GET
GREEN EVENTS TOOL

Green Events Tool

METHODOLOGY FOR THE CALCULATION OF THE CARBON FOOTPRINT OF EVENTS (GHG INVENTORY)

Version 1.0

Date of publish: 14 Sep 2022

www.greeneventstool.com

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1 Purpose and applicability conditions

Event is defined as "Planned gathering with respect to time and a place where an experience is created and/or a message is communicated" (ISO 20121-2012).

In order to quantify the GHG emissions of the event, this document is developed to provide a transparent guidance on:

a) Identify the boundary and scope of calculation;

b) Provide assumption/simplification;

c) Define the algorithm to calculate the GHG from each source;

d) Define the data source of the emission factors;

The Green Events Tool's Carbon Footprint Calculator is applicable for different types of events, as long as the clear temporal and spatial boundary can be defined, as well as that the activity data is available or partially available.

2 Options to calculate the emissions of the event

The Green Events Tool's Carbon Footprint Calculator offers two overall options to calculate emissions: basic and advanced.

The basic option requires limited data and relies strongly on proxies and assumptions to give the user an approximate figure of the GHG emissions attributable to the event. This option is recommended for users who are planning events as a quick way to estimate overall emissions. Preferably, it should be applied ex-ante (before the event) to compare various ways in which the event could be organized with respect to their contribution to affect the severity of the climate change by GHG emission.

The advanced option requires more event specific data, to give a more precise estimate of the GHG emissions attributable to the event. It is also flexible with respect to the approach and scope of data used to calculate the emissions, depending on the availability of data. This option is recommended for more experienced users that wish to obtain a more precise and credible results, especially those that aim at evaluation of the benefit of specific actions undertaken by them to avoid/reduce GHG emissions (or carbon footprint) of events.

3 GHG emissions covered by the calculator

There is unique standard defining which sources of GHG emissions shall be considered as attributable to any event. Consequently, the GET's Carbon Footprint Calculator offers flexibility in covering various GHG sources related to the event thus allowing for different approaches to the assessment of event's carbon footprint. The sources of GHG emissions to be included in the calculations can be selected independently to fit the purpose of a particular assessment. For example, if for a particular event air travels are deemed unimportant, the implemented methodology may not consider GHG emissions

generated by air travel of the event participants, these emissions may be excluded from calculations. Therefore, the methodology specified in this document is only a default one being applied to the events calculated by this tool. The tool is designed in a way that it can adapt to other reputable methodologies.

4 Application of globally recognized principles

The GET has been designed to fulfil the basic principles of credible carbon footprint calculations, and more broadly, of sustainability reporting, in alignment with global standards: accuracy, completeness, consistency, transparency, and comparability. It also allows for fulfilment of the principle of continuous improvement, as users can make more accurate and complete calculations as their expertise in the use of the GET and its calculations advances, and with the foreseen improvements and developments of the GET.

5 Calculation of GHG emissions in the Basic Option

5.1 Background

The basic option allows for simplified assessment of GHG emissions related to any event. Its major purpose is initial comparison among various approaches to organize the event available to organizers sensitive to minimize their carbon footprint.

5.2 Categories

The basic option estimates the event's GHG emissions considering three main categories of potential GHG sources: participants, venue and accommodation.

5.2.1 GHG emissions attributable to participants

In order to assess GHG emissions attributable to participants, the user should input the number of participants attending the event from different regions of the world, and separately the number of VIPs. VIPs are assumed to travel using private jets. The calculator will then estimate the total GHG emissions attributable to air travel of all participants to the event.

5.2.2 GHG emissions attributable to venue

In order to assess GHG emissions attributable to the venue, the user should indicate if the event is organized by the United Nations (UN) and if the event includes any exhibition. The calculator will then use a database of proxy emissions per person per day of event to calculate the total venue emissions. Note that the number of participants follows the input from para 5.2.1.

5.2.3 GHG emissions attributable to accommodation

In order to assess GHG emissions attributable to accommodation, the user should input the estimated fraction of the participants allocated among different types and standards of accommodation and the calculator will estimate the associated emissions based on proxy emission factors.

5.3 The Calculation Algorithm

5.3.1 GHG emissions attributable to air travel of participants

Once the user inputs the number of participants attending the event from different regions of the world and the number of VIPs, the calculator estimates the distance from the centre of the region from where the participant is coming from to the centre of the region where the venue is located and multiplies it by an air travel emission factor derived from ICAO's Air Travel Carbon Emissions Calculator, which varies with distance and travel class.

Assumptions include:

1) 50% of the participants travel in premium (business/first) class and 50% in economy class;
2) All participants travel round trip;
3) Travelled distance is from the geographical centre of the participant's region to the centre of the region where the venue is located;
4) All VIPs travel in private jet and each jet emits 200 tons CO_2e in a round trip.

The calculation algorithm is:

(∑ Distance per travel class x emission factor proxy per distance and travel class)+VIPs x 200= Total GHG emissions attributable to air travel

5.3.2 GHG emissions attributable to venue

Emissions are calculated based on a database of proxy emission factors maintained by the UNFCCC secretariat which is regularly updated with data from more and more events. The proxy emission factor varies between United Nations and other type of events and according to whether an exhibition is organized in parallel with the event or not.

The calculation algorithm is:

Number of participants × duration of the event × proxy emission factor= Total GHG emissions attributable to venue

5.3.3 GHG emissions attributable to accommodation

Once the user inputs the estimated distribution of the participants among different types and standards of accommodation, the calculator estimates the GHG emissions based on proxy emission factors. If the accommodation type is unknown, the calculator automatically calculates the number of participants for which the type is unknown (it can be also 100% of the participants) and uses a national average proxy for the GHG emissions calculation.

The calculation algorithm is:

∑ Participants per accommodation type per day × accommodation type proxy ×duration of the event= Total GHG emissions attributable to accommodation

5.3.4 Total GHG emissions attributable to event

The total GHG emissions attributable to event is a sum of emissions calculated in paras 5.3.1 to 5.3.3.

The calculation algorithm is:

Total GHG emissions attributable to air travel +Total GHG emissions attributable to venue +Total GHG emissions attributable to accommodation = Total GHG emissions attributable to event

6 Calculation of GHG emissions in the Advanced Option

6.1 Background: flexibility and adaptability

The GET's Carbon Footprint Calculator Advanced Option is designed to be flexible, so it can be adapted to different calculation methodologies. The advanced option exceeds the basic with respect to the level of accuracy, completeness, consistency, transparency, and comparability but it still allows for flexible coverage of GHG emissions related to any event. In particular, the GET's calculator allows users to implement their own emission factors when available to them, to enhance the accuracy of the calculations. For example, if user has a grid emission factor to calculate the GHG emissions associated to electricity consumption in a specific region in the world or individual country, e.g., grid emission factor then the user can enter it to have a more tailored result than if using the average grid emission factor contained in the calculator.

Furthermore, the advance option allows to disaggregate GHG emission by several separated sub-sources. For example, it allows to disaggregate GHG emissions attributable to electricity consumed by the event to GHG emissions attributable to electricity consumed before, during and after the event; or to separate GHG emissions attributable to air travel of participants from those attributable to air travel of organizers. Concluding, all sources of GHG emissions can be estimated separately if desired.

6.2 Collecting data for the calculations and making assumptions

6.2.1 Collecting data

The collection of input data required to complete the calculations in the GET's Carbon Footprint Calculator is the most challenging part of estimating the carbon footprint. The event organizer or the user in charge of completing the calculations should plan well ahead of the event on how to collect the data.

Based on the experience of many stakeholders organizing various events, this calculator categorizes the sources of GHG emissions by providers of products or services ordered by the organizers

in order to conduct the event. Key providers/services include the venue, caterers, transport and accommodation. *The goal of the categorization is to allow the event organizer or user in charge of the calculations to liaise with major providers to collect the required data.*

For example, the venue administrator is in position to deliver data on electricity and water consumption onsite. The caterer may provide data on the number and types of meals served at the event. The local transportation provider may collect data on the total distance travelled, and the transport modes used. Similarly for the rest of the sources of emissions.

The tool is designed in a way for further expansion to allow different suppliers to join working with the event organizer as a team.

6.2.2 Making assumptions

Where it is not possible to collect the data, assumptions are necessary

For example, if the user wishes to calculate the emissions from local transportation of participants from their accommodation to the venue and it is not possible to obtain exact data on distance and mode of transportation from all participants, assumptions may be necessary. Logic behind each assumption should be documented in the free text sections of the calculator. It will be automatically included in the final report providing the estimate of sum of all GHG emissions attributable to the event.

In particular, when emission factor for a specific activity is not available in the current database, the user defined value can always be used. In this case, make sure that such assumptions and data source of emission factor are transparently documented in the tool.

All assumptions should be *conservative*. This means that the result of the calculation using the assumption should more likely overestimate the "true" emissions, instead of underestimating them.

6.3 Categories

The GET's Carbon Footprint Calculator classifies the sources of GHG emissions associated to an event into eight categories:

6.3.1 GHG emissions attributable to venue

The potential GHG emission sources included in the venue category are: stationary fuel combustion (like boilers, gas heaters, cookstoves, electricity generators or any other devices that burn fuels onsite), grid electricity consumption, refrigerant emissions (from leaks in air conditioning units), grid heat/cold/steam consumption, embedded carbon of the building materials used in preparation of the venue (i.e., GHG emission attributable to manufacturing of the building materials), grid water consumption, and related waste disposal.

6.3.2 GHG emissions attributable to flights

GHG emissions from flights, in particular international flights, make a significant share of the total emissions. This section covers GHG emissions from civil aviation and private aviation attributable to travel by participants to the event.

6.3.3 GHG emissions attributable to other transportation

All means of transportation except flights are considered in this section. It includes mobile fuel combustion (cars, trucks, rails, boats, other forms of transport) and upstream fuel emissions (from the production and transportation of the fuels).

6.3.4 GHG emissions attributable to communication

For in-person events, GHG sources covered by this category include material manufacturing and use (such as paper, cardboard), printing services and related waste disposal. For virtual events, the category considers the GHG emissions attributable to grid electricity consumption of the terminal devices used to connect to the event (phone, laptop), activities of affected data centres and data transmission. For hybrid events, it is the combination of both.

6.3.5 GHG emissions attributable to audio/visual services

The GHG emissions associated to the production of audio/video are considered. When an emission factor is not available in the GET database, the user inputs an estimate of the total emissions for such sources, which should be calculated separately or requested from the corresponding service provider (audio/video producer).

6.3.6 GHG emissions attributable to preparation of exhibition

For events that include exhibitions or setting up temporary structures, GHG emissions attributable to manufacturing of all materials used to build booths or other structures, and related waste disposal are considered under this category. GHG emissions related to energy consumption, water consumption and other sources are usually already considered under the "Venue" category.

6.3.7 GHG emissions attributable to accommodation of participants and organizers

Calculation of GHG emissions attributable to accommodation of participants and organizers requires input data on: the number of rooms and related duration of stay of participants and organizers at the event. The methodology uses the input data, the energy index for the selected accommodation type and the grid emission factor of the country used for the event to calculate the related GHG emissions.

6.3.8 GHG emissions attributable to catering

This category covers GHG emissions associated with catering services provided by catering facilities that are not located at the event venue. It includes GHG emissions resulting from: stationary fuel combustion, electricity consumption, grid heat/cold/steam consumption, food production (the food items themselves), and related waste disposal. If catering services are located in the event venue, GHG emissions attributable to them are considered under the "Venue" category and shall not be considered here.

6.4 The Calculation Algorithm – Advanced Option

6.4.1 GHG emissions attributable to venue

6.4.1.1 GHG emissions attributable to stationary fuel combustion

This source includes all combustion of fuels in stationary equipment, such as boilers, gas heaters, cookstoves, electricity generators and others. The user should input the amount of each type of fuel (diesel, natural gas, LPG etc.) consumed. The amount of fuel must be included using the units of the selected emission factor as appropriate (gallons, liters, m3, kg, pounds). The calculation algorithm is:

∑ fuel quantity x fuel emission factor=Total GHG emissions attributable to fuel consumption

6.4.1.2 GHG emissions attributable to electricity consumption

All electricity consumed in the venue for the purposes of the event must be included. Depending on the capacity of the venue to provide sub-metering for the spaces being used by the event, it may be possible to obtain precise amounts. Otherwise, approximations will have to be used. The user should input the total amount of electricity consumed. This amount is in kWh (kilowatt hours). The calculation algorithm is as follows:

amount of electricity consumed x grid emission factor=
Total GHG emissions attributable to electricity consumption

The amount of electricity consumed should be calculated over all services powered by grid electricity in the entire venue (e.g., heating and cooling systems, lighting, office equipment, catering, water pumping, captive power generation, hot water generation, etc.). It should include data covering the entire period from the moment of event build up through the event and until disassembly of all structures erected in relation to the event. If disaggregated data on services referred to above are available, the GET allows for separate calculation of GHG emissions for each individual electricity consumption and aggregates all of them.

6.4.1.3 GHG emissions attributable to refrigerant leaks (fugitive emissions)

Air conditioning and refrigeration units may leak, causing what is called “fugitive emissions” which contributes to climate change if the refrigerant is not climate friendly. An estimate of fugitive emission of refrigerants that have leaked during the event should be obtained from the venue management. The amount of refrigerant be provided using correct units (kg, pound, liter, gallon), according to the selected emission factor. The calculation algorithm is as follows:

Amount of refrigerant x refrigerant emission factor=
Total GHG emissions attributable to refrigerant leaks

6.4.1.4 GHG emissions attributable to the grid heat/cold/steam consumption

A venue or event may be purchasing heating, cooling, or steam from third-party suppliers beyond the venue (grid), in which case the energy used to produce that heating, cooling or steam is included in the electricity or fuels considered above. In this case, the GHG emissions associated to the purchased

heating, cooling and/or steam need to be calculated. The user needs to input the amount of heating, cooling or steam purchased. This amount is in kWh. The calculation algorithm is:

∑kWh of heating,cooling,steam x emission factor=
Total GHG emissions attributable to the grid heat/cold/steam consumption

6.4.1.5 GHG emissions attributable to the embedded carbon footprint of the building materials

Preparation of the venue may result in consumption of building materials to develop or renovate structures necessary to meet the venue organizer needs (i.e., in absence of the event they would not be developed or renovated). The structures may include: temporary or permanent buildings or even stadiums for sport events (Olympics, football). In such case, GHG emissions caused by manufacturing of the building materials consumed by the event (embedded carbon footprint) should be considered as attributable to the event. Depending on the purpose of the buildings, an allocation ratio may be applied to decide the percentage of such emissions are assigned to this event, in particular when the permanent construction happens, such building will be used for other purposes in the future.

The user should input data on the amount of each type of material used for the event. The amount of material must be entered using the correct units for the emission factor (kg, pounds, tonnes). The calculation algorithm is:

∑ Amount of material x emission factor of material x allocation ratio=
Total GHG emissions attributable to building material consumption

6.4.1.6 GHG emissions attributable to water consumption

Water supply and waste water treatment both result in GHG emissions that need to be taken into account. The GET user should collect data on the amount of water consumed, in terms of volume (m3, liter, gallon), in the venue and attributable to the event. The tool assumes that all water consumed is also being discharged as waste water for treatment. The calculation algorithm is:

Amount of water consumed x (emission factor water supply+
emission factor waste water treatment)=
Total GHG emissions attributable to water consumption

6.4.1.7 GHG emissions attributable to waste produced in the venue of the event

The user should collect data on the amount of waste, in terms of mass (kg, pound, tonne) produced in the venue of the event. The data should be separated into the waste by material (waste stream) and by type of final treatment it will receive (recycling, incineration, landfilling). If it is not possible to separate the waste into the different waste streams, then the user should use the type "municipal waste" for all waste. If the final treatment method is unknown, then the user may assume that all waste goes to landfill (landfilling).

If the waste from the event is not managed by the venue, then the external waste management organization should be contacted for this information.

The calculation algorithm is:

∑ Amount of waste per waste stream x emission factor waste stream=
Total GHG emissions attributable to waste produced in the venue of the event

6.4.2 GHG emissions attributable to flights affected by the event

The GET's carbon footprint calculator allows for the calculation of GHG emissions associated to commercial air travel, and private air travel. Cargo/freight air travel are not included in this version.

The user should input the following information for each itinerary of the event participants: airport of departure, airport of arrival, and travel class (economy or premium). The calculator will calculate the distance between the airports and use proxies derived from ICAO's Air Travel Carbon Footprint Calculator to estimate the associated emissions.

For connecting flights, the user can add information of each leg.

The calculation algorithm is:

∑ Travel distance x emission factor per travel class=
Total GHG emissions attributable to flights affected by the event

6.4.3 GHJG emissions attributable to other transportation affected by the event

This section allows the calculation of the GHG emissions associated to travel by car, bus, boat, train or other means, for either short or long distances. Therefore, local transportation of participants in the destination of the event, or long-distance travel to arrive at the destination can both be included here.

It is possible to add as many input lines as desired. For example, the user can create only one line to calculate all travel by car, or the user can include multiple lines to calculate different trips by car (or any other mode of transport). The user can also separate local travel from long distance travel as desired.

The user must input the total distance of travel per type of transport mode (car, bus, train etc.) using the correct distance unit according to the emission factor (km, mile).

Should the exact distance of travel be unavailable, assumptions will need to be made. For instance, assuming points of departure and arrival, and determining the distance using an online mapping tool (e.g., Google Maps).

The calculation algorithm is:

∑ Distance per transport mode x emission factor transport mode=Total GHG emissions attributable to other transportation affected by the event

OR

∑ Distance per transport mode x emission factor transport mode x Number of passengers=Total GHG emissions attributable to other transportation affected by the event

OR

∑ Distance per transport mode x emission factor transport mode x Weight of goods=Total GHG emissions attributable to other transportation affected by the event

6.4.4 GHG emissions attributable to communication affected by the event

For in-person events, emissions attributable to communication include GHG emissions resulting from the manufacturing of paper, cardboard and other materials used to produce communication products. The calculated GHG emissions also cover printing services and the waste disposal of the materials after use.

The user should input data on the amount of material used for communication purposes in the event, using the correct units according to the emission factor (kg, pound, tonne). For printing services, the user must include the amount of material printed.

The user should also input data on the amount of waste produced, per type of material (plastic, paper, metal etc.) and its final treatment (recycling, incineration, landfilling). If it is not possible to separate the waste into the different waste streams (materials), the user may select "municipal waste" as the waste type. If the final treatment method is unknown, the user may assume all waste goes to landfill (landfilling). As above, the units used for the amount must be consistent with the emission factor used (kg, pound, tonne).

Note that if any among sources of emissions attributable to communication was already included in estimation of GHG emissions under "Venue" (e.g., when only aggregated data on energy consumption are available), then it should not be considered in this category, otherwise double counting will occur.

The calculation algorithm is as follows:

∑ Material type x emission factor material type= Total GHG emissions attributable to materials

∑ Amount of printing x emission factor printing= Total GHG emissions attribuitable to printing

∑ Amount of waste per waste stream x emission factor waste stream= Total GHG emissions attributable to waste

6.4.5 GHG emissions attributable to Audio/Visual services

AV GHG emissions are associated to the production of video clips, music tracks and similar elements of event delivery. As there are no specific emission factors associated yet to these types of products, the user may request the producer of the material to provide an estimation of the GHG emissions from their production. The user will then enter this amount in the GET's calculator directly, using the correct units (tons of CO2e).

Note that if any among sources of emissions attributable to audio/visual services was already included in estimation of GHG emissions under "Venue" (e.g., when only aggregated data on energy consumption are available), then it should not be considered in this category, otherwise double counting will occur.

and disaggregated data allow for separate estimation of GHG emissions attributable to food and beverage consumption at the event from stationary fuel combustion, electricity consumption, purchased heat/cold/steam, emission from food production (the food items themselves), and related waste disposal, then these emissions should be considered under this category only.

6.4.6 GHG emissions attributable to accommodation

The GET Carbon Footprint Calculator uses proxy data for estimation of GFG emissions attributable to the electricity consumption associated to the use of accommodation services.

The user needs to enter the number of rooms and nights associated to the event per accommodation type (hotels of different types, other types of accommodation

The calculation algorithm is:

∑ Accommodation type electricity consumption proxy x grid emission factor country= Total GHG emissions attributable to accommodation

6.4.7 GHG emissions attributable to food and beverage consumption at the event

If disaggregated data allow for separate estimation of GHG emissions attributable to food and beverage consumption at the event from stationary fuel combustion, electricity consumption, purchased heat/cold/steam, emission from food production (the food items themselves), and related waste disposal, then these emissions should be considered under this category. Otherwise, only GHG emissions attributable to food production which occur outside of the event venue are to be considered under this category.

Note that if any among sources of emissions attributable to food and beverage consumption at the event was already included in estimation of GHG emissions under "Venue" (e.g., when only aggregated data on energy consumption available), then it should not be considered in this category, otherwise double counting will occur.

6.4.7.1 GHG emissions attributable to stationary fuel combustion

This GHG emission source includes all combustion of fuels in stationary equipment, such as boilers, gas heaters, cookstoves, electricity generators and others. The user should input the amount of each type of fuel (diesel, natural gas, LPG etc.) consumed. The amount of fuel must be provided using the units of the selected emission factor as appropriate (gallons, liters, m3, kg, pounds). The calculation algorithm is:

∑ fuel quantity x fuel emission factor=Total GHG emissions attributable to stationary fuel combustion

6.4.7.2 GHG emissions attributable to electricity consumption

The electricity consumption data should cover all services of the venue provided to the event (e.g., heating and cooling systems, lighting, office equipment, catering, water pumping, captive power generation, hot water generation, etc.). It should include data covering the entire period from the moment of event build up through the event and until disassembly of all structures erected in relation to the event. If only aggregated data over the entire venue are available, then it is necessary

to implement approximate disaggregation to filter up only that part of the entire venue electricity consumption that is attributable to the event.

If disaggregated data on services referred to above are available, the GET allows for separate calculation of GHG emissions for each individual electricity consumption and aggregates all of them.

kWh electricity consumed x grid emission factor=Total GHG emissions attributable to electricity consumption

Note that if any among sources of emissions attributable to electricity consumption at the event was already included in estimation of GHG emissions under "Venue" (e.g., when only aggregated data on energy consumption are available), then it should not be considered in this category, otherwise double counting will occur.

6.4.7.3 GHG emissions attributable to purchased heat/cold/steam consumption

If the venue or event purchase heating, cooling or steam from third-party suppliers located beyond the venue, then GHG emissions attributable to generation of energy used to produce that heating, cooling or steam shall be considered in this category. The user should provide data on the amount of heating, cooling or steam purchased. This amount is in kWh. The calculation algorithm is:

∑ kWh of heating,cooling,steam x emission factor=Total GHG emissions attributable to purchased heat,cold,steam consumption

Note that if any among sources of emissions attributable to purchased heat/cold/steam consumption at the event was already included in estimation of GHG emissions under "Venue" (e.g., when only aggregated data on energy consumption are available), then it should not be considered in this category, otherwise double counting will occur.

6.4.7.4 GHG emissions attributable to foodstuff production

The production of foodstuff has an associated carbon footprint that can contribute significantly to the total GHG emissions of an event. The user will need to collect data on the amount of each type of food served during the event (rice, beans, meat etc.) in the relevant units (kg, pounds, tonnes) OR the number of meals served by type (coffee breaks, vegetarian lunch/dinner, meat lunch/dinner etc.).

The calculation algorithm is:

∑ Amount of foodstuff x emission factor foodsuff item= Total GHG emissions attributable to foodstuff production

∑ Amount of meals served by type x emission factor meal type= Total GHG emissions attributable to foodstuff production

Note that production of foodstuff usually occurs outside of the venue.

6.4.7.5 GHG emissions attributable to waste

The event manager should collect data on the amount of waste, in terms of mass (kg, pound, tonne) produced in the venue by the event. The event manager may also separate the waste by material (waste stream) and by type of final treatment it will receive (recycling, incineration, landfilling). User should collect these data from the event manager and input them into the GET. If it is not possible to separate the waste into the different waste streams, then the user should use the type "municipal waste" for all waste. If the final treatment method is unknown, then the user should assume that all waste goes to landfill (landfilling).

If the waste from the event is not managed by the venue, then the external waste management organization may be contacted for this information.

The calculation algorithm is:

∑ Amount of waste per waste stream x emission factor waste stream=
Total GHG emissions attributable to waste

6.4.8 Total GHG emissions attributable to event

The total GHG emissions attributable to event is a sum of emissions calculated in paras 6.4.1 to 6.4.7.5.

The calculation algorithm is:

Total GHG emissions attributable to venue +

Total GHG emissions attributable to flights affected by the event +

Total GHG emissions attributable to other transportation affected by the event +

Total GHG emissions attributable to communication affected by the event +

Total GHG emissions attributable to Audio/Visual services +

Total GHG emissions attributable to accommodation +

Total GHG emissions attributable to food and beverage consumption at the event

= Total GHG emissions attributable to event

7 Data Sources

7.1 UK DEFRA Greenhouse Gas Conversion factors

The 2022 UK Government Greenhouse Gas Conversion factors for Company represent the current official set of UK government conversion factors. Values for the non-carbon dioxide (CO2) GHGs, methane (CH4) and nitrous oxide (N2O), are presented as CO2 equivalents (CO2e), using Global Warming Potential (GWP) factors from the Intergovernmental Panel on Climate Change (IPCC)'s fourth assessment report. The UK Government publishes updated emission factors set annually.

The DEFRA conversion factors are used for the calculations for most sources of emissions, except those described below.

7.2 ICAO Carbon Emissions Calculator: derived proxies

ICAO has developed a methodology to calculate the carbon dioxide emissions from air travel using publicly available industry data to account for various factors such as aircraft types, route-specific data, passenger load factors and cargo carried. The GET used the 90th percentile of 120 calculations from the ICAO calculator to create emission factors proxies for different ranges of distances: Short (<3.000km), Medium (>3.000km, <6.000km), Long (>6.000km, <12.000km), and Super Long (>12.000km).

These proxies are applied to the category "Flights".

7.3 IOC Carbon Footprint Methodology for The Olympic Games: food related proxies

IOC Carbon Footprint Methodology for The Olympic Games has been produced by the IOC. Specialist consultants Quantis International were commissioned to develop and draft the methodology and this was reviewed by IOC advisors and other subject matter experts. Consultees included sustainability team members from various OCOGs. The GET used the emission factors for catering which include food and beverage production, cooking, packaging production, and delivery transport.

These proxies are applied to the category "Catering", when the user selects types of meals served.

7.4 Harmonized International Financial Institutions (IFI) Default Grid Emission Factors

The IFI Technical Working Group (IFI TWG) on GHG accounting maintains a common dataset containing Default Emissions Factor (DEF) of the country's electricity grid including in-country interconnected grids. The DEFs apply to electricity generation in a country and currently do not consider the impact of interconnections with neighboring countries.

These emission factors are applied to all calculations related to electricity consumption.

7.5 Cornell Hotel Sustainability Benchmarking Index (CHSB)

The Cornell Hotel Sustainability Benchmarking Index (CHSB) is an industry-led global data collection and benchmarking initiative, with data on energy, water and carbon emissions from over 20,000 hotels around the world. The public data set is published by Cornell's School of Hospitality Research free of charge and contains average hotel performance for different types of hotels in different geographies.

These proxies are used for the category "Accommodation".

7.6 MCI and United Nations database of events

MCI, one of the biggest event organizers in the world, has made available a database of GHG emissions calculations for some of their events. This database has been combined with another one developed by the United Nations based on its own events to derive proxies that can be used to generate a ballpark figure for emissions when using the "Basic option" for the calculations in the carbon footprint calculator. These proxies exclude air travel and accommodation.

Further development of these proxies is expected, based on the data generated through the GET itself.

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