

A. VENUE - ELECTRICITY

Emissions source	Total kWh	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total equiv. CO ₂ (t)	Total C equiv. (t)
Electricity	228,310	90	0.002	0.001	90	25
Total	228,310	90	0.002	0.001	90	25

Event Duration: 5th - 14th October 2008

All figures in italics are supplied by the client

Assumptions

CO₂ emissions for electricity - Spain:
 CH₄ emissions for electricity - Spain:
 N₂O emissions for electricity - Spain:

0.394 kgCO₂/kWh (IEA 2006)
 0.009 gCH₄/kWh (derived from IPCC 2006 and IEA 2007)
 0.005 gN₂O/kWh (derived from IPCC 2006 and IEA 2007)

Global warming potential (in CO₂ equivalents) of CH₄:
 Global warming potential (in CO₂ equivalents) of N₂O:

25 (IPCC 2007)
 288 (IPCC 2007)



B. VENUE - WASTE

Source of emissions	Waste (tonnes)	CH ₄ generated (t)	CH ₄ emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Landfill waste	12	0.8	0.3	6.9	1.9
Recycled waste	17	0	0	0	0
Total	28	0.8	0.3	6.9	1.9

Data collection period:

5th - 14th October 2008

All figures in italics are supplied by the client

Assumptions

ECCM does not attribute the emissions associated with recycling to the entity which disposes of the material. The emissions associated with recycling are attributed to the entity which processes the recycled material or the entity which consumes the product made from the recycled material.

As a worst case scenario, ECCM assume that all non-recycled waste is sent to landfill.

Total waste generated during the congress:

28 tonnes

Total waste recycled during congress:

59%

Methane generated from landfilled commercial waste:

0.072 tCH₄/t waste (see below)

Methane emitted from landfilled commercial waste:

0.024 tCH₄/t waste (see below)

Methane generated from recycled waste:

0 tCH₄/t waste (IPCC 2006)

Methane emitted from recycled waste:

0 tCH₄/t waste (IPCC 2006)

To calculate carbon emissions from commercial waste the following parameters were used:

Degradable organic C content (DOC) of typical MSW (doc):

18% (Smith et al 2001)

Proportion of dissimilable DOC (di):

60% (Brown et al 1999)

Proportion of dissimilable DOC decaying to methane (dm):

50% (IPCC 1996)

Methane oxidation factor (ox):

10% (Brown et al 1999)

Average landfill gas collection efficiency for UK landfills (gc):

63% (Smith et al 2001)

Global warming potential of CH₄:

25 (IPCC 2007)

Notes

CH₄ generated (mg) = mass x doc x dm x di x 16/12

CH₄ emitted = mg x (1-gc) x (1-ox)

16/12 is the conversion factor carbon to CH₄

44/12 is the conversion factor carbon to CO₂

C. TRAVEL - DELEGATE FLIGHTS

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Short-haul flights									
Algeria	8	521	1,042	9,089	0.9	0.00001	0.00003	0.9	0.2
Austria	15	1,369	2,738	44,759	4.4	0.00004	0.0002	4.5	1.2
Belgium	73	1,083	2,166	172,360	17	0.0001	0.0006	17	4.7
Croatia	6	1,229	2,457	16,070	1.6	0.0001	0.00006	1.6	0.4
Czech Republic	11	1,357	2,714	32,544	3.2	0.00003	0.0001	3.2	0.9
France	298	858	1,716	557,502	55	0.0004	0.002	55	15.1
Germany	102	1,132	2,264	251,709	25	0.0002	0.0009	25	6.8
Hungary	17	1,521	3,042	56,370	5.5	0.00005	0.0002	5.6	1.5
Ireland	8	1,484	2,968	25,884	2.5	0.00002	0.0001	2.6	0.7
Italy	159	847	1,695	293,688	29	0.0002	0.001	29	8.0
Libya	2	1,372	2,744	5,981	0.6	0.000005	0.00002	0.6	0.2
Luxembourg	9	980	1,959	19,220	1.9	0.00002	0.00007	1.9	0.5
Monaco	16	496	992	17,299	1.7	0.00001	0.00006	1.7	0.5
Montenegro	10	1,424	2,849	31,052	3.1	0.000025	0.00011	3.1	0.8
Morocco	16	1,117	2,235	38,976	3.8	0.00003	0.0001	3.9	1.1
The Netherlands	104	1,240	2,481	281,205	28	0.0002	0.0010	28	7.6
Portugal	32	993	1,987	69,294	6.8	0.00006	0.0003	6.9	1.9
Serbia	8	1,527	3,055	26,637	2.6	0.00002	0.00010	2.6	0.7
Slovakia	2	1,414	2,828	6,165	0.6	0.00000	0.00002	0.6	0.2
Slovenia	6	1,133	2,265	14,813	1.5	0.00001	0.00005	1.5	0.4
Switzerland	138	637	1,274	191,644	19	0.0002	0.0007	19	5.2
Tunisia	15	859	1,717	28,076	2.8	0.00002	0.0001	2.8	0.8
UK	366	1,148	2,295	915,727	90	0.0007	0.003	91	25
Vatican City State	1	847	1,695	1,847	0.2	0.000001	0.00001	0.2	0.1
Sub-total	1,422	-	-	3,107,913	306	0.002	0.01	309	84
Long-haul flights									
Angola	2	5,689	11,377	24,802	2.7	0.000003	0.0001	2.8	0.8
Antilles, Netherlands	1	6,636	13,273	14,468	1.6	0.000002	0.0001	1.6	0.4
Argentina	47	10,445	20,889	1,070,144	118	0.0001	0.005	120	33
Australia	115	17,179	34,358	4,306,735	476	0.0005	0.02	482	131
Azerbaijan	1	7,113	14,225	15,506	1.7	0.000002	0.00007	1.7	0.5
Bahamas	3	7,361	14,722	48,142	5.3	0.00001	0.0002	5.4	1.5
Bahrain	2	4,716	9,431	20,560	2.3	0.000003	0.00009	2.3	0.6
Bangladesh	24	8,148	16,296	426,300	47	0.00005	0.002	48	13
Belize	3	8,757	17,515	57,274	6.3	0.00001	0.0002	6.4	1.7



Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Benin	7	3,883	7,765	59,249	6.6	0.00001	0.0003	6.6	2
Bermuda	1	5,874	11,749	12,806	1.4	0.00002	0.0001	1.4	0.4
Bhutan	1	7,828	15,657	17,066	1.9	0.00002	0.0001	1.9	0.5
Bolivia	22	9,647	19,294	462,659	51	0.00006	0.002	52	14
Botswana	10	7,719	15,438	168,271	19	0.00002	0.001	19	5.1
Brazil	110	8,758	17,517	2,100,269	232	0.0003	0.009	235	64
British Indian Ocean T.	1	8,934	17,868	19,476	2.2	0.00002	0.00008	2.2	0.6
Bulgaria	5	1,763	3,527	19,221	2.1	0.00002	0.00008	2.2	0.6
Burkina Faso	12	3,235	6,470	84,632	9.4	0.00001	0.0004	9.5	2.6
Burundi	3	5,673	11,346	37,102	4.1	0.00005	0.0002	4.2	1.1
Cambodia	6	10,195	20,391	133,355	15	0.00002	0.001	15	4.1
Cameroon	18	4,268	8,536	167,473	19	0.00002	0.001	19	5.1
Canada	137	6,051	12,101	1,807,096	200	0.0002	0.008	202	55
Cape Verde	1	3,826	7,652	8,340	0.9	0.00001	0.00004	0.9	0.3
Cayman Islands	2	8,067	16,134	35,171	3.9	0.00004	0.0002	3.9	1.1
Chile	8	11,143	22,286	194,330	21	0.00002	0.001	22	5.9
China	38	8,807	17,613	729,536	81	0.00009	0.003	82	22
China (Taiwan)	4	10,331	20,661	90,083	10	0.00001	0.0004	10	2.7
Colombia	50	8,508	17,015	927,335	103	0.0001	0.004	104	28
Congo (DROC)	6	5,254	10,509	68,727	8	0.00001	0.000	8	2.1
Congo (ROC)	9	5,235	10,470	102,710	11.4	0.00001	0.0004	11.5	3.1
Cook Islands	1	17,195	34,390	37,485	4.1	0.00005	0.0002	4.2	1.1
Costa Rica	57	8,962	17,924	1,113,613	123	0.0001	0.005	125	34
Côte D'Ivoire	2	4,049	8,097	17,652	2.0	0.00002	0.0001	2.0	0.5
Cuba	7	7,566	15,131	115,451	13	0.00001	0.0005	13	3.5
Cyprus	2	2,833	5,666	12,351	1.4	0.00002	0.0001	1.4	0.4
Denmark	22	1,767	3,535	84,764	9.4	0.00001	0.0004	9.5	2.6
Dominican Republic	8	7,158	14,315	124,828	14	0.00002	0.001	14	3.8
Ecuador	49	9,225	18,450	985,439	109	0.00012	0.004	110	30
Egypt	6	2,904	5,808	37,987	4.2	0.00000	0.000	4.3	1.2
El Salvador	15	9,113	18,227	298,006	33	0.00004	0.001	33	9.1
Equatorial Guinea	1	4,224	8,448	9,208	1.0	0.00001	0.00004	1.0	0.3
Estonia	13	2,553	5,106	72,352	8.0	0.00001	0.0003	8.1	2.2
Ethiopia	9	5,083	10,167	99,738	11	0.00001	0.0004	11	3.0
Fiji	7	17,396	34,792	265,463	29	0.00003	0.001	30	8.1
Finland	19	2,626	5,253	108,782	12	0.00001	0.0005	12	3.3
French Guiana	2	6,734	13,469	29,362	3.2	0.000004	0.0001	3.3	0.9

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Gabon	2	4,598	9,195	20,045	2.2	0.00002	0.0001	2.2	0.6
Gambia	2	3,597	7,195	15,685	1.7	0.00000	0.0001	1.8	0.5
Georgia	9	3,532	7,064	69,296	7.7	0.00001	0.0003	7.8	2.1
Ghana	6	3,972	7,945	51,958	5.7	0.00001	0.0002	5.8	1.6
Greece	8	1,903	3,806	33,193	3.7	0.000004	0.00014	3.7	1.0
Greenland	1	4,253	8,506	9,271	1.0	0.000001	0.00004	1.0	0.3
Grenada	2	6,951	13,901	30,305	3.4	0.000004	0.0001	3.4	0.9
Guatemala	23	9,151	18,302	458,820	51	0.00006	0.002	51	14.0
Guinea	6	3,846	7,692	50,306	5.6	0.00001	0.000	6	1.5
Guinea-Bissau	14	3,695	7,390	112,770	12	0.00001	0.0005	13	3.4
Guyana	5	7,070	14,140	77,064	8.5	0.00001	0.0003	9	2.4
Haiti	3	7,366	14,732	48,173	5.3	0.00001	0.0002	5	1.5
Honduras	9	8,918	17,835	174,965	19	0.00002	0.001	20	5.3
Hong Kong	2	10,052	20,104	43,826	4.8	0.00001	0.0002	5	1.3
Iceland	5	2,969	5,937	32,357	3.6	0.000004	0.0001	4	1.0
India	47	6,769	13,538	693,557	77	0.0001	0.003	78	21.2
Indonesia	40	11,665	23,330	1,017,195	113	0.00013	0.004	114	31.0
Iran	16	4,270	8,539	148,921	16	0.00002	0.001	17	4.5
Iraq	5	3,794	7,587	41,349	4.6	0.00001	0.0002	5	1.3
Israel	5	3,080	6,159	33,568	3.7	0.000004	0.0001	4	1.0
Jamaica	13	7,784	15,567	220,585	24	0.00003	0.001	25	6.7
Japan	76	10,444	20,887	1,730,307	191	0.0002	0.007	194	52.8
Jordan	27	3,186	6,373	187,557	21	0.00002	0.001	21	5.7
Kazakhstan	5	5,245	10,490	57,172	6.3	0.00001	0.0002	6	1.7
Kenya	41	5,894	11,788	526,826	58	0.00006	0.002	59	16.1
Korea (RK)	21	9,588	19,176	438,928	49	0.00005	0.002	49	13.4
Kuwait	18	4,319	8,638	169,479	19	0.00002	0.001	19	5.2
Kyrgyzstan	2	5,771	11,541	25,160	2.8	0.000003	0.0001	2.8	0.8
Lao	4	9,531	19,061	83,107	9.2	0.00001	0.0004	9.3	2.5
Lebanon	20	3,037	6,074	132,421	15	0.00002	0.0006	15	4.0
Lithuania	3	2,257	4,513	14,758	1.6	0.00000	0.0001	1.7	0.5
Madagascar	21	8,149	16,298	373,070	41	0.00005	0.002	42	11.4
Malawi	5	7,178	14,356	78,238	8.7	0.00001	0.0003	8.8	2.4
Malaysia	15	11,513	23,027	376,489	42	0.00005	0.002	42	11
Mali	8	3,341	6,683	58,275	6.4	0.00001	0.0003	6.5	1.8
Mauritania	6	3,096	6,192	40,494	4.5	0.000005	0.0002	4.5	1.2
Mauritius	4	8,930	17,861	77,873	9	0.00001	0.0003	9	2.4
Mexico	68	9,474	18,949	1,404,475	155	0.0002	0.006	157	43
Micronesia	1	14,799	29,597	32,261	3.6	0.000004	0.0001	3.6	1.0

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Moldova	1	2,219	4,439	4,838	0.5	0.000001	0.0000	0.5	0.1
Mongolia	6	7,647	15,293	100,019	11	0.00001	0.0004	11	3.1
Mozambique	6	8,102	16,205	105,980	12	0.00001	0.000	12	3.2
Namibia	5	7,262	14,525	79,160	8.8	0.000010	0.0003	8.9	2.4
Nepal	26	7,488	14,975	424,395	47	0.0001	0.002	47	13
New Caledonia	2	17,395	34,790	75,843	8.4	0.000009	0.0003	8.5	2.3
New Zealand	27	19,395	38,789	1,141,573	126	0.000014	0.005	128	35
Nicaragua	8	8,969	17,939	156,427	17	0.00002	0.001	18	4.8
Niger	1	3,091	6,182	6,738	0.7	0.0000008	0.00003	0.8	0.2
Nigeria	1	3,860	7,720	8,415	1	0.00000	0.000	1	0
Norway	24	2,189	4,378	114,520	13	0.00001	0.0005	13	3.5
Oman	6	5,520	11,040	72,204	8.0	0.000009	0.0003	8.1	2.2
Pakistan	29	6,148	12,296	388,692	43	0.00005	0.002	43	12
Palestine Territory	2	3,080	6,159	13,427	1.5	0.000002	0.0001	1.5	0.4
Panama	18	8,626	17,253	338,500	37	0.00004	0.001	38	10.3
Papua New Guinea	1	14,799	29,597	32,261	3.6	0.000004	0.0001	3.6	1.0
Paraguay	18	9,603	19,205	376,806	42	0.00005	0.002	42	11.5
Peru	42	9,999	19,997	915,482	101	0.00011	0.004	102	28
Philippines	16	11,196	22,392	390,518	43	0.00005	0.002	44	12
Poland	11	1,868	3,737	44,805	5.0	0.000006	0.0002	5.0	1.4
Puerto Rico	2	6,851	13,702	29,870	3.3	0.000004	0.0001	3.3	0.9
Qatar	3	4,855	9,711	31,754	3.5	0.000004	0.0001	3.6	1.0
Romania	10	1,625	3,251	35,432	3.9	0.000004	0.0002	4.0	1.1
Russia	24	2,820	5,640	147,544	16	0.00002	0.001	17	4.5
Rwanda	1	5,580	11,160	12,164	1.3	0.000001	0.0001	1.4	0.4
Samoa	4	16,896	33,793	147,336	16	0.00002	0.0006	16	4.5
Saudi Arabia	15	4,089	8,177	133,694	15	0.00002	0.0006	15	4.1
Senegal	22	3,502	7,003	167,943	19	0.00002	0.001	19	5.1
Seychelles	10	7,435	14,869	162,077	18	0.00002	0.001	18	4.9
Sierra Leone	4	3,930	7,860	34,270	3.8	0.000004	0.0001	3.8	1.0
Solomon Islands	2	15,854	31,707	69,122	7.6	0.000009	0.0003	7.7	2.1
South Africa	71	8,532	17,064	1,320,569	146	0.0002	0.006	148	40
Sri Lanka	15	8,458	16,916	276,580	31	0.00003	0.001	31	8.4
St. Kitts and Nevis	1	6,654	13,308	14,505	1.6	0.000002	0.0001	1.6	0.4
St. Lucia	4	6,740	13,481	58,777	6.5	0.00001	0.0003	6.6	1.8
Sudan	1	4,086	8,172	8,907	1.0	0.000001	0.00004	1.0	0.3

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Suriname	4	4,086	8,172	35,629	4	0.000004	0.00015	4.0	1.1
Swaziland	3	8,115	16,231	53,074	5.9	0.00001	0.0002	5.9	1.6
Sweden	33	1,957	3,914	140,787	16	0.00002	0.0006	16	4.3
Syria	1	3,142	6,285	6,851	0.8	0.000001	0.0000	0.8	0.2
Tajikistan	2	5,552	11,105	24,209	2.7	0.000003	0.0001	2.7	0.7
Tanzania	20	6,551	13,103	285,635	32	0.00004	0.001	32	8.7
Thailand	60	9,707	19,414	1,269,656	140	0.0002	0.005	142	39
Togo	2	3,905	7,809	17,024	1.9	0.000002	0.0001	1.9	0.5
Trinidad and Tobago	5	7,016	14,032	76,474	8.5	0.00001	0.0003	8.6	2.3
Turkey	15	2,229	4,459	72,903	8.1	0.00001	0.0003	8.2	2.2
Uganda	19	5,507	11,013	228,079	25	0.00003	0.001	26	7.0
Ukraine	3	2,398	4,797	15,685	1.7	0.000002	0.00007	1.8	0.5
United Arab Emirates	17	5,164	10,328	191,382	21	0.00002	0.001	21	5.8
Uruguay	9	10,327	20,654	202,618	22	0.00002	0.001	23	6.2
USA	760	6,486	12,971	10,745,541	1,188	0.001	0.05	1,202	328
Uzbekistan	1	5,462	10,924	11,907	1.3	0.000001	0.0001	1.3	0.4
Vanuatu	1	17,070	34,140	37,212	4.1	0.000005	0.0002	4.2	1.1
Venezuela	11	7,483	14,966	179,440	20	0.00002	0.001	20	5.5
Vietnam	12	9,538	19,075	249,506	28	0.00003	0.001	28	7.6
Yemen	5	4,947	9,895	53,925	6.0	0.000007	0.0002	6.0	1.6
Zambia	5	6,852	13,704	74,686	8	0.00001	0.0003	8	2.3
Zimbabwe	21	7,228	14,456	330,890	37	0.00004	0.001	37	10
Sub-total	2,885	-	-	47,575,678	5,262	0.006	0.2	5,323	1,452
Total	4,307	-	-	50,683,592	5,567	0.01	0.2	5,632	1,536

Event Duration: 5th - 14th October 2008

All figures in italics are supplied by the client

Assumptions

ECCM assume that all flights origins will be from the capital or major city of the country.

ECCM assume all flight destinations will be Barcelona International Airport.

All distances are sourced from Air Routing International

CO₂ emissions for short-haul flights:

CH₄ emissions for short-haul flights:

N₂O emissions for short-haul flights:

0.0983 kgCO₂/pass.km (Defra 2008)

0.0008 gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

0.0037 gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

CO₂ emissions for long-haul flights:

CH₄ emissions for long-haul flights:

N₂O emissions for long-haul flights:

0.1106 kgCO₂/pass.km (Defra 2008)

0.0001 gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

0.0043 gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

Uplift factor (to take into account circling off aircraft and non-direct flight paths):

109% (Defra 2008)

Global warming potential (in CO₂ equivalents) of CH₄:

25 (IPCC 2007)

Global warming potential (in CO₂ equivalents) of N₂O:

298 (IPCC 2007)

D. TRAVEL - ORGANISER FLIGHTS

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Short-haul									
Belgium	24	1,083	2,166	56,666	5.6	0.00005	0.0002	5.6	1.5
Germany	12	1,132	2,264	29,613	2.9	0.00002	0.0001	2.9	0.8
Hungary	1	1,521	3,042	3,316	0.3	0.00003	0.00001	0.3	0.1
Italy	1	847	1,695	1,847	0.2	0.00001	0.00007	0.2	0.1
Serbia	3	1,527	3,055	9,989	1.0	0.00008	0.00004	1.0	0.3
Switzerland	147	637	1,274	204,143	20	0.0002	0.0008	20	5.5
UK	17	1,148	2,295	42,534	4.2	0.00003	0.0002	4.2	1.2
Sub-total	205	-	-	348,107	34	0.00003	0.0001	35	9.4
Long-haul									
Bangladesh	3	8,148	16,296	53,287	5.9	0.00007	0.0002	6.0	1.6
Brazil	1	8,758	17,517	19,093	2.1	0.00002	0.00008	2	1
Burkina Faso	15	3,235	6,470	105,789	12	0.00001	0.0005	12	3.2
Cameroon	11	4,268	8,536	102,345	11	0.00001	0.0004	11	3.1
Canada	1	6,051	12,101	13,190	1.5	0.00002	0.00006	1.5	0.4
China	2	8,807	17,613	38,397	4.2	0.00005	0.0002	4.3	1.2
Congo (DROC)	1	5,254	10,509	11,455	1.3	0.00001	0.00005	1.3	0.3
Costa Rica	36	8,962	17,924	703,335	78	0.00009	0.003	79	21
Ecuador	18	9,225	18,450	361,998	40	0.00004	0.002	41	11
Ecuador	6	17,396	34,792	227,540	25	0.00003	0.001	25	6.9
Fiji	4	3,532	7,064	30,798	3.4	0.00004	0.0001	3.4	0.9
Georgia	1	3,972	7,945	8,660	1.0	0.00001	0.00004	1.0	0.3
Ghana	4	9,151	18,302	79,795	8.8	0.00001	0.0003	8.9	2.4
Guatemala	4	3,695	7,390	24,165	2.7	0.00003	0.0001	2.7	0.7
Guinea-Bissau	3	8,918	17,835	19,441	2.2	0.00002	0.00008	2.2	0.6
Honduras	1	6,769	13,538	14,757	1.6	0.00002	0.00006	1.7	0.5
India	14	3,186	6,373	97,252	11	0.00001	0.0004	11	3.0
Jordan	1	5,894	11,788	141,344	16	0.00002	0.0006	16	4.3
Kenya	1	9,531	19,061	20,777	2.3	0.00003	0.00009	2.3	0.6
Lao	1	4,093	8,185	8,922	1.0	0.00001	0.00004	1.0	0.3
Liberia	1								

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Mali	1	3,341	6,683	7,284	0.8	0.0000009	0.00003	0.8	0.2
Mauritania	7	3,096	6,192	47,243	5.2	0.000006	0.0002	5.3	1.4
Mexico	1	9,474	18,949	20,654	2.3	0.000003	0.00009	2.3	0.6
Mozambique	1	8,102	16,205	17,663	2.0	0.000002	0.00008	2.0	0.5
Nepal	4	7,488	14,975	65,292	7.2	0.000008	0.0003	7.3	2.0
Nigeria	1	3,860	7,720	8,415	0.9	0.000001	0.00004	0.9	0.3
Pakistan	8	6,148	12,296	107,225	12	0.00001	0.0005	12	3.3
Palestine Territory	2	3,080	6,159	13,427	1.5	0.000002	0.00006	1.5	0.4
Russia	1	2,820	5,640	6,148	0.7	0.000008	0.00003	0.7	0.2
Senegal	4	3,502	7,003	30,535	3.4	0.000004	0.0001	3.4	0.9
South Africa	6	8,532	17,064	111,597	12	0.00001	0.0005	12	3.4
Sri Lanka	8	8,458	16,916	147,509	16	0.00002	0.0006	17	4.5
Tanzania	2	6,551	13,103	28,563	3.2	0.000004	0.0001	3.2	0.9
Thailand	34	9,707	19,414	719,472	80	0.00009	0.003	81	22
Uganda	1	5,507	11,013	12,004	1.3	0.000001	0.00005	1.3	0.4
USA	19	6,486	12,971	268,639	30	0.00003	0.001	30	8.2
Vietnam	2	9,538	19,075	41,584	4.6	0.000005	0.0002	4.7	1.3
Zambia	2	6,852	13,704	29,875	3.3	0.000004	0.0001	3.3	0.9
Zimbabwe	1	7,228	14,456	15,757	1.7	0.000002	0.00007	1.8	0.5
Sub-total	240	-	-	3,781,224	418	0.00005	0.02	423	115
Total	445	-	-	4,129,331	452	0.0007	0.02	458	125

Event Duration: 5th - 14th October 2008

All figures in italics are supplied by the client

Assumptions

**ECCM assume that the flight origin will be from the capital or major city
ECCM assume destination Barcelona International Airport
All distances are sourced from Air Routing International**

CO₂ emissions for short-haul flights:

0.0983 kgCO₂/pass.km (Defra 2008)

CH₄ emissions for short-haul flights:

0.0008 gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

N₂O emissions for short-haul flights:

0.0037 gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

CO₂ emissions for long-haul flights:

0.1106 kgCO₂/pass.km (Defra 2008)

CH₄ emissions for long-haul flights:

0.0001 gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

N₂O emissions for long-haul flights:

0.0043 gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

Uplift factor (to take into account circling off aircraft and non-direct flight paths):

109% (Defra 2008)

Global warming potential (in CO₂ equivalents) of CH₄:

25 (IPCC 2007)

Global warming potential (in CO₂ equivalents) of N₂O:

298 (IPCC 2007)

E. TRAVEL - SUPPORT STAFF FLIGHTS

Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Short-haul									
Belgium	1	1,083	2,166	2,361	0.2	0.000002	0.000009	0.2	0.1
France	26	858	1,716	48,641	4.8	0.00004	0.0002	4.8	1.3
Germany	14	1,132	2,264	34,548	3.4	0.00003	0.0001	3.4	0.9
Italy	2	847	1,695	3,694	0.4	0.000003	0.00001	0.4	0.1
Portugal	2	993	1,987	4,331	0.4	0.000003	0.00002	0.4	0.1
Serbia	1	1,527	3,055	3,330	0.3	0.000003	0.00001	0.3	0.1
Switzerland	41	637	1,274	56,938	5.6	0.00005	0.0002	5.7	1.5
The Netherlands	21	1,240	2,481	56,782	5.6	0.00005	0.0002	5.6	1.5
UK	17	1,148	2,295	42,534	4.2	0.00003	0.0002	4.2	1.2
Sub-total	125	-	-	253,159	25	0.0002	0.0009	25	6.9
Long-haul									
Argentina	1	10,445	20,889	22,769	3	0.0000	0.000	3	1
Australia	2	17,179	34,358	74,900	8.3	0.000009	0.0003	8.4	2.3
Azerbaijan	2	7,113	14,225	31,011	3.4	0.000004	0.0001	3.5	0.9
Barbados	1	6,684	13,368	14,571	1.6	0.000002	0.0001	1.6	0.4
Bolivia	1	9,647	19,294	21,030	2.3	0.000003	0.00009	2.4	0.6
Brazil	2	8,758	17,517	38,187	4	0.0000	0.000	4	1
Bulgaria	2	1,763	3,527	7,689	0.9	0.000001	0.0000	0.9	0.2
Canada	9	6,051	12,101	118,714	13	0.000015	0.0005	13	3.6
Colombia	2	8,508	17,015	37,093	4.1	0.000005	0.00016	4.2	1.1
Congo (ROC)	1	5,235	10,470	11,412	1.3	0.00000	0.0000	1.3	0.3
Costa Rica	1	8,962	17,924	19,537	2.2	0.000002	0.0001	2.2	0.6
Egypt	1	2,904	5,808	6,331	0.7	0.000001	0.00003	0.7	0.2
Georgia	1	3,532	7,064	7,700	0.9	0.000001	0.00003	0.9	0.2
Ghana	1	3,972	7,945	8,660	1.0	0.000001	0.00004	1.0	0.3
Guatemala	1	9,151	18,302	19,949	2.2	0.00000	0.0001	2.2	0.6



Source of emissions	Number of Passengers	Distance (km)	Return Distance (km)	Total distance (pass.km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total CO ₂ equiv. (t)	Total C equiv. (t)
Israel	2	3,080	6,159	13,427	1.5	0.000002	0.00006	1.5	0.4
Kyrgyzstan	1	5,771	11,541	12,580	1.4	0.000002	0.0001	1.4	0.4
Madagascar	2	8,149	16,298	35,530	4	0.00000	0.000	4	1.1
Mauritius	1	8,930	17,861	19,468	2.2	0.000002	0.0001	2.2	0.6
Mexico	1	9,474	18,949	20,654	2.3	0.000003	0.00009	2.3	0.6
Moldova	1	2,219	4,439	4,838	0.5	0.000001	0.0000	0.5	0.1
Poland	2	1,868	3,737	8,146	0.9	0.000001	0.0000	0.9	0.2
Romania	2	1,625	3,251	7,086	0.8	0.000001	0.00003	0.8	0.2
Russia	2	2,820	5,640	12,295	1.4	0.000002	0.0001	1.4	0.4
St. Lucia	1	6,740	13,481	14,694	1.6	0.000002	0.0001	1.6	0.4
Sweden	1	1,957	3,914	4,266	0	0.00000	0.0000	0	0.1
Syria	1	3,142	6,285	6,851	0.8	0.000001	0.00003	0.8	0.2
Tanzania	1	6,551	13,103	14,282	1.6	0.000002	0.0001	1.6	0.4
Thailand	1	9,707	19,414	21,161	2.3	0.000003	0.0001	2.4	0.6
Turkey	28	2,229	4,459	136,086	15.1	0.00002	0.0006	15.2	4.2
Ukraine	3	2,398	4,797	15,685	1.7	0.000002	0.00007	1.8	0.5
USA	8	6,486	12,971	113,111	12.5	0.00001	0.0005	12.7	3.5
Sub-total	85	-	-	876,947	97	0.000011	0.004	98	27
Total	210	-	-	1,130,105	122	0.0003	0.005	123	34

Event Duration: 5th - 14th October 2008

All figures in italics are supplied by the client

Assumptions

ECCM assume that the flight origin will be from the capital or major city
ECCM assume destination Barcelona International Airport
All distances are sourced from Air Routing International

- CO₂ emissions for short-haul flights: **0.0983** kgCO₂/pass.km (Defra 2008)
- CH₄ emissions for short-haul flights: **0.0008** gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)
- N₂O emissions for short-haul flights: **0.0037** gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)
- CO₂ emissions for long-haul flights: **0.1106** kgCO₂/pass.km (Defra 2008)
- CH₄ emissions for long-haul flights: **0.0001** gCH₄/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)
- N₂O emissions for long-haul flights: **0.0043** gN₂O/pass.km (derived from IPCC 2006, Defra 2007, Carbon Trust 2006 and Boeing 2007)

Uplift factor (to take into account circling off aircraft and non-direct flight paths): **109%** (Defra 2008)

Global warming potential (in CO₂ equivalents) of CH₄: **25** (IPCC 2007)
 Global warming potential (in CO₂ equivalents) of N₂O: **298** (IPCC 2007)



F. TRAVEL - PETROL CARS

Source of emissions	Number travelling	Distance (km)	Total distance (km)	CO ₂ emitted (t)	CH ₄ emitted (t)	N ₂ O emitted (t)	Total equiv. CO ₂ (t)	Total C equiv. (t)
Travel from the Barcelona region	866	25	43,300	9.0	0.001	0.0002	9.1	2.5
Travel from the Perpignan region	331	75	49,650	10.3	0.001	0.0002	10	2.8
Travel from the Madrid region	262	450	235,800	49	0.006	0.001	49	13
Travel from the Sevilla region	86	700	120,400	25	0.003	0.0006	25	6.9
Barcelona Airport - IUCN congress	4,962	21	208,404	43	0.006	0.001	44	12
Travel from Andorra	1	202	404	0.08	0.00001	0.000002	0.08	0.02
Total	6,508	1,473	657,958	136	0.02	0.003	138	38

Event Duration:

5th - 14th October 2008*All figures in italics are supplied by the client***Assumptions**

As a worst case scenario, ECCM assume that all delegates, organisers and support staff travelling from within Spain, travel by petrol car.

ECCM assume that people travelling from the Barcelona region travel 25 miles on average.

ECCM assume that people travelling from the Perpignan region travel 75 miles on average.

ECCM assume that people travelling from the Madrid region travel 450 miles on average.

ECCM assume that people travelling from the Sevilla region travel 700 miles on average.

ECCM assume that all attendees travelling from Andorra do so by petrol car.

ECCM assume that each passenger travelled separately (as a worse case scenario).

ECCM assume that emissions from petrol cars in Spain are equivalent to petrol cars in the UK.

Number of attendees travelling from the Barcelona region:

866 attendees

Number of attendees travelling from the Perpignan region:

331 attendees

Number of attendees travelling from the Madrid region:

262 attendees

Number of attendees travelling from the Sevilla region:

86 attendees

Number of attendees travelling from the airport:

4,962 attendees

Number of attendees travelling from Andorra:

1 attendees

Assumptions continued

Distance from Barcelona airport and the IUCN Congress venue:

Distance travelled by attendees from the Barcelona region:

Distance travelled by attendees from the Perpignan region:

Distance travelled by attendees from the Madrid region:

Distance travelled by attendees from the Sevilla region:

Distance travelled by attendees from Andorra:

CO₂ emissions for an average petrol car:

CH₄ emissions for a petrol car (3-way catalyst):

N₂O emissions for a petrol car (3-way catalyst):

Global warming potential (in CO₂ equivalents) of CH₄:

Global warming potential (in CO₂ equivalents) of N₂O:

Conversion miles to kilometres:

21 km (www.maps.google.co.uk)

25 miles (working estimate)

75 miles (working estimate)

450 miles (working estimate)

700 miles (working estimate)

202 km (www.maps.google.co.uk)

0.207 kgCO₂/km (Defra 2008)

0.027 gCH₄/km (derived from the IPCC 2006)

0.005 gN₂O/km (derived from IPCC 2006)

25 (IPCC 2007)

298 (IPCC 2007)

1.609 km/mile

G. TRAVEL - ACCOMMODATION

Source of emissions	Nights (#/yr)	CO ₂ emitted (t/yr)	Total C equiv. (t)
Delegates	48,745	1,357	370
Organiser staff	4,236	119	33
Supplier staff	288	8.1	2.2
Total	52,669	1,485	405

Event Duration:

5th - 14th October 2008*All figures in italics are supplied by the client***Assumptions**

As accurate data regarding organiser and supplier staff could not be gathered, ECCM have assumed that the number of nights stayed in hotels by these staff is equivalent to the data provided prior to the Congress taking place.

ECCM assume one person per hotel room.

Number delegates staying for 1 to 2 days:

430 delegates

Number delegates staying for Forum:

3,630 delegates

Number of delegates staying for the Members' Assembly:

163 delegates

Number of delegates staying for the entire Congress:

2,832 delegates

CO₂ emissions for hotel accommodation - Spain:

28.2 kgCO₂/room/night (derived from CIBSE 2004, Defra 2008 and IEA 2006)

H. DELIVERIES - HGVS

Source of Emissions Deliveries - HGVs	Total distance (km)	Return distance (km)	CO ₂ emitted (t/yr)	CH ₄ emitted (t/yr)	N ₂ O emitted (t/yr)	Total equiv. CO ₂ (t/yr)	Total C equiv. (t)
	810	1,620	1.5	0.00005	0.00002	1.5	0.4
Total	810	1,620	1.5	0.00005	0.00002	1.5	0.4

Data collection period: 5th - 14th October 2008
 All figures in italics are supplied by the client

Assumptions

ECCM assume that all HGV deliveries are used exclusively for the IUCN congress 2008.

Distance from IUCN Headquarters and IUCN Congress, Barcelona:

810 km (www.maps.google.com)

CO₂ emissions average diesel arctic HGVs:

0.906 kgCO₂/km (Defra 2008)

CH₄ emissions for Euro III diesel HGVs:

0.030 gCH₄/km (IPCC 2006)

N₂O emissions for Euro III diesel HGVs:

0.115 gN₂O/km (IPCC 2006)

Global warming potential (in CO₂ equivalents) of CH₄:

25 (IPCC 2007)

Global warming potential (in CO₂ equivalents) of N₂O:

298 (IPCC 2007)



SUMMARY BY GENERAL ACTIVITY

Source of emissions	Source table	Equivalent emissions CO ₂ (t)	Proportion of total
Venue - Electricity	A	90	1.1%
Venue - Waste	B	6.9	0.1%
Travel - Delegate flights	C	5,632	71%
Travel - Organisers flights	D	458	5.8%
Travel - Support staff flights	E	123	1.6%
Travel - Petrol cars	F	138	1.7%
Travel - Accommodation	G	1,485	19%
Deliveries - HGVs	H	1.5	0.02%
Total	-	7,934	100%

SUMMARY BY WBCSD SCOPE

Source of emissions	WBCSD scope	Equivalent emissions CO ₂ (t)	C (t)
Venue - Electricity	Scope 2	90	25
Sub-total		90	25
Venue - Waste		6.9	1.9
Travel - Delegate flights		5,632	1,536
Travel - Organisers flights		458	125
Travel - Support staff flights	Scope 3	123	34
Travel - Petrol cars		138	38
Travel - Accommodation		1,485	405
Deliveries - HGVs		1.5	0.4
Sub-total		7,844	2,159
Total	All scopes	7,934	2,164

SUMMARY - EMISSIONS PER DELEGATE

Source of emissions	No. delegates	CO ₂ (t)	Emissions per delegate (t)
Emissions per delegate	6,697	7,934	1.2

