IMD Carbon Footprint

Full Assessment 2024

April 2025

IMD

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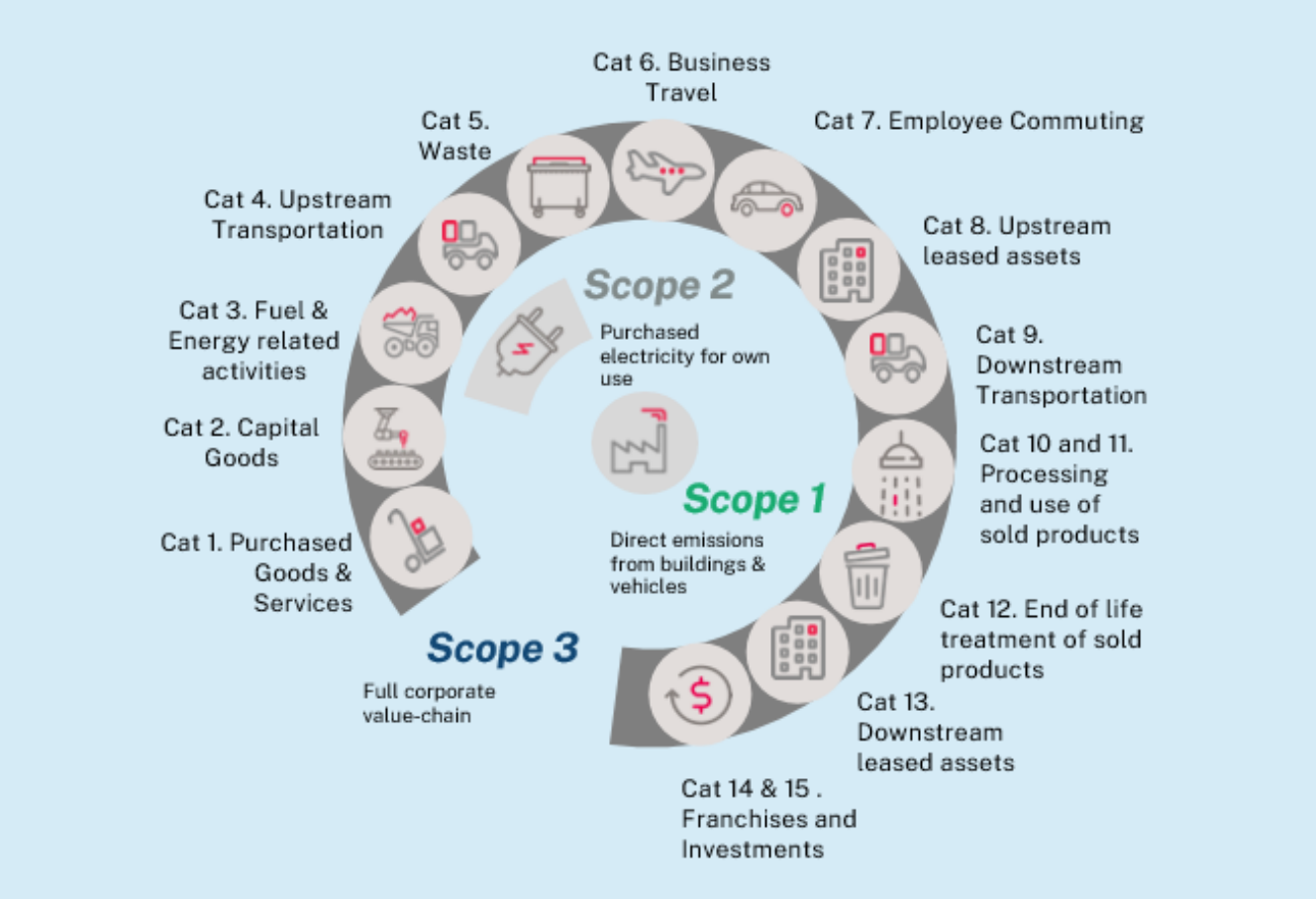
Carbon Footprint: Methodology

GHG footprint methodology

informing an accurate baseline measurement



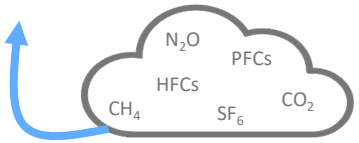
This audit includes Scope 1, 2 and 3 emissions for the year 2021, and conforms with the internationally recognised standards of the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard from the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), and ISO 14064.

The categories proposed by the GHG Protocol provide a wide scope for accounting carbon emissions along the value chain of an organization.

The scope is divided into three parts:

- Scope 1 (direct)
- Scope 2 (indirect)
- Scope 3 (indirect)

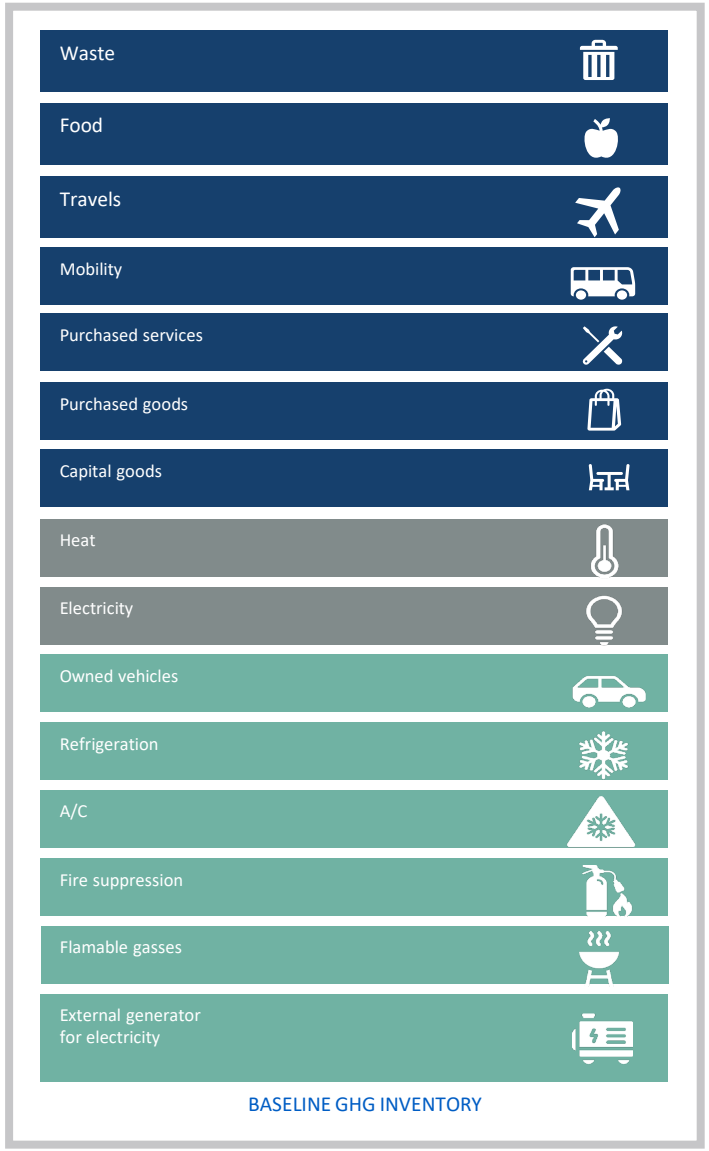
GHG footprint methodology



Metric Tons
CO_2equivalents

The categories of the GHG protocol that apply to IMD were considered in this study and listed in the scheme.

Green House Gasses are not only CO_2, but all their impact can be reported to a quantity of CO_2 equivalents.



Scope 3

All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Scope 2

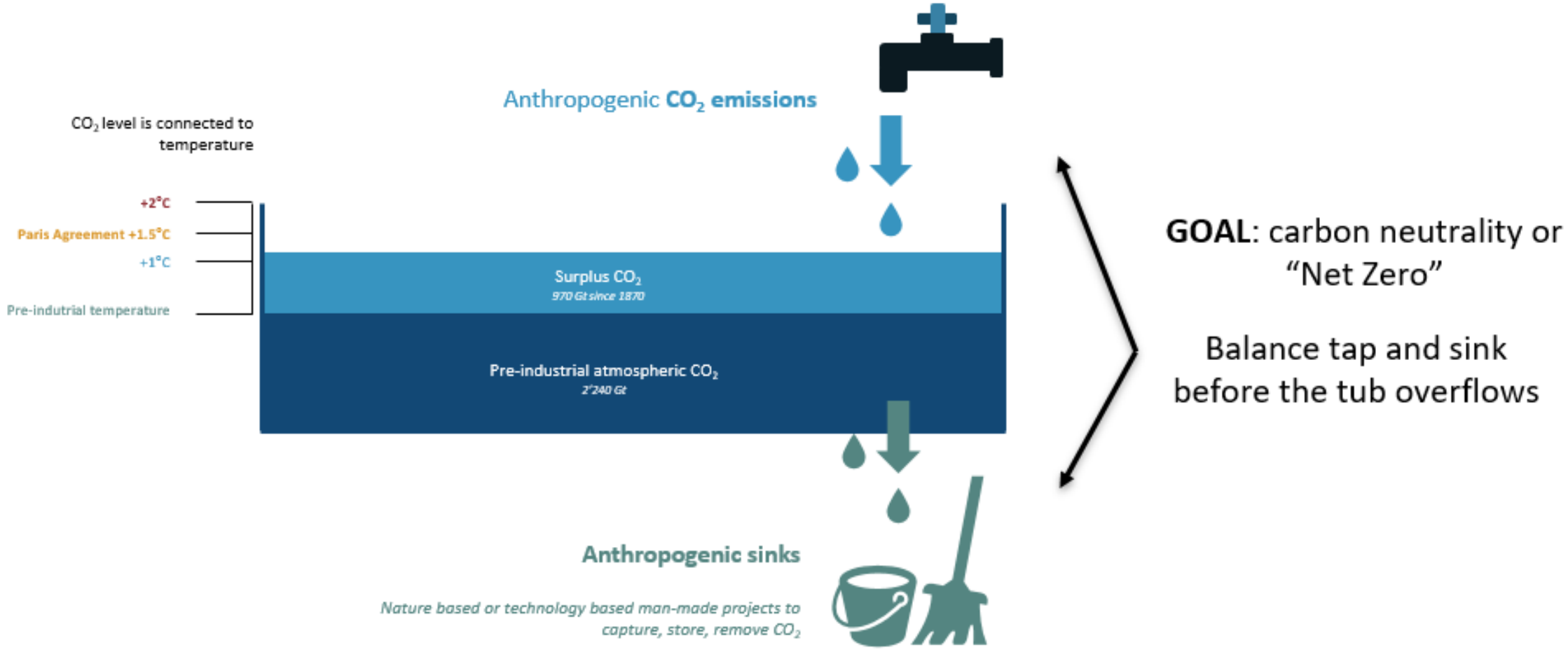
Emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company.

Scope 1

Emissions from operations that are owned or controlled by the reporting company (incl. owned vehicles, direct fugitive emissions, direct air emissions).

Understanding the scope of a global problem

Bath tub = Atmosphere

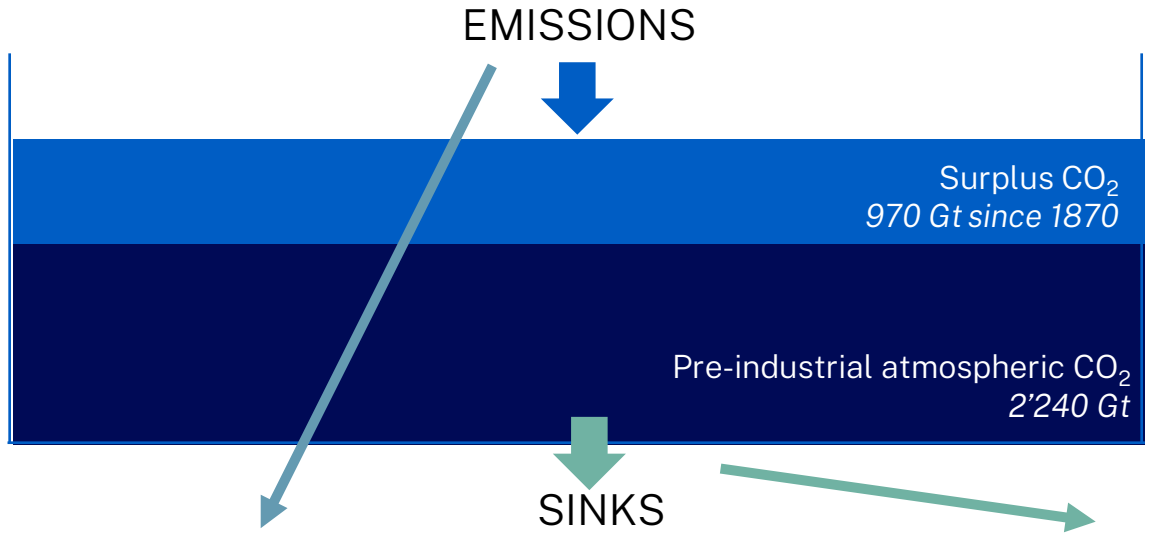


Source: Net Zero Initiative guidelines (2020)

How can organizations act on a global problem?

Inspired by: https://www.net-zero-initiative.com

Atmosphere



Levers at a **global** scale

Levers at a **company** scale

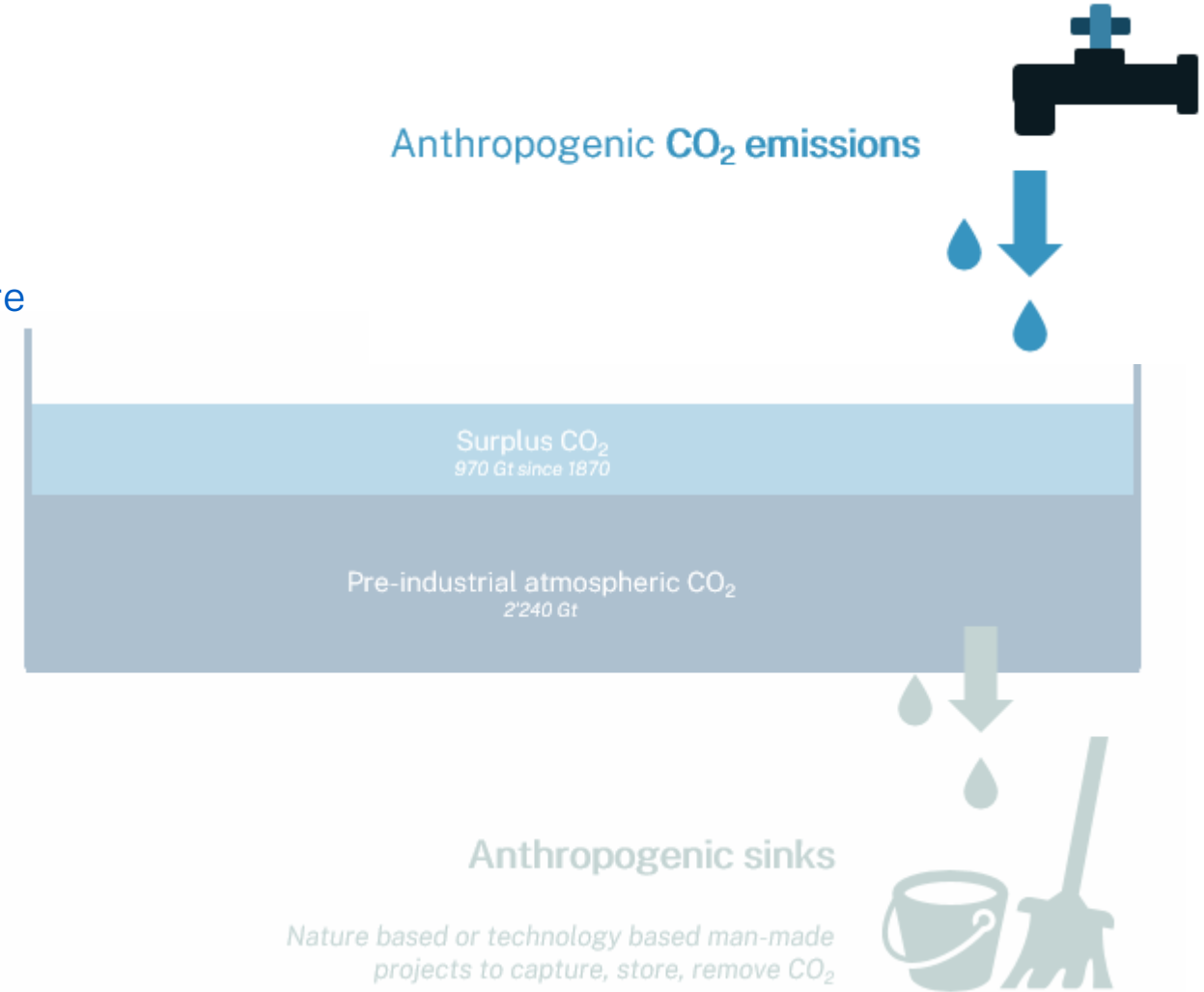
Targets

REDUCING EMISSIONS		IMPROVING SINKS
PILLAR A Reducing our own emissions	PILLAR B Reducing other's emissions	PILLAR C Develping carbon sinks
GREENHOUSE GAS PROTOCOL Direct: Scope 1 Indirect: Scope 2 Indirect: Scope 3 SCIENCE BASED TARGETS	No existing recognized framework. Suggested by NZI • No target, as large as possible • Equal to x times the emissions from scope 1+2+3	No existing recognized framework. Suggested by NZI • No target, as large as possible • Equal to x times the emissions from scope 1+2+3

Carbon Footprint: Measurement

Step 1: measure our carbon footprint

Bath tub = Atmosphere



PILLAR A
Reducing our own emissions

1) Measure our carbon footprint = our contribution to the emissions

GHG Protocol

- Scope 1
- Scope 2
- Scope 3

N_2O PFCs HFCs CH_4 SF_6 CO_2

Metric Tons CO_2 equivalents

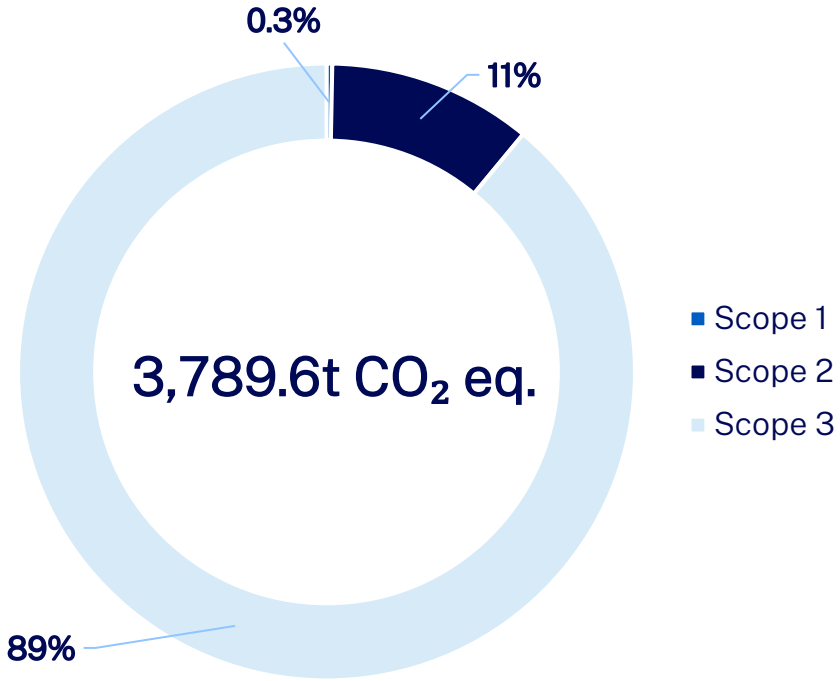
2) Set reduction targets and prepare a reduction plan

SCIENCE BASED TARGETS

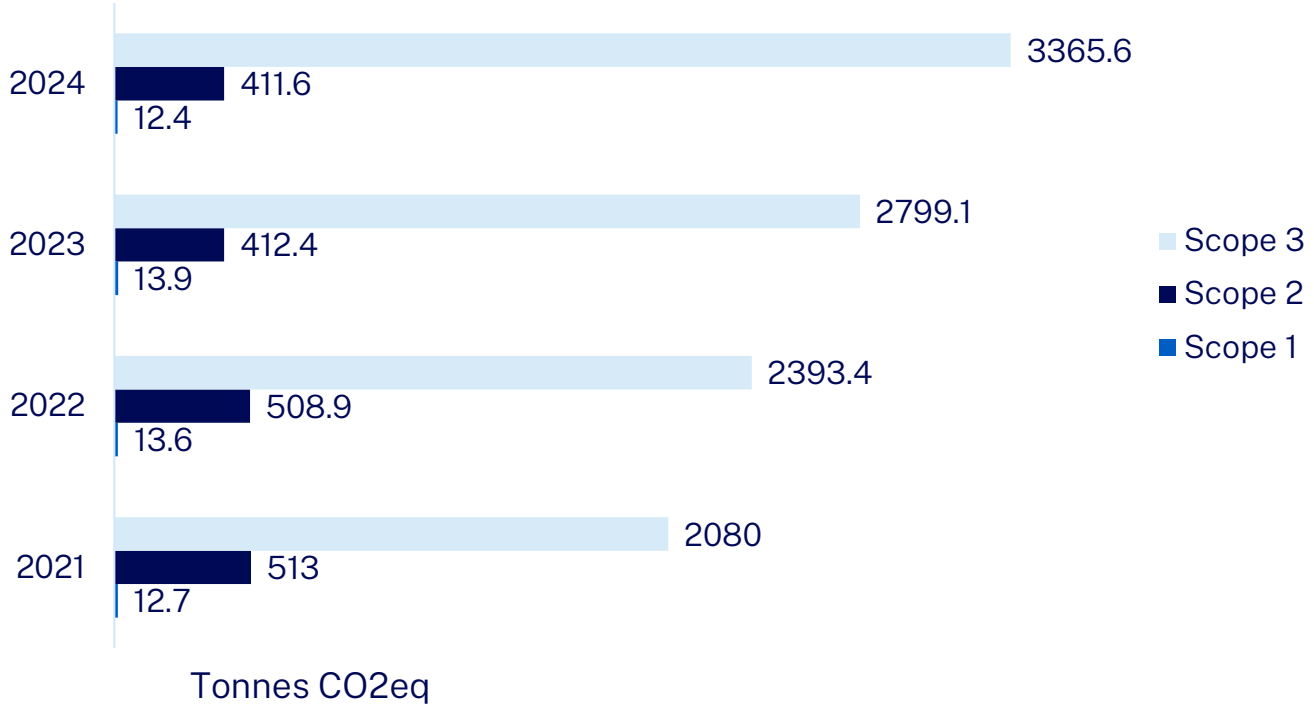
IMD/ea

IMD's 2024 carbon footprint

Total impact of CO_2 eq. for IMD in 2024



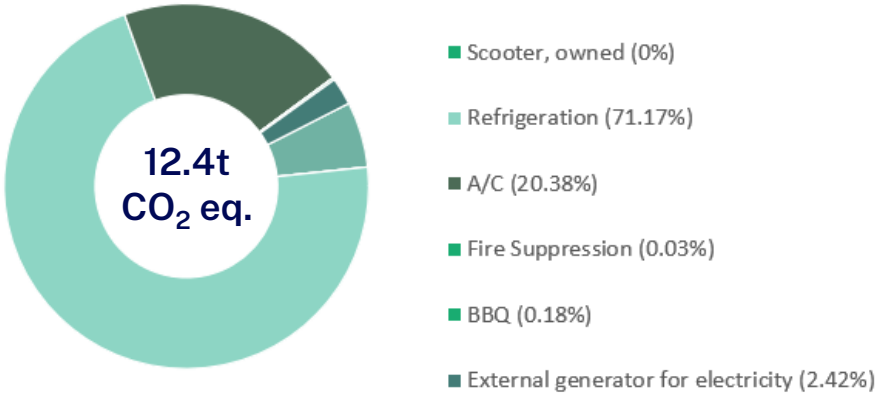
Carbon Footprint evolution 2021-2024



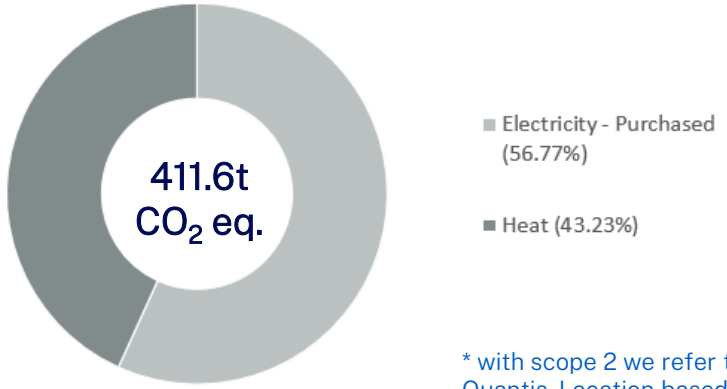
1'895 people making roundtrip Geneva-NewYork

IMD's 2024 carbon footprint by scope and sub-category

CO_2 eq. Impact by category for **Scope 1**

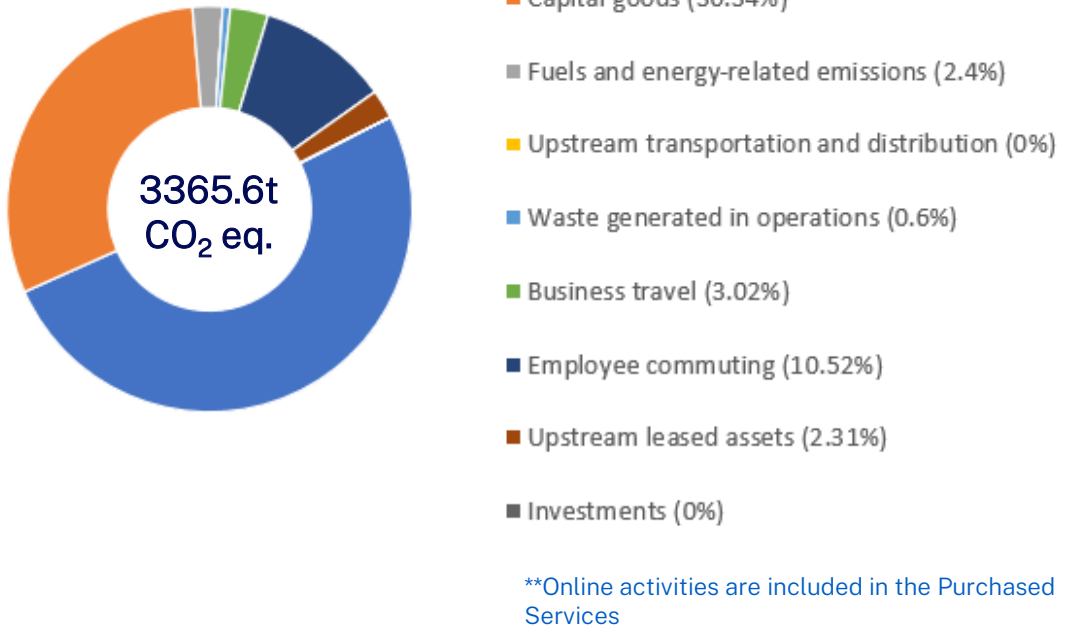


CO_2 eq. Impact by category for **Scope 2***



* with scope 2 we refer to **Scope 2_Hybrid** approach from Quantis. Location based value is 602 tCO2 eq and marked based value is 140 tCO2 eq.

CO_2 eq. Impact by category for **Scope 3**



**Online activities are included in the Purchased Services

Carbon Strategy:
Impact Reduction Target

Our strategy is informed by key standard-setting frameworks

SCIENCE BASED TARGETS

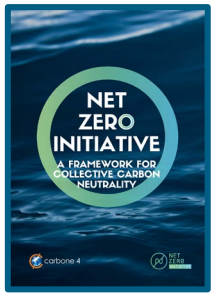
SBTi **is a collaboration** between the CDP (was Carbon Disclosure Project), the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF).

Since 2015 **more than 1,000 companies have joined the initiative** to set a **science-based emissions reduction targets** in line with climate science and Paris Agreement goals.

https://sciencebasedtargets.org/faqs#what-changes-is-the-sbti-making-to-its-criteria

Target Criteria

- Cover all relevant GHGs as required by the GHG Protocol Corporate Standard.
- Scope 1 and scope 2 emissions are mandatory, as defined by the GHG Protocol. If a company's relevant scope 3 emissions are 40% or more of total scope 1, 2, and 3 emissions, a scope 3 target is required.
- Companies must reduce emissions by >90% before neutralizing the final <10% of emissions with permanent removals.
- The use of carbon credits must not be counted as emission reductions toward the progress of companies' near-term science-based targets.
- Avoided emissions fall under a separate accounting system from corporate inventories and do not count toward science-based targets.
- To ensure consistency with the most recent climate science and best practices, targets must be reviewed, and if necessary, **recalculated and revalidated, at a minimum every 5 years**.



https://www.carbone4.com/en/publication-referentiel-nzi

The Net Zero Initiative:
releases guidelines for organizations to contribute to the global net-zero.

Led by Carbone 4 along with a dozen companies and a high-level Scientific Committee

- Focus on adopting a common language
- a sincere, transparent and constructive approach to reaching net-zero emissions worldwide, while being consistent with the existing tools and methods.
- a reference framework for action on carbon neutrality that is proportionate with the global challenge
- the idea of "corporate neutrality" through offsetting is not capable with triggering concrete action to meet the challenge

How to navigate the target setting space considering growth

In accordance with the SBTI guidelines it is necessary for companies to include all scopes in their emissions reduction strategy if Scope 3 emissions account for more than 40% of the total emissions.

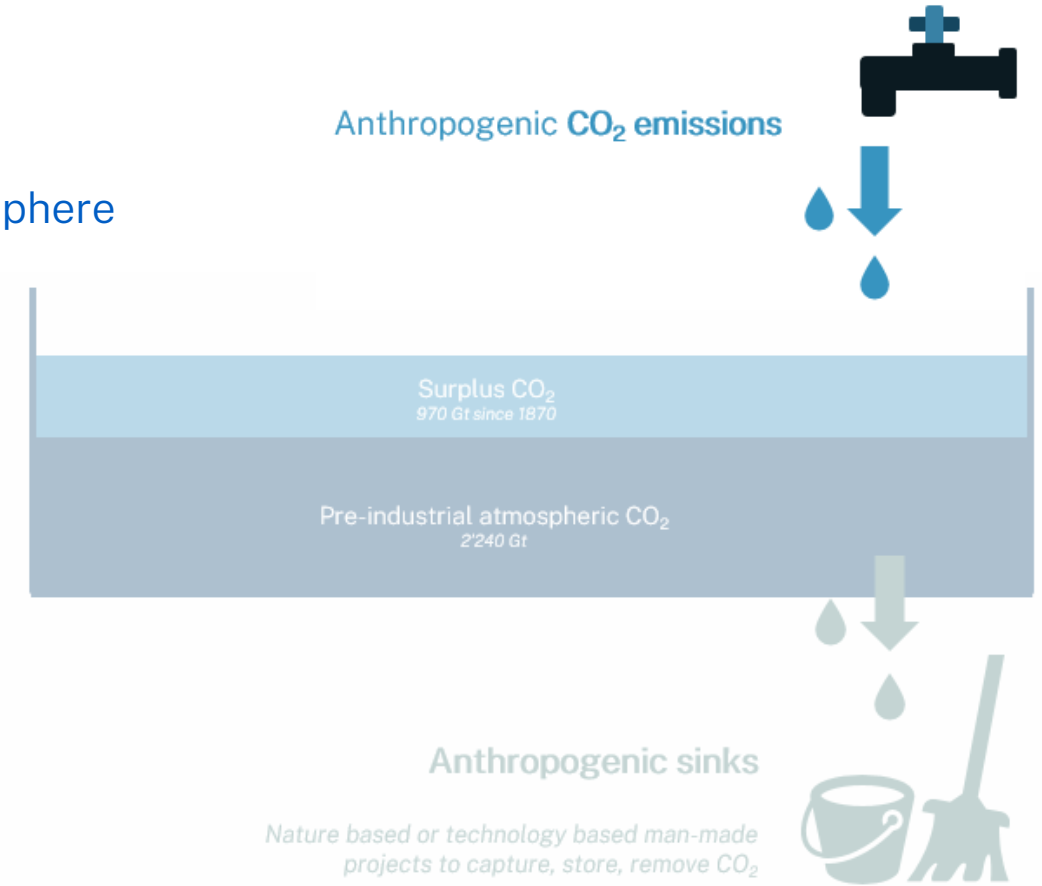
SBTI also emphasizes the importance of setting short-term and long-term targets, enabling companies to establish a realistic strategy for the next 5-10 years, while also planning ahead for more ambitious targets by 2050.
However, as **businesses continue to grow** and evolve over time, and accounting for this growth in the emissions reduction strategy presents challenges. The relationship between growth and emissions is not always linear, making it difficult to accurately predict and plan for emissions reductions as companies expand.

Nevertheless, it is evident that as a company grows, especially in terms of Scope 3 emissions which are largely influenced by third-party activities, emissions are likely to increase unless there is a fundamental change in the business model. SBTi has proposed then, and recently confirmed and slightly adjusted in their latest release on March 29th, 2023, setting targets for **Scope 1&2** in absolute values and for **Scope 3** emissions based on **economic intensity reduction**.

This approach takes into account the **relative emissions per value added**, allowing for a more contextualized approach to emissions reduction, considering the growth rate of the business. By incorporating economic intensity reduction targets for Scope 3 emissions, companies can better navigate the challenges posed by business growth while striving to achieve their emissions reduction goals in a comprehensive and sustainable manner.

Step 2: set reduction target

Bath tub = Atmosphere



PILLAR A
Reducing our own emissions

1) Measure our carbon footprint = our contribution to the emissions

GHG Protocol

- Scope 1
- Scope 2
- Scope 3

N_2O PFCs HFCs CO_2 CH_4 SF_6

Metric Tons CO_2 equivalents

2) Set reduction targets and prepare a reduction plan

SCIENCE BASED TARGETS

Impact reduction target - 2030

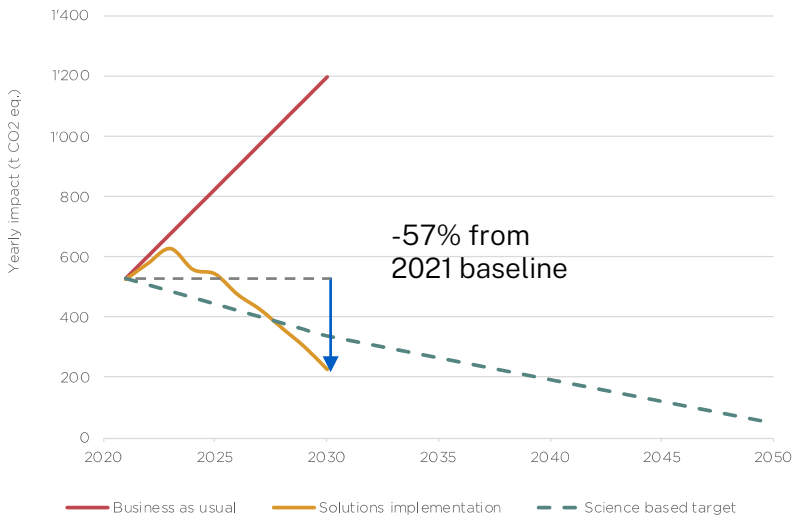
- Calculated current emissions
- Modelled future emissions based on projected growth rate
- Identified feasible actions to create a “reduced emissions scenario”

Business as usual:
No actions taken.

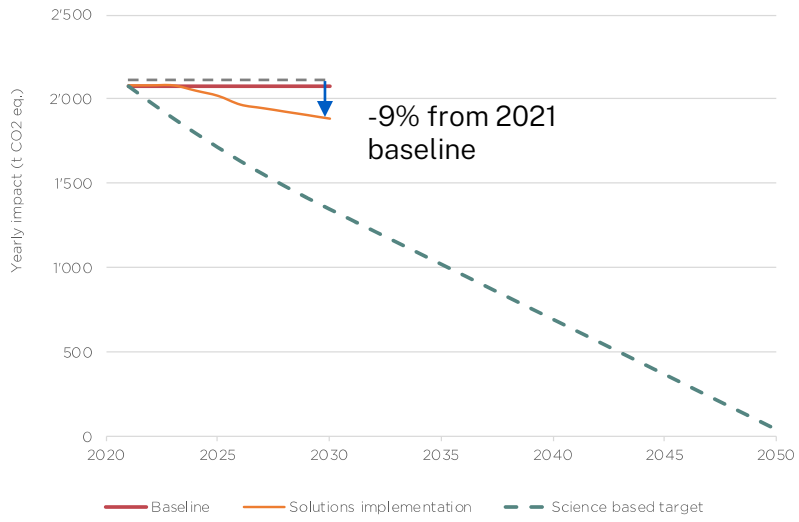
Actions implementation:
Recommended actions following the impact reduction modelling and cost analysis.

IMD impact reduction potential with actions implementation, by scope

Scope 1&2 – Absolute reduction



Scope 3 – Economic intensity reduction



Progress Against Impact Reduction Target

IMD's progress against 2030 targets

Metric evolution (compared to 2021)

Year	Scope 1 & 2 absolute reduction (%)	Scope 3 economic intensity reduction (%)
2022	-1%	-7%
2023	-19%	-6%
2024	-19%	+13%

Metric progress against target (compared to target)

Year	Progress against Scope 1 & 2 target (%)	Progress against Scope 3 target(%)
2022	1%	76%
2023	33%	63%
2024	33.9%	-142.2%

2030 Target	Metric evolution (compared to 2021)
Scope 1 & 2 absolute reduction	-57%
Scope 3 economic intensity reduction	-9%

Progress evaluation:
IMD is currently on track to achieve the impact reduction targets for scope 1, 2 by 2030.

Appendix and References

Definitions scope 1 and 2

Name	Definition
Owned vehicles	All company-owned or operated vehicles, engines and equipment that generate GHG emissions through the combustion of various fuels while moving from one location to another. They include vehicles used on roads for transportation of employees or distribution trucks as well as off-road vehicles, engines and equipment used for many other purposes.
Refrigeration	All HFC, PFC and other types of refrigerants used in refrigerated trailers and air conditioning units should be accounted for in company-owned and -controlled equipment. This includes refrigerated transport, industrial process refrigeration, cold storage warehouses, mobile air conditioning.
A/C	
Fire suppression	Fire Suppression emission sources can range in scale from a small portable fire extinguisher to a large-scale fire suppression system for an office building or warehouse. The emissions are caused by chemicals (e.g., HFCs, CO2) emitted from fire suppression devices during use, maintenance, and disposal.
BBQ	All company-owned or operated barbecues and/or grill.
External generator for electricity	All company-owned or operated external generators.
Heat	All acquired and consumed heat that may either be produced from electricity or through a non-electrical process such as solar thermal heat or thermal combustion processes (as with a boiler or a thermal power plant) outside the company's operational control.
Electricity	Electricity purchased by the company (eg. green mix, standard mix, autoproduction) that is used to operate machines, lighting, electric vehicle charging, and certain types of heat and cooling systems.

Definitions scope 3

Number	Category name	Definition	Notes
Category 1	Purchased goods & Services	This category includes all upstream (i.e., cradle-to-gate) emissions from the production of products purchased or acquired by the reporting company in the reporting year. Products include both goods (tangible products) and services (intangible products).	
Category 2	Capital goods	Capital goods are final products that have an extended life and are used by the company to manufacture a product, provide a service, or sell, store, and deliver merchandise. In financial accounting, capital goods are treated as fixed assets or as plant, property, and equipment (PP&E). Examples of capital goods include equipment, machinery, buildings, facilities, and vehicles.	
Category 3	Fuels and energy-related emissions	This category includes emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in scope 1 or scope 2, which means it excludes emissions from the combustion of fuels or electricity consumed by the reporting company.	
Category 4	Upstream transportation and distribution	This category includes emissions from the transportation and distribution of products (excluding fuel and energy products) purchased or acquired by the reporting company in the reporting year in vehicles and facilities not owned or operated by the reporting company, as well as other transportation and distribution services purchased by the reporting company in the reporting year.	
Category 5	Waste generated in operations	This category includes emissions from third-party disposal and treatment of waste that is generated in the reporting company's owned or controlled operations	
Category 6	Business travel	This category includes emissions from the transportation of employees for business-related activities in vehicles owned or operated by third parties, such as aircraft, trains, buses, and passenger cars. NOTE: Emissions from transportation in vehicles owned or controlled by the reporting company are accounted for in either scope 1 (for fuel use) or scope 2 (for electricity use). Emissions from leased vehicles operated by the reporting company not included in scope 1 or scope 2 are accounted for in scope 3, category 8 (Upstream leased assets). Emissions from transportation of employees to and from work are accounted for in scope 3, category 7 (Employee commuting).	

Definitions scope 3

Number	Category name	Definition	Notes
Category 7	Employee commuting	This category includes emissions from the transportation of employees between their homes and their worksites. Companies may include emissions from teleworking (i.e., employees working remotely) in this category.	
Category 8	Upstream leased assets	This category includes emissions from the operation of assets that are leased by the reporting company in the reporting year and not already included in the reporting company's scope 1 or scope 2 inventories. This category is only applicable to companies that operate leased assets (i.e., lessees). For companies that own and lease assets to others (i.e., lessors), see category 13 (Downstream leased assets).	
Category 9	Downstream transportation and distribution	This category includes emissions from transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), in vehicles and facilities not owned or controlled by the reporting company.	This is the participants travel
Category 10	Processing of sold products	This category includes emissions from processing of sold intermediate products by third parties (e.g., manufacturers) subsequent to sale by the reporting company. Intermediate products are products that require further processing, transformation, or inclusion in another product before use (see box 5.3), and therefore result in emissions from processing subsequent to sale by the reporting company and before use by the end consumer.	Not applicable
Category 11	Use of sold products	This category includes emissions from the use of goods and services sold by the reporting company in the reporting year. A reporting company's scope 3 emissions from use of sold products include the scope 1 and scope 2 emissions of end users. End users include both consumers and business customers that use final products. Companies may optionally include emissions associated with maintenance of sold products during use.	Not applicable

Definitions scope 3

Number	Category name	Definition	Notes
Category 12	End-of-life treatment of sold products	This category includes emissions from the waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life.	Not applicable
Category 13	Downstream leased assets	This category includes emissions from the operation of assets that are owned by the reporting company (acting as lessor) and leased to other entities in the reporting year that are not already included in scope 1 or scope 2. This category is applicable to lessors (i.e., companies that receive payments from lessees). Companies that operate leased assets (i.e., lessees) should refer to category 8 (Upstream leased assets).	Not applicable
Category 14	Franchises	A franchise is a business operating under a license to sell or distribute another company's goods or services within a certain location. 1) Franchisors should account for emissions that occur from the operation of franchises (i.e., the scope 1 and 2 emissions of franchisees) in this category. 2) Franchisees (i.e., companies that operate franchises and pay fees to a franchisor) should include emissions from operations under their control in this category if they have not included those emissions in scope 1 and scope 2 due to their choice of consolidation approach.	Not applicable
Category 15	Investments	This category includes scope 3 emissions associated with the reporting company's investments in the reporting year, not already included in scope 1 or scope 2. This category is applicable to investors (i.e., companies that make an investment with the objective of making a profit) and companies that provide financial services.	Not applicable

Key hypotheses | scope 1

Phase	Hypothesis
Campus	• Only the IMD campus based in Lausanne is considered, Singapore should be included in Scope 3, but no data were available at the time of the study. It should be included in calculations for next years.
Car	• Gasoline car.
Refrigeration	• The CO_2e impacts for this category were calculated with the help of the GHG protocol calculation sheet. • Domestic refrigeration : most common used gas is R744, with a charge of 0.30 kg. • Industrial Refrigeration including food processing and cold storage uses R404A gas, with a charge of 0.30 kg. • Positive cold room (restaurant) uses R449A gas, with a charge of 2.00 kg. • Negative cold room (restaurant) uses R404A gas, with a charge of 2.00 kg.
A/C	• The CO_2e impacts for this category were calculated with the help of the GHG protocol calculation sheet. • Mobile air conditionning uses R410A gas, with a charge of 0.50 kg. • Air conditionning (residence building) uses R22 gas, with a charge of 1.00 kg. • Air conditionning (Bellerive 32 building) uses 3 types of gas : R22, R32 and R410A, all with a charge of 1.00 kg.
Fire suppression	• The CO_2e impacts for this category was calculated with the help of the GHG protocol calculation sheet. • The fire extinguisher uses CO2 gas, and asually has a refrigerant charge between 2.00 and 5.00 kg. For this study, we used a charge of 3.50 kg.
BBQ	• BBQ uses propane gas.
External generator for electricity	• Generators uses diesel.

Key hypotheses | scope 2

Phase	Hypothesis
Electricity	• The electricity factor considered is based on the OFEV recommendations, the split between Scope 2 and 3 is made according to what electricity source the OFEV considers. • Location and market-based impacts are shown. Location based refers to the Swiss grid while market based refers to the electricity contract, in this case, Nativa from the SIL. • The impact factor used in the calculation of the total footprint is a hybrid factor following the Quantis methodology in order to integrate the value of creating new renewable capacity in the country.
Heat	• District gas, natural gas.

Key hypotheses | scope 3 – part 1

Phase	Hypothesis

Purchased goods and services	• Kitchen and restaurant appliances:
	  • We estimate the cost of this item is 250CHF / m2 of the total kitchen size
	  • We estimate the size of the kitchen to 100 m2

Purchased goods	• Some of the items are grouped into larger categories :
	  • Furniture and other manufactured good;
	  • Office consumables;
	  • Small supplies;
	  • Textile and clothing;
	  • Computer, electronic, optical products.
	• Details on the monetary values are reported for each line in the excel tool for 2021

Key hypotheses | scope 3 – part 2

Phase	Hypothesis

Purchased services	• Some of the items are grouped into larger categories :
	  • Service – repair and installation of machines and equipment;
	  • Service – printing, advertising, architecture and engineering, multi-technical building maintenance;
	  • Multi-technical maintenance;
	  • Service – insurance, banking services, advice and fees;
	  • Service – accommodation and catering.
	
	• Vending machines : an average price per year for the maintenance is attributed : 873 CHF/unit/year.
	• T-shirt (printshop) : an average price per unit is attributed : 7.2 CHF/unit.
	• Roll up : an average price per unit is attributed : 100 CHF/unit.
	
	• IT (digital footprint) :
	  • Asynchronous = Streaming, Synchronous = VC
	  • To compute the carbon footprint of online teaching, streaming and VC, we refer to streaming and video-conferencing activites respectively.
	  • For web-surfing, we assume 36GB daily of traffic from IMD, 365 days per year (emails are assumed included in the web-surfing)
	  • For the visits to the website, we assume 174'400 visits per week, 52 weeks per year.
	  • For the events, we assume that 75% of all the participants are connected at the same time each hour. Moreover, we use the same factors for low and high quality that we used for VC teaching.
	
	• Campus management (total budget from the company = 2 mio CHF/year)
	  • Cleaning : we estimate the cost of cleaning to 0.1 CHF/m2 per cleaning days and that the buildings are cleaned twice a week.
	  • Technical maintenance of the buildings : we estimate the cost of building maintenance to 10 CHF / m2 per year
	  • Security : we estimate a cost of 10’000 CHF per month
	  • Gardening : we estimate the cost of gardening to 55 CHF / m2 per year
	  • In total we arrive to an estimated budget of 1.1 mio CHF/year which is coherent with the 2 mio budget given by the company.

Key hypotheses | scope 3 – part 3

Phase	Hypothesis
Mobility	• The datas come from an internal company survey. • On average, there are 1.2 person per car, therefore we assume 1 person per car.
Travel	• Business travel by plane is calculated based on the CO2eq emission data from Egencia, while travel done by car and train is being calculated on the basis of the km done • Participants travel is calculated on the basis of the region form which they come from (allocation of the regions done on the basis of interviews with program directors). Specific numbers reported in each row of category 9 of the tool for 2021.

Food	• The repartition between types of meals was calculated following these indications :
	  • 35 % of the menus are meat-based (the split between beef, chicken, pork and fish meals are equals).
	  • 65 % of the menus are vegetable-based (the split between vegetarian and vegan meals are equals).
	• Snacks and drinks:
	  • We estimate that 1 person out of 20 buys a 3 CHF snack per day
	  • We estimate that 1 person out of 100 buys a 20 CHF snack per day
	• Events :
	  • We estimate the cost of food to 50 CHF/person per event
	  • We estimate the cost of drinks to 25 CHF/person per event

Key hypotheses | scope 3 – part 4

Phase	Hypothesis
Waste	• Values for household waste, biowaste and recyclable are taken from IMD sustainability report 2021 and a reallocation has been done by category of waste • For Electronic waste : 359 laptops weighing 2kg + 106 tablets weighing 0.8kg + 65 monitors weighing 4kg + 84 printers weighing 142kg
Singapore	• Data from Singapore campus were scarce for 2021. Electricity consumption was estimated based on surface leased and average electricity consumption in Singapore city • Business travel by plane was calculated based on the distance done for each flight

Additional literature references

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- Kolaitis, D. I., Malliotakis, E., Kontogeorgos, D. A., Mandilaras, I., Katsourinis, D. I., & Founti, M. A. (2013). Comparative assessment of internal and external thermal insulation systems for energy efficient retrofitting of residential buildings. Energy and Buildings, 64, 123–131. https://doi.org/10.1016/j.enbuild.2013.04.004

About EA – Environmental Action

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EA - Environmental Action is a mission driven research consultancy. EA is leading the development of plastic footprint methodologies and data | www.e-a.earth

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