UIAA International Climbing and Mountaineering Federation
UNION INTERNATIONALE DES ASSOCIATIONS D'ALPINISME

2023 CARBON FOOTPRINT CALCULATION

Final version, 09 December 2024

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1 ABRREVIATIONS

CCTF	UIAA Climate Change Taskforce
COM	UIAA Commission
EC	UIAA Executive Committee
EUMA	European Mountaineering Association
GA	UIAA General Assembly
GHG	Greenhouse Gas
IFMGA	International Federation of Mountain Guides Associations
ISF	International Skyrunning Federation
MB	UIAA Management Board
MPC	UIAA Mountain Protection Commission
RtM	UIAA Respect the Mountains
IOC	International Olympic Committee
ISA	International Slackline Association
IUCN	International Union for Conservation of Nature
PAX	Persons/People
SLH	UIAA Safety Label Holder
SSC	Sustainable Summits Conference
UIMLA	Union of International Mountain Leader Associations
UNFCCC	United Nations Framework Convention on Climate Change
WG	Working Group

2 BACKGROUND

This report outlines the results for the calendar year 2023 of ongoing monitoring and annual reporting of the UIAA's carbon footprint, which is in response to our signed commitment in early 2019 and participation under the United Nations Framework Convention on Climate Change (UNFCCC) Sports for Climate Action initiative. As a participant and signatory to this initiative, the UIAA is also expected to follow a process including signing a pledge, done in September 2022, to reach (net)-zero by 2040. As part of this process, and to maintain signatory status, annual public carbon emission reports are expected to be submitted from 2021 onwards. As a participant and signatory in this initiative, the UIAA is required and expected to adhere to 5 principles (see here), these being:

Principle 1: Undertake systematic efforts to promote greater environmental responsibility;

Principle 2: Reduce overall climate impact;

Principle 3: Educate for climate action;

Principle 4: Promote sustainable and responsible consumption;

Principle 5: Advocate for climate action through communication.

Under Principle 2: Reduce overall climate impact, the UIAA is expected to "measure and understand" its carbon footprint in order to design and issue plans to reduce its emission and overall climate impact. To plan for and meet set targets requires first measuring and understanding how our travel and activities contribute to greenhouse gas (equivalent carbon dioxide, CO_2-eq) emissions, requiring a 'baseline' to compare and track progress over time. The first task is to establish and report against a baseline and continue to gather data to monitor how our emissions trend over time. The UIAA has used the data to see where and which activities generate emissions and that can be practically reduced without substantial loss of activity effectiveness.

Many carbon emission reduction measures, such as travel policies to reduce CO_2 emissions, promote the principle of "avoid, reduce, compensate" in that order. The UIAA, through the support and participation of its Mountain Protection Commission (MPC) and the UIAA Climate Change Task Force (CCTF), has now published such a policy – the UIAA internal Climate Action Plan - as a step in its fulfilment of the 5 principles set out by the UNFCCC. A final version of the UIAA internal Climate Action Plan has been presented to the UIAA General Assembly in October 2024, in line with the UIAA Sustainability Charter and the UIAA's next strategic plan 2025-2028.

UIAA Resources:
UIAA on climate change and action
UIAA internal climate action plan
UIAA Carbon Footprint Reports
UIAA Sustainability Charter
UIAA Strategic Priorities 2025-2028

3 SCOPE

This is the sixth annual carbon footprint calculation of the UIAA, following on the reports for each of the calendar years:

- 2018 (UIAA baseline year)
- 2019
- 2020
- 2021
- 2022

Direct and indirect emissions associated with the UIAA's organizational activities were considered within the scope of the calculation and reporting. The UNFCCC Green House Gas (GHG) Protocol terminology, which many organizations use as a measuring and reporting standard, differentiates between Scope 1, 2 and 3 emissions, these being:

- Scope 1: direct emission caused by fuel combustion of owned vehicles, machines, and devices.
- Scope 2: indirect emissions from purchasing energy, in particular electricity, steam, heat, or cooling.
- Scope 3: indirect emissions from upstream and downstream activities, such as travel, purchased goods and services.

Scope 1 – The UIAA does not own vehicles, machines, or devices, thus, no direct emissions are associated with the UIAA's operations under this scope category.

Scope 2 - The information and data relating to energy use and infrastructure at the UIAA Office is provided by the Swiss Alpine Club (SAC) with whom offices are shared.

Scope 3 - Travel information was gathered for all core activities of the UIAA relating to meetings and events that are directly associated with the operations of the UIAA at the organization's level (e.g. by recording travel for in-person attendance at meetings and events for UIAA Office staff and UIAA delegates including the Executive Committee, Management Board, Commissions, Member Federation representatives and official guests, as well as travel of UIAA Office staff, UIAA delegates, officials and athletes to UIAA-sanctioned competitions.)

The largest international airport in the country of origin was considered as point of departure for all delegates, while the nearest and most relevant airport for the event destination was considered as point of arrival for all meetings and events. Direct travel was assumed, unless further information was readily available. Local travel, via car and/or public transportation, was not included for the 2023 calculation, with the intention to do so from 2025 and once a standardized reporting survey has been established. As of reporting year 2025, all delegates and staff will be asked to submit their travel information as part of their registration to events and post-event surveys issued by the UIAA Office.

The UIAA 2023 carbon footprint calculation does not include indirect emissions associated with other ancillary goods, resources, and services provided at UIAA events and meetings, such as origin and travel of goods and resources, electricity, heating, infrastructure, catering, spectatorship, etc. that are associated with the venues of those events and meetings. The intention is there to start gathering this information from event organizers from 2025 onwards,

following a review of the scope of the UIAA's future emissions reporting by its Climate Change Taskforce.

With the significant increase in virtual meetings within the UIAA community in recent years, future carbon footprint reports should also highlight the impact of our increasingly virtual lifestyles and the emissions caused by virtual meetings.

Since carbon dioxide (CO_2) is by far the main contributor to global warming – about 75 per cent – the global warming potential of GHGs are measured relative to the mass of CO_2 and are thus expressed as CO_2 equivalent (CO_2-eq). The tool used to determine this year's footprint calculates CO_2 equivalent emissions.

4 LIMITATIONS

The accuracy and completeness of the 2023 carbon calculation carries some caveats worth highlighting.

First, direct travel by plane was assumed for most delegates and staff, unless accurate information was available. From 2025 onwards, a more detailed survey will be issued to collect more accurate information regarding travel for in-person attendance at key UIAA events. Consequently, the expected format and communications associated with data collection methods will be revised for future reporting.

Selecting the closest "home" airport of a delegate is based on an assumption of where within a country the delegate lives. For example, Denver International Airport was assumed to be the home airport of all delegates or athletes from the USA. This perception is clearly limited, in that many of them might have had to travel from much closer or farther away locations from within the USA.

Second, no local travel via car and/or public transport was included in the 2023 calculation. The scope remained on travel by airplane, as it is the means for transport that is proven to spike CO_2 emissions significantly more than any other transportation type and to also give us a comparison to the 2018-2022 calculations, which used a similar method and assumption.

Data on travel and generated emissions of the livestream production crew, including the commentator, were readily available and thus included in this report, while data from other contractors of the UIAA were not. For future reports, the UIAA Climate Change Taskforce, in consultation with the MPC, will need to define additional criteria for reviewing contractors, dependent on the fact that some are likely to track their own carbon emissions.

Third, and mainly due to limited financial resources, this calculation was done internally by the UIAA Office. In the future, the aim is to standardize the carbon footprint calculation, against international standards, and to have it audited by an external and accredited organization.

As explained within the IOC's Sustainability Essentials Guide: "Carbon footprinting is an internationally recognised practice and various standards exist for estimation of the footprint of products or organisations. These include the GHG Protocol, ISO 14064 and the European Commission's Organisation Environmental Footprint (OEF). However, as these standards were not developed with sports events in mind, they are not necessarily well adapted for this purpose and a certain amount of flexibility and adaptation is required". Given this caveat, a closer examination of which internationally recognized practice and standards would best suit

the UIAA will be necessary and will need to be evaluated by the UIAA Climate Change Taskforce in consultation with the MPC to define a way forward.

Lastly, the 2023 carbon footprint calculation only partially reports on the many ways in which additional CO_2 emission has been avoided, limited, or already minimized by the UIAA, its delegates and staff up until this point. From 2025 on, and with the UIAA internal Climate Action Plan now in place, this report will focus not only on the carbon footprint, but also track which measures have been implemented and how those impact on the overall footprint.

5 METHODOLOGY

In a first step, attendance sheets of all UIAA meetings and events in 2023 were gathered. Some of these registration lists displayed the flight numbers of delegates, which helped to accurately calculate the distances travelled from location of origin to destination.

In all other cases, the largest "home" airport of each delegate, staff member or else was determined, considering their country of origin.

The closest and most relevant airport to the meeting or event locations was determined.

CO_2 emission calculations of all relevant travel were done for return trips.

The following online carbon footprint calculator was used for all calculations: https://www.carbonfootprint.com/calculator.aspx . Carbon emissions from planes at high altitude have an increased effect on global warming. The tool recommends multiplying aviation emissions by a radiative forcing factor of 1.891, as per recommendation of the UK's Department of Environment, Food & Rural Affairs. As the factor might change over the years, and to avoid fluctuating results, radiative forcing was omitted from the calculation.

The beforementioned calculator is recommended by the International Olympic Committee (IOC) in its Sustainability Essentials Guide, issue 2, as an adequate tool to be used by smaller organizations with limited resources.

Lastly, information such as energy use by the UIAA Office (electricity and heating) was received from the Swiss Alpine Club (SAC) and calculated down to the area in square meters that the UIAA Office occupies. The energy use evaluation was done via the same calculator as highlighted above.

6 RESULTS & DISCUSSION

The sum of UIAA CO_2 emissions generated in 2023, totaled 240.51 tonnes, compared to 209.48 tonnes in 2022, 12.08 tonnes in 2021, 146.5 tonnes in 2020, 353.33 tonnes in 2019, and 365.56 tonnes in 2018.

CO2 emissions saw a 15 % increase in 2023 compared to the previous year.
CO2 emissions saw a decrease of 34 % in 2023 compared to the baseline year 2018.

The two main sources of CO_2 included in this calculation are (1) the office infrastructure and (2) airplane travel of UIAA delegates and athletes to scheduled events. A detailed breakdown of these calculations is provided below.

TOTAL	2018	2019	2020	2021	2022	2023
Tonnes of CO_2 emissions generated through: Office Infrastructure	2.17	2.99	2.22	1.17	3.22	1.05
Tonnes of CO_2 emissions generated through: Airplane Travel	363.39	350.34	144.28	10.91	206.26	239.46
Total: Tonnes of CO_2 emissions generated	365.56	353.33	146.5	12.08	209.48	240.51

Table 1 – ALL CO_2 Emissions generated through the UIAA

The office infrastructure showed relatively little emissions in 2023 compared to previous years, with little IT purchases, eco district heating, and eco-electricity.

The increase in emissions associated with airplane travel from 2022 to 2023 is especially attributed to more UIAA events, in more locations, with more people attending. Some examples:

- In 2022, there were two World Ice Climbing events, both in Switzerland and overall, 152 athletes partook in at least one event.
- In 2023, there were four World Ice Climbing events, happening in South Korea, France, Switzerland and Finland. Overall, 180 athletes took part in at least one event. In addition, the UIAA hosted a "Future of Ice Climbing" event in France, which
- In 2022, the UIAA General Assembly was held in Banff, Canada, and saw 87 people attending. This compared to the GA in Trabzon, Türkiye in 2023 with 92 people attending.

As presented among the limitations, the calculation only covers airplane travel of people. When for instance an athlete is South Korean and an event takes place in South Korea, his/her travel is not calculated as part of the UIAA footprint.

That being said, meeting frequency and attendance increased significantly for most UIAA delegates as virtual discussions were held on a more regular basis.

6.1 Office Infrastructure

Office infrastructure generated 1.05 tonnes of CO_2 emissions in 2023, as Tables 1 and 2 show. This includes emissions generated through electricity, heating, printing, and acquiring new IT hardware.

Electricity: For 2023, as was the case in 2020-2022, the electricity sourced was 100% green and thus its carbon emission impact is negligeable. From 2022 onward, our electricity provider Energie-Wasser-Bern presented a revised reporting cycle, changing to May-to-May cycles instead of reporting by the calendar year. For the purpose of this report, the amounts were split in half, with one half being added to the 2023 calculation and the other going to 2024.

Heating/air-conditioning: Heating of the office space and water is generated through district heating, and thus emissions generated are minimal. Air-conditioning is not used. The emissions factor for district heating is determined as per the official information sheet issued by Energie-Wasser-Bern (EWB): Under
https://www.ewb.ch/wissen/wissen/wissen-fernwaerme-oekobilanzdaten
and then «Ökobilanzdaten 2023 ewb.Natur.FERNWÄRME»
https://www.ewb.ch/media/docs/pdf/diverses/oekobilanzdaten-2022-natur-fernwaerme.pdf

Printing: A significant amount of office work has shifted to online only, where in-house printing is avoided where possible. What has not been considered for the 2023 and in fact any previous UIAA carbon footprint reports, are the emissions caused by printing the UIAA Annual Report and the Alpine Skills Handbook, which is done externally. This was simply forgotten in the initial scoping exercise. From 2025 onward, these will need to be included, as highly relevant.

Purchased computers/IT equipment: The calculator used for data evaluation asks for any purchased IT hardware in a given year and accounts for emission of the product, presumably for the sourcing and production of these.
In 2023, the amount of IT hardware purchased was much less than in 2022, generating less emissions.

Waste: A new information piece received for 2023 from the Swiss Alpine Club is the amount of waste that the UIAA Office is responsible for. The amount is calculated down from what the entire building is responsible for, to the area of the Swiss Alpine Club offices and then further down to the square meters that the UIAA Office accounts for. How that number will be accounted for within the carbon footprint report will need to be define and included from 2025 onward.

	2018	Tonnes of CO2	2021	Tonnes of CO2	2022	Tonnes of CO2	2023	Tonnes of CO2
Area of office infrastructure space, in square meters	**35.7**	**-**	**27.73**	-	**27.73**	**-**	**27.73**	-
Nbr of staff members	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-
Electricity	3'023 in kWh at a factor of 0.0140 kgCO2e/kWh	0.04	1,053.9 kWh at a factor of 0 kgCO2e/kWh, because 100% Ökostrom	0	769 kWh at a factor of 0 kgCO2e/kwh, because 100% Ökostrom	0	476 kWh at a factor of 0 kgCO2e/kwh, because 100% Ökostrom	0
Other heating systems:	141,200 kg or L District Heating	0.00	2,176 kWh at a factor of 46 kg CO2-eq per MWh district heating	1.00	1,709 kWH at a factor of 44 kg CO2-eq per MWh district heating	0.34	1,736 kWh at a factor of 31 kg CO2-eq per MWh district heating	0.53
	(Ground Source Heat Pump)		(Ground Source Heat Pump)		(Ground Source Heat Pump)		(Ground Source Heat Pump)	
Printing	263 pages b/w – CHF 0.10 pp	0.01	5 pages b/w - CHF 0.10 pp	Negligeable	5 pages b/w - CHF 0.10 pp	Negliable		Negligeable
	8 colour – CHF 0.20 pp (Adding up to a total cost of EUR 26)		30 colour pages - CHF 0.20 pp (adding up to total cost of EUR 6.00)		30 colour pages - CHF 0.20 pp (adding up to total cost of EUR 6.00)			
Cost computers and IT equipment	CHF 4,250.00	2.12	CHF 436.00	0.17	CHF 7'134	2.88	CHF 1'234.00	0.52
Waste (Abfall)							41 kg	
Total Office Infrastructure Footprint		**2.17**		**1.17**		**3.22**		**1.05**

Table 2 - CO_2 Emission generated through the UIAA Office Infrastructure, also provided in Annex I

6.2 Travel by Airplane

An individual or groups of people travelling for UIAA official duties and core activities are highlighted in the first row of Table 3, while the first column lists the potential events, conferences, or meetings the individual or group of people attended. The numbers indicate the CO_2 emissions in tonnes, which the individuals/groups of people caused traveling to the given events/meetings.

Travel by Air Plane	Office staff	EC members	MB members	GA delegates/ MF rep	Honorary Members	Unit Members	UIAA Court	COM full members	COM correspondin g member	Officials	Athletes	Production Crew	Accredited Lab	Manufacture r	Goods	Guests (incl. Observers)	**CO2, tonnes**
to GA	2.22	5.16	9.46	26.68	0.46	0.42	0.46	2.53	2.18	0	0	0.7	0	0	-	3.16	**53.43**
to MB	0.66	6.02	5.83	0	0	0.25	0.12	1.45	0	0	-	0	0	0	-	0.5	**14.83**
to EC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
to COM/WG	-	-	-	0	0	0	0	2.91	0.37	0	0	0	-	3.65	-	-	**6.93**
to Sports Events	2.11	1.45	0	1.04	0	0	0	0	0	17.5	129.42	9.25	0	0	-	1.31	**162.08**
to Trade Shows	-	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	**0**
to Office	0.17	-	0	0	0	0	0	-	0	0	0	0	0	0	1.92	0	**2.09**
to SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
to Sponsorship Meetings	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
to IF Forum	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
to Rock Climbing Festivals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
to other meetings (member anniversaries;	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0.1**
TOTAL	**5.26**	**12.63**	**15.29**	**27.72**	**0.46**	**0.67**	**0.58**	**6.89**	**2.55**	**17.5**	**129.42**	**9.95**	**0**	**3.65**	**1.92**	**4.97**	**239.46**

Table 3 - CO_2 Emissions generated through UIAA delegates' Travel by Plane, also provided in Annex II

The total CO_2 equivalent emissions generated through airplane travel in 2023 are 239.46 tonnes.

The number "0" indicates that none of the group's members attended a respective event in person, thus not generating any emissions associated with travel.

The hyphen symbol "-" indicates that (a) member(s) of the group attended the respective event in person, but either did not fly there (i.e. used other means of transportation such as a car, bus or rail) or the emissions generated are already accounted for elsewhere. This is the case, for example, if a UIAA Executive Committee (EC) member attends a sports event and uses the opportunity and presence to attend a sponsorship meeting in the same country.

Many extra meetings between working groups and/or taskforces took place in 2023. These will not be listed separately in this report, due to the sheer volume and their mostly online nature. These included, but aren't limited to:

- UIAA Ice Climbing Governance Group
- UIAA Climate Change Taskforce meetings
- UIAA Continental Representatives meetings
- UIAA Executive Committee working group meetings (Finance & Audit, Internal Relations, External Relations, Commissions, Communication)
- UIAA Commission Internal Working Group meetings
- Weekly UIAA Office meetings
- Meetings between UIAA Office / EC and UIAA Member Federations
- UNFCCC Sports for Climate Action Signatories' and WG meetings
- Meetings with external service providers (database, website, video production, etc.)
- Sponsorship meetings
- General Assemblies of UIAA member and other external International Federations

The following events were not attended by any UIAA delegate and/or didn't take place in 2023:

- Rock climbing festivals
- Sustainable Summits Conference
- SportAccord World Sport & Business Summit
- Sport Positive Summit

And the following events took place online:

- UIAA Management Board meetings (2 of 4 online)
- UIAA Executive Committee meetings (9 of 11 online)
- UIAA Commission meetings (many, as described in Section 6.2.8)

In the following section, explanations regarding each group of people and the results are highlighted, as well as compared to previous years.

6.2.1 Office Staff Travel

In 2023 "Office staff" counts 7 people, with 2 of them working remotely on a permanent basis.

Of the listed meetings/events in Table 3, Office staff traveled to the following events:

- UIAA General Assembly in Trabzon, Türkiye

- UIAA Management Board meeting in Leeds, United Kingdom
- UIAA Executive Committee meetings (as part of the above events)
- UIAA Commission meetings (as part of the above events)
- UIAA Sports Events, including a continental event
- Trade Shows
- IF Forum
- Sponsorship meetings
- Office (only trips of staff living abroad accounted for)

Of the listed meetings/events in Table 3, the following events were attended online by Office staff:

- UIAA Management Board meetings (2 of 4 online)
- UIAA EC meetings (9 of 11 online)
- UIAA Commission meetings
- UIAA EC/ Commission Internal Working Group meetings
- UIAA Office meetings
- Sponsorship meetings
- Other meetings (UNFCCC signatories and WG meetings, Sport Positive Summit)

OFFICE	2018	2019	2020	2021	2022	2023
Number of people in this group	6	6	6	6	7	7
Number of meetings held by this group itself	No data collected	No data collected	Weekly online meetings	Weekly online meetings	Weekly online meetings	Weekly online meetings
Tonnes of CO_2 emissions generated through airplane travel of this group	19.59	6.93	1.99	0.49	3.89	5.26

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through UIAA Office staff

The significant increase in CO_2 emissions is due to many meetings being held in-person again, versus merely online in 2020-2021. Furthermore, there were more Sports Events than in the two previous years, attended by staff. The UIAA General Assembly was attended by four office members in 2023 vs. only two previously.

6.2.2 EC Members' Travel

"EC members" refers to the UIAA Executive Committee which in 2023 from January until December counted 7 people, with slight changes to its composition during elections in October 2023. From 2018-2021, this group was referred to as "Executive Board or EB".

Of the listed meetings/events in Table 3, EC members traveled to the following events:

- UIAA General Assembly in Trabzon, Türkiye
- UIAA Management Board meeting in Leeds, United Kingdom
- UIAA Executive Committee meetings (as part of the above events)
- UIAA Commission meetings (as part of the above events)
- Sports Events

The EC held 11 meetings in 2023, two of which were held as part of other UIAA events, namely the UIAA Management Board meeting in Leeds, UK and the UIAA General Assembly in Trabzon, Türkiye respectively.

EC	2018	2019	2020	2021	2022	2023
Number of people in this group	7 from Jan-Oct 5 from Oct-Dec	5 from Jan-Oct 7 from Oct-Dec	7	7	7	7
Number of meetings held by this group itself	6 total 1 x Katmandu, 1 x Lisboa, 1x Budapest, 2x Bern, 1x Ulaanbaatar	8 total 4 x online, 2 x Bern, 1 x Malta, 1 x Larnaca	10 total 9 x online, 1 x hybrid Bern	14 total all online	11 total 9 x online, 1 x Skopje, 1 x Banff	11 total 9 x online 1 x Leeds 1 x Trabzon
Tonnes of CO_2 emissions generated through airplane travel of this group	26.45	15.34	0.29	0.00	13.81	12.63

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through the UIAA Executive Committee

The significant increase in CO_2 emissions in 2023, as was the case in 2022, is the in-person nature of some of the events/meetings which was not the case in 2020-2021. Compared to the baseline year 2018, the EC now "only" meets in person as part of other (UIAA) events and no longer in about five separate meetings in various locations across the world.

6.2.3 MB Members' Travel

"MB members" refers to the UIAA Management Board which in 2023 counted 21 people from January to December. 7 of these MB members are simultaneously EC members. From 2018-2021, this group was referred to as "Management Committee or MC".

Of the listed meetings/events in Table 3, MB members traveled to the following events:

- UIAA General Assembly in Trabzon, Türkiye
- UIAA Management Board meeting in Leeds, UK

The MB held 4 meetings in 2023, one of which was held as part of other UIAA events, namely the UIAA General Assembly in Trabzon, Türkiye. It furthermore held two meetings with Commission Presidents on two occasions, namely the day before the MB meeting in Leeds and the day before the MB meeting in Trabzon.

MB	2018	2019	2020	2021	2022	2023
Number of people in this group	21 including EC members	18 including EC members	20 including EC members	20 from Jan-Oct 21 from Oct-Dec including EC members	21 including EC members	21 including EC members
Number of meetings held by this group itself	2 total 1 x Kathmandu, 1 x Ulaanbaatar	2 total 1 x Malta, 1 x Larnaca	4 total all online	5 total all online	4 total 2 x online, 1 x Skopje, 1 x Banff	4 total 2 x online 1 x Leeds 1 x Trabzon
Tonnes of CO_2 emissions generated through airplane travel of this group	34.11	12.26	0.00	0.00	17.94	15.29

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through the UIAA Management Board

The significant increase in CO_2 emissions in 2023 and 2022, is the in-person nature of some of the events/meetings which was not the case in 2020-2021. The number of people constituting the MB has not changed significantly over the years.

6.2.4 GA Delegates' Travel

"GA delegates" refers to all official delegates of the UIAA General Assembly and representatives of UIAA member associations, who aren't simultaneously part of the EC, MB or Commission delegates.

The UIAA closed 2023 with 97 Member Associations, comprising 71 full members, 1 unit member, 19 associate members and 7 observer members from 72 different countries.

The GA delegates mainly attended 1 meeting in 2023, notably the General Assembly. Separate e-meetings between GA delegates, members of the EC and the Office were held prior to the GA to discuss membership issues.

Therefore, of the listed meetings/events in Table 3, only two events were travelled to by GA members (i.e. member federation representatives):

- UIAA General Assembly in Trabzon, Türkiye

- UIAA Sports Events, namely the "Future of Ice Climbing" event held in Champagny-en-Vanoise, France

In 2023, the General Assembly was held over two days and took place in Trabzon, Türkiye. It was attended by:

- 52 GA delegates representing member federations (MFs), including Observer members;
- 7 EC members;
- 10 MB members, 7 of which also represent MFs and 1 of which also represents a UIAA Commission;
- 12 Representatives of UIAA Commissions;
- 1 Unit member representative;
- 1 Court members;
- 0 Athlete;
- 4 Guests;
- 1 Moderator;
- plus 4 UIAA Office staff members.

In total this accounts for 92 people attending the GA.

GA	2018	2019	2020	2021	2022	2023
Number of people in this group	52 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office	67 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office	85 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office	110 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office	44 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office	52 attendees including full, associate and observer members, excluding EC, MB, commission, court and honorary members, guests, office
Number of meetings held by this group itself	1 total Ulaanbaatar	1 total Larnaca	1 total online	1 total online	1 total Banff	2 total 1 x Trabzon a few reps attending Champagny
Tonnes of CO_2 emissions generated through airplane travel of this group	35.67	53.96	0.00	0.00	59.71	27.72

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through GA delegates

Travel of GA delegates accounted for only about half the emissions in 2023– a total of 27.72 CO_2 - compared to the previous year 2022. This is mainly due to the location, with many

delegates from Asia and Europe attending the UIAA General Assembly in Trabzon (versus Banff in 2022), their carbon footprint had a significantly less impact on the overall picture.

Three member federation representatives attended the Future of Ice Climbing event held in July 2023 in Champagny-en-Vanoise.

6.2.5 Honorary members' travel

"Honorary members" refers to a reserved group of official UIAA delegates, being nominated by the GA. They are invited to all MB meetings and the General Assembly. In 2023, one honorary member attended the General Assembly.

HONORARY MEMBERS	2018	2019	2020	2021	2022	2023
Tonnes of CO_2 emissions generated through airplane travel of this group	2.08	0.75	0.00	0.00	0.00	0.46

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through UIAA Honorary Members

The representatives' travel by airplane in 2023, accounts for 0.46 tonnes of CO_2.

6.2.6 Unit Members' Travel

"Unit members" refers to representatives of the current UIAA Unit Members. Representatives of UIAA Unit Member federations are invited to attend the MB meetings and the GA.

In 2023, as in previous years, the UIAA counted only 1 Unit Member, notably the International Skyrunning Federation (ISF). In 2023, 1 delegate represented the ISF at MB meetings including the in-person ones in Leeds, UK and Trabzon, Türkiye as well as attended the UIAA General Assembly also taking place in Trabzon, Türkiye.

UNIT MEMBERS	2018	2019	2020	2021	2022	2023
Tonnes of CO_2 emissions generated through airplane travel of this group	1.88	0.53	0.00	0.00	1.44	0.67

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through UIAA Unit Members

The representatives' travel by airplane in 2023, accounts for 0.67 tonnes of CO_2.

6.2.7 UIAA Court Travel

The "UIAA court" attends the GA and MB meetings and counts 4 people in 2023, 1 of which attended most MB meetings, including the in-person one in Leeds, UK, as well as the UIAA General Assembly held in Trabzon, Türkiye.

UIAA COURT	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Tonnes of CO_2 emissions generated through airplane travel of this group	3.49	0.43	0.00	0.00	0.26	0.58

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through the UIAA Court

The representatives' travel by airplane in 2023, accounts for 0.58 tonnes of CO_2.

6.2.8 Commission Members' Travel

"COM members" refers to all full and corresponding members of UIAA Commissions. Full members are expected to attend one annual commission meeting in person, while corresponding members are encouraged but not necessarily expected to attend in person meetings. Commission presidents additionally attend all MB meetings as well as the GA. In 2023, the UIAA ended the year with 8 commissions, which are:

- Antidoping Commission
- Legal Affairs Commission
- Medical Commission
- Mountain Protection Commission
- Mountaineering Commission
- Safety Commission
- Training Commission
- Youth Commission

Many of these commissions have internal working groups who meet more frequently, mostly online. These meetings and attendance won't be listed separately.

The number of members to each commission varies throughout the year, as nominations and revocations of memberships are accepted in May and October of each year. For reference and to allow a comparison between calendar years the below list highlights the average number of members per commission as well as details on meeting frequency and format/location for the given year.

COMMISSION MEMBERS	2018	2021	2022	2023
Access: Number of people in this group	4 full members, 12 corresponding members	n/a	n/a	n/a
Access: Number of meetings held by this group itself	1 total Canmore	n/a	n/a	n/a
Antidoping: Number of people in this group	3 full members, 2 corresponding members	3 full members, 0 corresponding members	3 full members, 0 corresponding members	3 full members, 0 corresponding members
Antidoping: Number of meetings held by this group itself	1 total Lausanne	0 extra meetings total, as they meet during Sports Events*	0 extra meetings total, as they meet during Sports Events*	0 extra meetings total, as they meet during Sports Events*
Ice Climbing: Number of people in this group	8 full members, 8 corresponding members, 3 athletes	9 full members, 14 corresponding members, 5 athletes	Up until August 2022, 11 full members, 14 corresponding members, 4 athletes	n/a
Ice Climbing: Number of meetings held by this group itself	1 total Busteni	6 total, all online	2 total, all online	n/a
Legal Affairs: Number of people in this group	n/a	n/a	From October 2022, 6 full members, 2 corresponding members	7 full members, 2 corresponding members

Legal Affairs: Number of meetings held by this group itself	n/a	n/a	From October 2022, 1 total online	7 total 6 x online 1 x hybrid Leeds
Medical: Number of people in this group	23 full members, 19 corresponding members	23 full members, 21 corresponding members	21 full members, 22 corresponding members	13 full members, 22 corresponding members
Medical: Number of meetings held by this group itself	1 total Kathmandu	1 total online	1 total Hathersage + conference held in Pontresina	3 total 2 x online 1 x hybrid Trabzon
Mountain Protection: Number of people in this group	9 full members, 8 corresponding members	7 full members, 8 corresponding members	9 full members, 10 corresponding members	12 full members, 9 corresponding members
Mountain Protection: Number of meetings held by this group itself	1 total Lake District	5 total all online	4 total all online	4 total all online
Mountaineering: Number of people in this group	24 full members, 7 corresponding members (Expeditions, Training and Legal Experts had its own members)	43 full members, 21 corresponding (including Access, Expeditions, Training and Legal Experts)	34 full members, 25 corresponding members (including Access, Expeditions, but excluding Training and Legal Affairs)	39 full members, 21 corresponding members (including Access, Expeditions)
Mountaineering: Number of meetings held by this group itself	2 total 1 x Lisbon, 1 x Budapest	2 total all online	3 total 1 Skopje 2 x online	5 total 4 x online 1 x hybrid Trabzon
Safety: Number of people in this group	9 full members, 7 corresponding members	8 full members, 10 corresponding members	10 full members, 7 corresponding members	9 full members, 10 corresponding members

Safety: Number of meetings held by this group itself	1 Lisbon	6 total 4 internal, online 2 plenary, online	6 total 5 internal, 1 x Skopje, 4 x online; 1 plenary Skopje	5 total 4 internal, 3 x online, 1 x hybrid Leeds; 1 plenary hybrid Leeds
Training: Number of people in this group	n/a	n/a	From October 2022: 14 full members, 3 corresponding members	14 full members, 4 corresponding members
Training: Number of meetings held by this group itself	n/a	n/a	From October 2022: 1 total online	2 total 1 x online 1 x hybrid Leeds
Youth: Number of people in this group	18 full members, 5 corresponding members	17 full members, 5 corresponding members	13 full members, 4 corresponding members	13 full members, 4 corresponding members
Youth: Number of meetings held by this group itself	1 total Cadiz	5 total all online	3 total 1 x Skopje 2 x online	3 total 2 x online 1 x hybrid Leeds
Tonnes of CO2 emissions generated through airplane travel of this group	53.37	0.00	24.03	9.44

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through UIAA Commission members

*joint with another UIAA meeting/event

Collectively, the full members of UIAA Commissions accounted for 6.89 tonnes of CO_2 emissions, whilst corresponding members accounted for 2.55 tonnes. In total, the representatives of this group generated 9.44 tonnes of CO_2 through airplane travel.

In general, and as a new feature of most UIAA meetings, all in-person meetings are offered in hybrid format, allowing for many more delegates to participate even if travel is not an option for them. Consequently, Corresponding Members were much more likely to attend Commission

meetings due to their hybrid or online format. As most representatives of that group would have to pay for their travel themselves, they usually do to not attend in-person meetings.

The UIAA Office has been encouraging Commissions to hold their in-person meetings alongside other UIAA events. In 2023, most Commission did either on the side of the Management Board meeting in Leeds, UK or as part of the General Assembly program in Trabzon, Türkiye. This means that Commission presidents "only" travel to two events – if they attend the MB and GA – rather than three, which would be the case if they additionally travelled to a separate Commission meeting.

6.2.9 Officials' Travel

"Officials" of the UIAA refer to stakeholders at the UIAA Sports Events working in an official capacity for the UIAA. These include: international results managers, international route setters and international judges. Excluded are national/local judges and route setters, guests, the livestream production crew and the livestream commentator.

Among the UIAA Sports Events are: UIAA Ice Climbing World Cups, the UIAA Ice Climbing World Championships, the UIAA Ice Climbing Youth World Championships and the UIAA Ice Climbing Combined World Championships.

In 2023, the season comprised five events, namely:

- UIAA Ice Climbing World Cup Cheongsong, KOR (13-15 January 2023)
- UIAA Ice Climbing World Cup Champagny, FRA (19-21 January 2023)
- UIAA Ice Climbing World Championships, Saas-Fee, SUI (26-28 January 2023)
- UIAA Ice Climbing World Youth Championships, Oulu, FIN (24-26 February 2023)

In addition, and this was newly introduced in 2023, the UIAA organized a "Future of Ice Climbing" event in July to bring together various stakeholders of the sport to brainstorm developments and improvements to the World Tour.

OFFICIALS	**2018**	**2021**	**2022**	**2023**
Number of events within calendar year	6 total 1 Saas Fee 1 Rabenstein 1 Hohhot 1 Cheongsong 1 Kirov 1 Malbun	2 total 1 Tyumen, 1 Kirov	2 total 2 Saas-Fee	5 total 1 Cheongsong, 2 Champagny, 1 Saas-Fee, 1 Oulu
Tonnes of CO_2 emissions generated through airplane travel of this group	No data collected	1.22	0.3	17.5

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through UIAA Officials

Compared to 2022, the emissions created by UIAA Officials in 2023 were significantly higher with 17.5 tonnes of CO_2 equivalent vs. 0.3 tonnes. This can be explained through the number and location of events. In 2022, a focus was set on bringing mostly local judges to the events in Saas-Fee, where as 2023 saw a more regular schedule and implication of officials across UIAA Sports Events.

6.2.10 Athletes' Travel

"Athletes" of the UIAA are all those competing in international UIAA Sports Events, notably the UIAA Ice Climbing World Cups, the UIAA Ice Climbing World Championships, the UIAA Ice Climbing Youth World Championships and the UIAA Ice Climbing Combined World Championships.

For athletes participating in consecutive legs of the World Tour, continuous travel was assumed, as athletes tend to stay on the continent to train locally before the next competition.

ATHLETES	2018	2021	2022	2023
Number of people participating in at least one event	232	64	152	180
Number of events within calendar year	6 total 1 Saas Fee 1 Rabenstein 1 Hohhot 1 Cheongsong 1 Kirov 1 Malbun	2 total 1 Tyumen, 1 Kirov	2 total 2 Saas-Fee	5 total 1 Cheongsong, 2 Champagny, 1 Saas-Fee, 1 Oulu
Tonnes of CO_2 emissions generated through airplane travel of this group	153.95	5.28	64.33	129.42

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through Athletes attending UIAA Ice Climbing World Tour events

Apart from competing in UIAA supported events, a number of athletes attended the Future of Ice Climbing event in Champagny-en-Vanoise, France in July 2023. The significant increase of CO2 equivalent emissions in 2023, compared to 2022, is due to more athletes (180 vs. 152) attending more events (5 compared to 2). The figures of 2023 correspond to pre-COVID World Tour composition and attendance.

Arguably, the travel of athletes is an indirect environmental impact caused by UIAA supported (or hosted) events. The main reason why their footprint is included in the overall UIAA carbon

footprint calculation, is because these events count towards core UIAA activities and are branded accordingly, which is highly visible on athletes' bibs, banners around the venue, etc.

6.2.11 Production Crew

The "Production Crew" refers to those individuals travelling to international UIAA (Ice Climbing) Events to assure a livestream and commentary are available.

In 2023 these were 5 people, including one commentator, who worked at the UIAA Ice Climbing World Tour and was hired for the UIAA General Assembly in Trabzon, Türkiye.

For the UIAA Ice Climbing World Tour, the Production Crew travelled to the World Cups.

PRODUCTION CREW	**2018**	**2021**	**2022**	**2023**
Number of people in this group	No data collected	*5*	6	*5*
Number of events within calendar year	*5* total 1 Saas Fee 1 Rabenstein 1 Hohhot 1 Cheongsong 1 Kirov (excluding World Youth Championships)	1 total 1 Kirov (excluding World Youth Championships)	3 total 2 Saas-Fee 1 Banff (only local commentator)	4 total 1 Cheongsong, 1 Champagny, 1 Saas-Fee, 1 Trabzon
Tonnes of CO_2 emissions generated through airplane travel of this group	No data collected	2.0	0.17	9.95

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through the Livestream Production Crew

Their airplane travel accounts for 9.95 tonnes of CO_2 emissions in 2023. The relatively low emission number in 2022 was mainly due to the fact that only three events were attended, two of which took place simultaneously and that the camera team drove to rather than taking the airplane. The picture painted in 2023 is more representative.

6.2.12 Accredited Laboratory Representatives

The "Accredited Laboratory Representatives" refers to those individuals representing accredited testing laboratories for UIAA Safety Label Standards, who attend the plenary assemblies of the UIAA Safety Commission.

ACCREDITED LAB REPS	2018	2021	2022	2023
Average number of attendees of this group	No data collected	8	2	0
Number of plenary meetings attended by this group	1 Lisbon	2 total all online	1 total Skopje/hybrid	0
Tonnes of CO_2 emissions generated through airplane travel of this group	No data collected	0.00	0.00	0.00

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through Accredited Laboratory Representatives

In 2023, no representatives of this group attended the plenary UIAA Safety Commission meeting.

6.2.13 Manufacturer Representatives

The "Manufacturer Representatives" refers to those individuals representing manufacturers of climbing and mountaineering equipment, interested and often holding UIAA Safety Labels, who attend the plenary assemblies of the UIAA Safety Commission.

MANUFACTURER REPS	2018	2021	2022	2023
Average number of attendees of this group	No data collected	24	39	28
Number of plenary meetings attended by this group	1 Lisbon	2 total all online	1 total Skopje/hybrid	1 total hybrid Leeds

Tonnes of CO_2 emissions generated through airplane travel of this group	No data collected	0.00	5.72	3.65

Subset of Table 3 – Zoom-in on CO_2 Emissions generated through Manufacturer Representatives

Ten representatives of this group attended the plenary session of the UIAA Safety Commission meeting in person, while 18 others joined virtually, generating a total of 3.65 tonnes of CO_2 equivalent emissions.

6.2.14 Goods' travel

A certain amount of "Goods" get transported for and by the UIAA, such as branding material, sponsors' in kind gifts, UIAA trophies, medals, etc.

In most cases, and whenever possible, these travel with UIAA delegates to the various locations. At times though, goods are sent by airplane, which account for 1.92 tonnes of CO_2 emissions in 2023, as was the case in previous years.

6.2.15 Guests' Travel

"Guests" of the UIAA refer to official invitees to UIAA meetings and observer federations of the UIAA. In 2023, guests were invited to the UIAA General Assembly, the Management Board meetings, Executive Committee meetings and at times Commission meetings.

In 2023, the GA was attended by 4 guests, including speakers presenting at the UIAA Climate Change Summit and the UIAA Mountain Protection Award ceremony, accounting for 3.16 tonnes of CO_2. Further on, guests attending the Management Board meeting in Leeds, accounted for 0.5 tonnes of CO_2.

Guests that attended the Future of Ice Climbing event in Champagny-en-Vanoise, France in July 2023 accounted for 1.31 tonnes of CO_2.

In 2023, the total travel of official UIAA guests accounted for 4.97 tonnes of CO_2 emissions, compared to 12.74 tonnes of CO_2 emissions in 2022.

7 FINAL REMARKS

The sum of UIAA CO_2 emissions generated in 2023 is 240.51 tonnes, compared to 209.48 tonnes in 2022, and 365.56 tonnes in 2018, the UIAA's baseline year. However, a direct comparison of these figures does not provide for an accurate representation to compare one year to another, since the underlying conditions and factors that lead to the respective CO_2 emissions generated in any given year, differ.

Overall emissions over the years, with a baseline of 2018, is not directly comparable given that the number of delegates per representative group varies across the years, and so do meeting/event locations, often having a significant impact on generated emissions. The overall

UIAA carbon footprint depends on the format and location of its annual meetings and events, but also on the number and origin of delegates traveling.

Far-off meeting locations generate more CO_2 emissions, yet at the same time, it is centrally located meeting destinations that are attended by more representatives, thus also spiking the amount of emissions generated. Nevertheless, the resulting figures give much opportunity to further reflect on those activities that generate the most emissions, compared to all others that are part of the core operations of the UIAA as an organization.

Many travel policies to reduce CO_2 impact promote the principle of "avoid, reduce, compensate" in that order. In late 2024, the UIAA, through the support and participation of its Mountain Protection Commission and the UIAA Climate Change Task Force, has published a UIAA-internal Climate Action Plan as well as one for its member federations, in its fulfilment of the 5 principles set out by the UNFCCC.

More information available here: https://www.theuiaa.org/climate-change/

8 ANNEX I

Table 2 - CO_2 Emissions generated through UIAA Office Infrastructure

	2018	Tonnes of CO2	2021	Tonnes of CO2	2022	Tonnes of CO2	2023	Tonnes of CO2
Area of office infrastructure space, in square meters	35.7	-	27.73	-	27.73	-	27.73	-
Nbr of staff members	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-	6 (working as 4.2 pax incl. 1 pax remote)	-
Electricity	31023 in kWh at a factor of 0.0140 kgCO2e/kWh	0.04	1,053.9 kWh at a factor of 0 kgCO2e/kWh, because 100% Ökostrom	0	769 kWh at a factor of 0 kgCO2e/kwh, because 100% Ökostrom	0	476 kWh at a factor of 0 kgCO2e/kwh, because 100% Ökostrom	0
Other heating systems:	141,200 kg or L District Heating	0.00	2,176 kWh at a factor of 46 kg CO2-eq per MWh district heating	1.00	1,709 kWH at a factor of 44 kg CO2-eq per MWh district heating	0.34	1,736 kWh at a factor of 31 kg CO2-eq per MWh district heating	0.53
	(Ground Source Heat Pump)		(Ground Source Heat Pump)		(Ground Source Heat Pump)		(Ground Source Heat Pump)	
Printing	263 pages b/w – CHF 0.10 pp	0.01	5 pages b/w - CHF 0.10 pp	Negligeable	5 pages b/w - CHF 0.10 pp	Negligable		Negligeable
	8 colour – CHF 0.20 pp (Adding up to a total cost of EUR 26)		30 colour pages - CHF 0.20 pp (adding up to total cost of EUR 6.00)		30 colour pages - CHF 0.20 pp (adding up to total cost of EUR 6.00)			
Cost computers and IT equipment	CHF 4,250.00	2.12	CHF 436.00	0.17	CHF 7'134	2.88	CHF 1'234.00	0.52
Waste (Abfall)							41 kg	
Total Office Infrastructure Footprint		**2.17**		**1.17**		**3.22**		**1.05**

9 ANNEX II

Table 3 - CO_2 Emissions generated through UIAA delegates' Travel by Plane

Travel by Air Plane	Office staff	EC members	MB members	GA delegates/ MF rep	Honorary Members	Unit Members	UIAA Court	COM full members	COM corresponding member	Officials	Athletes	Production Crew	Accredited Lab	Manufacturer	Goods	Guests (incl. Observers)	CO2, tonnes
to GA	2.22	5.16	9.46	26.68	0.46	0.42	0.46	2.53	2.18	0	0	0	0.7	0	0 -	3.16	53.43
to MB	0.66	6.02	5.83	0	0	0.25	0.12	1.45	0	0 -	0	0	0	0	0 -	0.5	14.83
to EC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
to COMWG	-	-	-	0	0	0	0	2.91	0.37	0	0	0	0 -	3.65	-	-	6.93
to Sports Events	2.11	1.45	0	1.04	0	0	0	0	0	17.5	129.42	9.25	0	0	0 -	1.31	162.08
to Trade Shows	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0 -	0	0
to Office	0.17	-	0	0	0	0	0 -	0	0	0	0	0	0	0	1.92	0	2.09
to SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
to Sponsorship Meetings	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
to IF Forum	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
to Rock Climbing Festivals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
to other meetings (member anniversaries;	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
TOTAL	**5.26**	**12.63**	**15.29**	**27.72**	**0.46**	**0.67**	**0.58**	**6.89**	**2.55**	**17.5**	**129.42**	**9.95**	**0**	**3.65**	**1.92**	**4.97**	**239.46**

10 KEY RESOURCES

1
IOC Sustainability Essentials Guide
https://stillmed.olympics.com/media/Document%20Library/OlympicOrg/IOC/What-We-Do/celebrate-olympic-games/Sustainability/sustainability-essentials/SUSTAINABILITY-ESSENTIALS-ISSUE-2.pdf

2
UNFCCC The Path to Climate Neutrality – Measure the Basics
https://unfccc.int/sites/default/files/resource/ThePathtoClimateNeutrality-Measure-TheBasics_May26.pdf