

## Estimate of GHG emissions from Delegates attending CoP 20 in Lima

Approximately 9000 delegates have registered to attend CoP 20 in Lima. PD Forum estimates that if all 9000 were to attend the CoP for the entire two weeks, they may incur GHG emissions in the region of 29,000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>e).

The estimate is based on a number of assumptions detailed below. Accurate determination of GHG emissions could only be undertaken ex post, and by collecting real information from a sample of delegates.

The Project Developer Forum (PD-Forum) is a collective voice to represent the interests of companies developing greenhouse gas (GHG) emission reduction projects in international markets under the Clean Development Mechanism (CDM), Joint Implementation (JI) and other national and international carbon emission reduction schemes and programs.

### Methodology:

We assume that an equal number of delegates fly to the CoP from each of 6 global hubs, and that 50% of delegates fly economy class and 50% fly premium (premium economy, business or first class). The global hubs are Paris, Rio de Janeiro, Beijing, Singapore, Washington DC and Cape Town.

We used the ICAO flight emissions calculator (<http://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx>) to determine the economy and premium class emissions from each of the hubs, via connecting airports as necessary.

We assume each delegate stays 15 nights in a hotel at an industry average of 30kg of CO<sub>2</sub>e per night. Summing and multiplying these emissions, we arrive at a total.

### Limitations:

- 1) Not all 9000 delegates may attend and not all of them may stay for 15 nights. This could only be confirmed ex post. In addition to delegates, there are also many observers who will attend, boosting the total number of participants. Emissions from observers have not been included in these estimates.
- 2) The selection of global hubs was compromised slightly because the ICAO flight calculator did not offer emission calculations for all routes. For example, it did not offer an obvious route from Johannesburg to Lima so Cape Town was used instead, following the route Cape Town – Miami; Miami – Lima. In practice delegates will have flown different routes but it is assumed that the differences will be immaterial and will to a degree cancel out.
- 3) The calculation does not take into account emissions from flights and ground based transport to get to the 6 global hubs. In some cases, for example in Africa, these would amount to a significant under-estimate.
- 4) Hotel emission data is difficult to find and highly dependent upon individual circumstances. Estimates of between 6 kg for a budget hotel and 60 kg for a 5-star hotel per night are available from different sources<sup>1</sup>. Actual emissions are highly dependent on occupancy rates. A mid-range value of 30kg per night was selected.

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<sup>1</sup> For example: <http://www.carbonfund.org/how-we-calculate>; <http://www.ihgplc.com/index.asp?pageid=747>; <https://www.2degreesnetwork.com/groups/2degrees-community/resources/landmark-hotel-now-using-carbon-footprint-information-as-marketing-tool/>; [http://ecometrica.com/assets/hotels\\_factsheet.pdf](http://ecometrica.com/assets/hotels_factsheet.pdf)

- 5) The calculation does not attempt to quantify in-country emissions from local transport, food consumed outside the hotel etc., though it should be noted that the hosts provide bus services to transport delegates to and from the CoP venue.
- 6) The calculation does not include emissions from the venue which could be expanded to include the life cycle emissions from the construction and removal of the tented pavilions serving as meeting rooms, air conditioning etc.
- 7) The calculation does not take into consideration any purchase and cancellation of emission reduction units by Delegates or the UNFCCC. The UNFCCC and some Delegates are known to cancel emission reductions in order to offset their own emissions.

## Calculation:

The calculation of emissions is detailed in the Table below:

Lima Delegates Carbon Footprint						
Number of attendees:						9000
Flights						
Assume that delegates fly from 6 global hubs:						
Paris Rio de Janeiro, Beijing, Singapore, Washington DC and Cape town						
Emissions estimated from <a href="http://www2.icao.int/en/carbonoffset/Pages/default.aspx">http://www2.icao.int/en/carbonoffset/Pages/default.aspx</a>						
			Econ (kg)	Prem (kg)		
Paris	lima	Return	1517	3035		
Rio	lima	Return	535	1070		
Singapore	lima	Return	3016	6032		
Beijing	lima	Return	2282	4564		
Washington DC	lima	Return	906	1503		
Cape town	lima	Return	2908	5816		
Average emissions from flights per delegate:				2765.333	kg	
Hotel accommodation						
Industry figures quote 6 - 64. Mid-range value: 30 Kg per night						
Assume delegates spend 15 nights						
Average hotel emissions per delegate				450	kg	
Total emissions per delegate				3215.333	kg	
Total emissions				28938	tonnes	