give preference to low-carbon or carbon neutral air travel options whenever available.



Emissions Offsetting

Carbon sequestration through tree planting

Auroville Consulting's contribution towards the planting of trees offsets the emissions caused by our operational activities thereby making us a net zero carbon organization. We used sequestration rates specific to the Tropical Dry Evergreen Forest (TDEF), prevalent in the Auroville region biosphere. A lifetime sequestration rate of 1 tonne of carbon dioxide for every 30 trees has been assumed. Since parts of the Auroville Green Belt and city area green corridors are earmarked for long-term tree growth, lifetime sequestration can be assumed. To offset the gross emissions for FY 2022-23 and the digital footprint, we have contributed towards the planting of 175 trees. In addition to this, another 167 trees will be planted to offset the lifecycle emissions of the HVAC system. A total of 342 trees will be planted during the planting season of FY2023-24 in the designated Green Belt and green corridor areas.



Annexure:

Detailed scope-wise gross emissions

Scope / Category	Sub-category	Unit	2019-20	2020-21	2021-22	2022-23
Scope 1						
Stationary Combustion	LPG	kg	72	72	72	72
	Total emissions	kgCO2e	212	212	212	249
Scope 2						
Energy	kWh consumed from Grid	kWh	577	294	93.8	- 543
	Total emissions	kgCO2e	473	241	74.10	- 440
Scope 3						
Water	Water consumed	Litre	4,48,210	2,00,165	2,15,370	2,32,245
	Total emissions	kgCO2e	437	195	209.80	226
Transportation	Two-wheelers	km	66,641	49,401	44,289.00	5,630
	Four-wheelers	km	51,629	5,502	9,024.00	19,093
	Bus	km	5,800	-	1,435.00	2,263
	Rail	km	6,436	-	632.00	-
	Autorickshaw	km	-	-	-	10
	Domestic flight	km	43,560	3,514	3,520.00	8,646
	International flight	km	-	-	-	-
	Electric two-wheelers	km	163	508	2,965.00	-
	Total emissions	kgCO2e	17,846	4,107	5,233	4,267
Materials - Soft goods	Cardboard and paper	kg	30	58	56.80	37.60
	Plastics	kg	-	-	-	-
	Books	kg	11	21	1.40	11
	Small electrical items	kg	3	18	30.43	4
	Ink cartridges	No.	8	1	-	1
	Total emissions	kgCO2e	53	108	109.00	70
	Materials - Durable goods	Large electrical items	kg	31	20	6.00
Total emissions		kgCO2e	16	11	3.22	16
Food	Veg meals	No.	2,898	2,693	2,871.60	3063
	Total emissions	kgCO2e	281	261	278.55	297
Waste Disposal	Waste disposed in a Landfill	kg	-	-	16.73	9
	Waste composted	kg	-	-	120.83	85
	Total emissions	kgCO2e	-	-	8.53	3
Total gross emissions		kgCO2e	19,319	5,134	5,519.11	4689
Trees planted		No.	44	118	195	166
Offsetting through tree planting		kgCO2e	1,247	3,343	7,309	4,958
Total net emissions		kgCO2e	18,072	1,791	-1,791	- 279
Full-time team members		No.	28	38	35	30
Per team member emissions		kgCO2e	688	152	172	171

