World Resources Institute Carbon Dioxide (CO₂) Inventory Report For Calendar Year 2008

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WORLD Resources Institute

Summary

This report presents WRI's carbon dioxide (CO₂) inventory for calendar year 2008. It summarizes emission sources included in the inventory, calculation methodologies, and trends, and highlights WRI's role in the completion of a green roof space at our Washington, DC office building. Previous reports are available online at <u>http://www.wri.org/project/wri-co2-commitment</u>.

WRI's total emissions for 2008 were 1,263 metric tons of CO₂. This represents a 29% increase above our (recalculated) 2003 base year emissions (see below). WRI has committed to offset its emissions to achieve its goal of a "net zero" emissions balance every year. For 2008, WRI purchased credits compliant under the Clean Development Mechanism of the Kyoto Protocol, known as certified emission reductions (CERs). These credits were sourced from three different projects in China and India. Details of WRI's offset purchases for 2008 can be found on page 7.

This report is available online on WRI's website, <u>http://www.wri.org</u>. For more information about WRI's CO₂ commitment and our outreach activities, please contact Tom Damassa at 202-729-7783, <u>tdamassa@wri.org</u>.

Introduction

The World Resources Institute (WRI) – a nonprofit policy and research organization working at the intersection of environment and human needs – recognizes global climate change as one of the most pressing challenges and opportunities of our time. Indeed, one of WRI's core goals is to "protect the global climate system from further harm due to emissions of greenhouse gases and help humanity and the natural world adapt to unavoidable climate change." Although our work seeks viable strategies to mitigate and adapt to climate change, we also acknowledge our own contribution to the problem.

As a result, in 1999, WRI committed to "walk the talk" by reducing its carbon dioxide (CO_2) emissions balance to zero (WRI has achieved its "net zero" goal each year since 2000), and publicly report its progress. The emission sources included in this goal are indirect emissions from the generation of purchased electricity, business air travel, and employee commuting. Through this project WRI gains direct experience in developing an annual CO_2 inventory and devising emissions mitigation strategies. WRI uses this first-hand knowledge to help others understand climate change and identify actions they can take to effectively measure, manage, and reduce their CO_2 emissions.

WRI conducts a CO₂ inventory each year to track our emissions and performance. The inventory follows the guidance in *Hot Climate, Cool Commerce: A Service Sector Guide to Greenhouse Gas Management* (see <u>http://www.wri.org/publication/hot-climate-cool-commerce</u>), which is based on and consistent with the WRI/WBCSD *Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Revised Edition* (GHG Protocol). A copy of these documents can be downloaded from the GHG Protocol website, <u>http://www.ghgprotocol.org</u>.

This report presents a summary of WRI's emissions for calendar year 2008. WRI issues a full report every two years and a summary report in the intervening years. For additional information, please refer to the last full report— $WRI's CO_2$ Inventory Report for Calendar Years 2006 & 2007. A full report will also be released next calendar year (2011) when WRI reports its CY2009 CO₂ inventory.

New in 2008: Opening a China Office and Joining the Climate Registry

In mid-2008, WRI established an office in Beijing, China. With fewer than five full-time staff members initially, operation of the Beijing office currently makes a relatively small contribution to WRI's total global CO_2 "footprint". Nevertheless, we have started to account for our Beijing operations in our annual CO_2 inventory, particularly since there are likely to be increases in staff air travel to and from China.

WRI also became a founding member of <u>The Climate Registry</u>—a nonprofit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry. As a voluntary reporter to The Climate Registry, our 2008 annual inventory is now also publicly available on The Climate Registry's website (<u>http://www.theclimateregistry.org</u>) and our reported Scope 2 emissions (emissions from the consumption of electricity) for 2008 have been verified by a third-party and successfully Climate Registered[™]. For more information on WRI's participation in The Climate Registry, please see the <u>full press release</u>.

Emissions for Calendar Year 2008

WRI's total CO₂ emissions for calendar year 2008 are reported in Table 1.¹

Emissions from the generation of purchased electricity (Scope 2) for WRI's Beijing office and business air travel (Scope 3) for staff based at the Beijing office for all relevant months (Jul-Dec, 2008) are reported separately in Table 1. Emissions from employee commuting for China-based staff are not included in WRI's inventory due to the uncertainty or unavailability of appropriate emissions factors. Future inventories will attempt to expand the source coverage and improve the quality of calculations for WRI's Beijing office.

A summary methodology, relevant activity data, and emission factors used in WRI's calculations are detailed in Appendices I & II.

CATEGORY OF EMISSIONS	2008 EMISSIONS (IN METRIC TONS OF CO ₂)	
SCOPE 1 (DIRECT)		0
SCOPE 2 (CONSUMPTION OF	DC Office	511
PURCHASED ELECTRICITY)	Beijing Office	4*
SCOPE 3 (BUSINESS AIR TRAVEL)	DC Staff	635
SCOPE 5 (BUSINESS AIR TRAVEL)	Beijing Staff	1*
SCOPE 3 (EMPLOYEE COMMUTING)*	112	
TOTAL CO ₂ EMISSION	1,263	

*Total is for July – December, 2008 only.

** Total is for DC office staff only; excludes Beijing office staff.

Excluded Sources of Emissions

While WRI incorporates all major sources of CO₂ emissions from its business-related activities into its annual inventory, some minor sources are excluded due to data and/or systems constraints. These include:

 Non-U.S. and non-China-based staff – Currently WRI has a small number of full-time staff members and contracted employees who work remotely in India, Turkey, Central Africa, and Indonesia. While we recognize that these individuals contribute to WRI's overall "footprint," we currently do not have sufficient systems or relevant emissions factors to make robust calculations of their CO₂ contribution possible. While it is likely that this contribution is small, WRI hopes to incorporate these data into its inventory in the future.

¹ To facilitate comparability between 2008 totals and previously reported (historic) emissions we have included CO_2 emissions <u>only</u> in this report. However, as required by The Climate Registry's *General Reporting Protocol*, WRI also calculated estimates of methane (CH₄) and nitrous oxide (N₂O) emissions associated with our Scope 2 emissions (emissions from the consumption of purchased electricity). These emissions totaled three (3) metric tons of CO_2 -equivalent and are reported at <u>http://www.theclimateregistry.org</u>.

- HFC Emissions from HVAC Fugitive emissions of hydrofluorocarbons (HFCs) derive from building air heating, cooling, and refrigerant usage. While we hope to be able to report estimates of HFC emissions in the future, to date we have been unable to obtain any data from our landlord regarding building usage or WRI-specific activity data. In addition, pursuant with Ch.15.3 in the Climate Registry's *General Reporting Protocol*, because WRI leases space within a building and cooling generation units are outside of our organizational boundary, these emissions are considered optional (Scope 2) to report.
- CO₂ Emissions from Paper Use Since 2004, CO₂ emissions from the use of paper (office paper, checks, and publications) has been reported in WRI's annual inventory, but totals have not been associated with WRI's "net zero" goal. While WRI believes that it is important to continue to leverage paper reduction opportunities, at present, WRI is no longer reporting emissions from paper in its annual inventory report. This is largely due to two factors: 1) many uncertainties are inherent in the calculation methodology for paper (i.e., appropriate emissions factors are largely unavailable); 2) WRI is currently considering new procedures to better track and manage data on our own paper use. We hope to be able to incorporate emissions from paper use into our annual inventory in a more robust way in the future.

Emissions Trends (2003 – 2008)

Introduction

In 2008, emissions factors for all of WRI's Scope 3 emission sources (business air travel and employee commuting) were revised based on the latest publications from the UK Department for Environment, Food, and Rural Affairs (UK DEFRA) and the U.S. Environmental Protection Agency (US EPA)—see Appendix I. In aggregate, these changes constituted a significant (> 5%) change in total reported emissions (compared to previous years' totals) and made comparisons with previously reported annual totals difficult.

WRI has therefore chosen to revise estimates of CO₂ emissions from reported sources for previous years using the latest (2008) emissions factors. <u>Readers should bear in mind that the figures presented</u> here may not be the same as those reported in previous WRI CO₂ inventory reports.

To ensure optimal comparability between annual estimates and provide a robust set of trend data, WRI has also established a new base year—2003. Calendar year 2003 was chosen for two reasons:

- Certain activity data (i.e., short-, medium-, and long-haul flight distances) are unavailable prior to 2002.
- Prior to CY2003, WRI reported its CO₂ inventory on a fiscal year (October-September) basis.

Therefore CY2003 is the earliest year for which comprehensive calendar year activity data exist. Unadjusted emissions totals for 2000-2002 (as published in previous CO_2 inventory reports) are presented in Appendix III.

Analysis

In 2008, WRI's total emissions were 29% higher than its base year (2003) emissions. This growth in emissions is largely attributable to an increase (approximately 30%) in the number of WRI staff during 2005-2008 and a subsequent rise in travel-related emissions associated with business travel. Growth in emissions from electricity use in 2007-2008 is a result of WRI expanding its Washington, DC office

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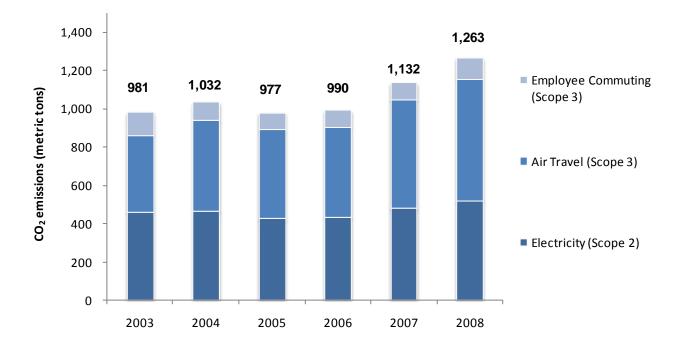
space (see <u>WRI's CO₂ Inventory Report for Calendar Years 2006 & 2007</u>). Table 2 and Figure 1 illustrate WRI's emissions performance from 2003 through 2008, by source.

Table 2 also includes estimates of WRI's annual per capita (per person) emissions. Per capita emissions in 2008 were approximately 2% lower than in 2003, but since 2005 WRI's estimated per capita emissions have increased 10%. This increase is, in part, due to the expansion of WRI's office space in 2007. It is also largely a result of increasing staff business air travel, which is a consequence of both a greater number of staff being required to travel and more frequent trips made between distant locations (for example, Washington, DC and Beijing).

All emissions shown in metric tons of CO ₂								
	2003 2004 2005 2006 2007 20 (base year)							
Scope 2 Electricity	459	461	423	431	479	515		
Scope 3 Air travel Employee commuting	400 122	474 97	464 90	468 91	566 87	636 112		
Total Emissions	981	1,032	977	990	1,132	1,263		
<i>Per Capita Emissions</i> (metric tons per person)	7.55	7.59	6.74	6.83	7.08	7.42		

Table 2: WRI total CO₂ emissions, by source, 2003 – 2008

Figure 1: WRI total CO₂ emissions, by source, 2003-2008



Investing in GHG Offsets²

WRI has sought to maximize efficiency opportunities in its business operations (for example, see Box I), however, WRI's annual goal is to achieve a "net zero" emissions balance, and to reach this target we must offset all emissions we have not been able to reduce through internal activities.

Offset purchases

To offset our 2008 CO₂ emissions, WRI purchased Certified Emission Reduction (CER) credits.³

WRI procured CERs from three projects: the 4MW renewable energy (biomass co-generation) project by Sri Kalyani Agro Products & Industries Ltd. in Andhra Pradesh state, India; the Nanjing Tianjingwa (China) landfill gas to electricity project; and the 6.75MW small scale grid connected wind electricity generation project in Tamil Nadu, India. CERs for all projects were procured through EcoSecurities, Ltd. (http://www.ecosecurities.com), an independent broker that specializes in sourcing, developing, and trading emission reduction credits. Details of these projects are available at the UNFCCC website:

Sri Kalyani biomass co-gen: http://cdm.unfccc.int/Projects/DB/DNV-CUK1163564754.57/view

Nanjing landfill gas to energy: http://cdm.unfccc.int/Projects/DB/DNV-CUK1129289693.13/view

Tamil Nadu wind power: http://cdm.unfccc.int/Projects/DB/DNV-CUK1175246467.05/view

We hope our own experience and insights navigating the purchase of offset credits may provide guidance to companies, peer non-profits, and other organizations as they consider various offset options. For more information, please contact Tom Damassa (<u>tdamassa@wri.org</u>).

² An offset is an activity or project that reduces or sequesters greenhouse gas (GHG) emissions and takes place outside the inventory boundary of an organization. Companies and organizations can invest in these projects to counteract or "offset" the GHG emissions from their own operations. GHG offsets can be used to meet emission reduction targets, especially when the cost of internal reductions is high or opportunities for internal reductions are limited.

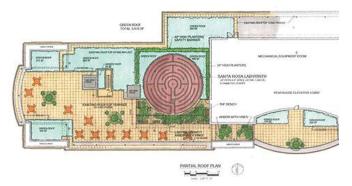
³ CERs are a fungible commodity with 1 CER equivalent to 1 metric ton of CO₂. They are produced under the Clean Development Mechanism (CDM), an arrangement within the United Nations Framework Convention on Climate Change (UNFCCC) that allows industrialized countries with a greenhouse gas reduction commitment under the Kyoto Protocol (called Annex I countries) to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries (a viable strategy since the effect of greenhouse gases is global, rendering the point of reduction irrelevant). The CDM is a compliance market and CERs are compliance credits.

Box 1. The Green Roof at 10 G Street, NE

Adapted from "Greening the Urban Rooftop" by Nancy Kiefer

In real estate-scarce cities, commercial property owners nationwide are turning roof space into green space. In 2008, WRI and the property owner, the <u>American Psychological Association</u>, completed work on a 3,000 square foot green roof and labyrinth on its 8-story office building near Union Station in Washington, DC.

Green roofs are advantageous not just for their aesthetics and the improvement they make to the urban landscape. Commercial property is a major energy consumer, and in the United States is responsible for <u>10</u> <u>percent of greenhouse gas emissions</u>. And considering the amount of time most people spend at work, environmental improvements to the workplace equate to better human health and well-being.



Here are a few green roof benefits:

- Green roofs are, in effect, a second roof. They reduce wear on the roof structure, extending its life by as much as 50 years. They improve insulation and reduce energy costs year-around. One study estimated that <u>green roofs on all Chicago city buildings</u> would save 720 megawatts annually (equal to several coal plants or one small nuclear plant) for a cost savings of \$100 million.
- Green roofs also provide acoustic insulation, and can reduce noise pollution by as much as 50 decibels.
- Green roofs produce oxygen, absorb air pollutants and greenhouse gases, and reduce water loss due to run-off. 1,000 square feet of green roof provides enough oxygen for 110 people, and removes 41 pounds of airborne particles a year.
- Urban rooftops can reach 175 degrees Fahrenheit in the summer. Green roofs can lower ambient air temperatures and reduce the heat island effect.
- Square footage is a valuable urban commodity. Green roofs reclaim space for personal use and relaxation, and provide habitats for wildlife.
- Green roofs can counteract "big box development" to make retail and commercial properties more valuable and attractive. In 2006, Wal-mart built a <u>67,000 square foot, self-irrigating green roof</u> on top of one of its Chicago stores.

The 10 G Street project is a partnership between APA and WRI, with funding and support from the <u>TKF Foundation</u> and the <u>Chesapeake Bay Foundation</u>.

Read WRI's Press Release

WRI Emissions Balance Sheet

WRI's emissions balance for 2008 (total emissions less purchased CERs) is presented in Table 3. This table also includes historic data, including WRI's purchases of carbon financial instruments (CFIs) – the offset or allowance credit for the Chicago Climate Exchange (CCX). Table 4 presents WRI's historic purchases of renewable energy credits (RECs).⁴ A complete discussion of WRI's previous investments in different carbon reduction credit types, as well as RECs, can be found in <u>WRI's CO₂ Inventory Report for Calendar Years 2006 & 2007</u> and earlier inventory reports.

	2003	2004	2005	2006	2007	2008
Scope 1 (Direct)	0	0	0	0	0	0
Scope 2 (Purchased electricity)	459	461	423	431	479	515
Scope 3 (Air travel and commuting)	522	571	554	559	653	748
CO ₂ offsets purchased	0	0	0	0	1,132	1,263
CCX offsets/allowances purchased	1,100	1,200	1,100	1,200	0	0
CERs Applied	0	0	0	0	-1,132	-1,263
CCX carbon financial instruments applied*	-1,100	-1,200	-1,100	-1,200	0	0
WRI CO ₂ Emissions Balance**	0	0	0	0	0	0

Table 3: Emissions balance summary, including the purchases of offsets. All data reported in metric tons of CO₂.

* The Chicago Climate Exchange (CCX) requires members to purchase an amount of carbon financial instruments or CFIs (with 1 CFI = 1 metric ton CO₂) equivalent to a company's total net emissions, rounded up to the nearest hundred.

** Readers should note that because emissions totals for 2003-2007 were revised in 2008 (as described in this report), WRI's CO₂ emissions balance will not sum to zero for years in which CCX allowances were purchased (2003-2006). Nevertheless, we report a net emissions balance of zero, because we did meet our "net zero" CO₂ reduction commitment for each year.

Table 4: WRI Renewable Energy Credit (REC) purchases.

	2003	2004	2005	2006	2007	2008
WRI REC Purchases (Megawatt hours)	230	232	214	0	324	0

⁴ RECs are environmental commodities intended to provide an economic incentive for the generation of electricity from renewable energy sources. A REC is created when 1,000 (net) kilowatthours (kWh) of electricity is generated from an eligible renewable energy resource. Typically, RECs are unbundled and sold separately from the underlying electricity generated.

Appendix I: Calculation Methodology Summary and Inventory Adjustments CY2008

Calculation methodology

The formula used to calculate all CO₂ emissions in WRI's inventory is:



Activity data = quantification of an activity of emissions source (e.g., air miles traveled, kWh of electricity used, etc.).

Emissions factor = A factor relating activity data and absolute emissions. The source-specific or published emissions factor is used to convert activity data to an emissions value.

For more information, please see the full description of WRI's accounting methodology, available in <u>WRI's CO₂ Inventory Report for Calendar Years 2006 & 2007</u>.

Emissions adjustments

As our knowledge and experience in inventory development grows, we may develop improved calculation methodologies and tools. When this happens, previous years reported emissions are adjusted according to the new methodology.

Adjustments are also made when new emission factors are published that more closely reflect actual emissions than those available at the time the original calculations were made. These adjustments allow our emissions accounting to be as accurate and consistent from year to year as possible. However, in the case where adjustments are relatively insignificant or do not reflect a change in calculation methodology, recalculations are not performed for previous years' emissions.

For the CY2008 inventory, emission factors for all Scope 3 sources (business air travel and employee commuting), as well as the distance designations for air travel legs (i.e., short-, medium-, and long-haul) were updated based on recent publications by the UK Department for Environment, Food, and Rural Affairs (UK DEFRA) and the U.S. Environmental Protection Agency (US EPA). Cumulatively, these changes were significant enough to warrant revising calculations of emissions totals for previous years (as described on page 5 of this report). Table 5 presents a summary of the changes from 2007 to 2008.

Note that while the emissions factor used to calculate CO_2 emissions from purchased electricity (Scope 2) changed from 2007 to 2008, because this change was a result of fluctuations in the composition of regional fuel mix (as opposed to improved accuracy), estimates for previous years' Scope 2 emissions were <u>not</u> recalculated.

	2007 EMISSION FACTORS	2008 EMISSION FACTORS*					
PURCHASED ELECTRICITY							
ELECTRICITY (RFCE REGION)	1,098 LBS. CO ₂ /MWH	1,139 LBS. CO ₂ /MWH					
BUSINESS AIR TRAVEL							
AIR TRAVEL, SHORT	DISTANCE: <500 KM	DISTANCE: <483 KM					
FLIGHTS	0.15 кG CO ₂ /км	0.19 кG со ₂ /км					
AIR TRAVEL, MEDIUM FLIGHTS	DISTANCE: <1600 KM	DISTANCE: <1126 KM					
	0.12 кG CO ₂ /км	0.10 кG со ₂ /км					
AIR TRAVEL, LONG	DISTANCE: >1600 KM	DISTANCE: >1126 KM					
FLIGHTS	0.11 кG CO ₂ /км	0.09 кд со ₂ /км					
	EMPLOYEE COMMUTIN	NG					
Bus	0.30 KG CO ₂ /MILE	0.107 KG CO ₂ /MILE					
SUBWAY (METRO)	0.17 KG CO ₂ /MILE	0.163 KG CO ₂ /MILE					
U.S. Commuter Rail (e.g., Amtrak)	0.31 KG CO ₂ /MILE	0.185 KG CO ₂ /MILE					
CAR	8.87 KG CO_2 /GALLON GASOLINE	8.81 KG CO ₂ /GALLON GASOLINE					

Table !	5· 2008	Emission	Factor	Adjustments
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*See Appendix II for emission factor sources. Note: Emissions factors for air travel presented here are rounded, and represent "economy class" values for all designations. For more precise factors, see <u>http://ghgprotocol.org</u>.

Appendix II: 2008 Activity Data, Emission Factors, and Sources

Scope 2 Information

• *Electricity.* WRI's Washington, DC office occupies one complete floor and, as of 2007, most of another floor in an eight story building. This space is not separately metered therefore annual electricity use by WRI must be estimated. The formula used is:



WRI's Beijing office occupies a small portion of a multi-story building. Direct reporting of electricity usage data is available and maintained by the Beijing office manager.

Table 6: WRI's 2008 Scope 2 emissions. (Appropriate unit conversions are applied to achieve data in metric tons of CO₂).

		Source of emissions	Activity data	Emission factor	Metric tons of CO ₂
Scope 2	1	Purchased electricity – DC Office	989,358 kWh	1.139 lbs of CO ₂ /kWh	511
(electricity)		Purchased electricity – Beijing Office	4,831 kWh	1.737 lbs of CO₂/kWh	4
				Total	515 tCO ₂

Emission factor source: For DC office - U.S. EPA E-Grid database (eGRID2007 Version 1.1), 2005 data for RFCE region. See <u>http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html</u>. For Beijing Office - IEA, 2008. CO₂ Combustion from Fossil Fuels. Paris, France: OECD/IEA. Available at: <u>http://www.iea.org/w/bookshop/add.aspx?id=36</u>. © OECD/IEA [2008].

Scope 3 Information

- Business Air Travel. Two methods are used to obtain activity data for air miles traveled:
 - 1. Air miles for travel booked through WRI's travel agency are automatically compiled and are available for download through the travel agency's website.
 - 2. Staff are required to complete a travel authorization form for each trip taken. A section has been added to this form for staff to complete with information about miles traveled if the trip is not booked through WRI's travel agency.

Since emissions per mile are higher for short flights than for long flights, data on air miles traveled is further broken down in to short, medium, and long flights as defined in the GHG Protocol mobile combustion tool and a unique emissions factor is applied to each.

Table 7: WRI's 2008 Scope 3 emissions from air travel. (Appropriate unit conversions are applied to achieve data in metric tons of CO₂).

		Source of emissions	Activity data	Emission factor	Metric tons of CO ₂
Scope		Air travel, short flights	71,531 km	0.19 kg of CO ₂ /km	14
	•	Air travel, medium flights	318,758 km	0.10 kg of CO ₂ /km	33
	Ŧ	Air travel, long flights	6,689,357 km	0.09 kg of CO ₂ /km	588
				Total	635 tCO ₂

Emission factor source: UK DEFRA. *Notes:* Emissions factors for air travel presented here are rounded values. For more precise factors, see http://ghgprotocol.org. UK DEFRA defines flight legs as "domestic", "short haul", and "long haul"; these have been (conservatively) re-categorized here as "short", "medium", and "long", respectively. In all cases, an emissions factor for economy class is used when available.

• Employee commuting

WRI surveys its staff once each year to obtain information about average commuting habits. The information gathered is used to extrapolate average annual commuter miles traveled by all staff via various modes of transport. For a sample copy of WRI's commuter survey, please contact Tom Damassa at tdamassa@wri.org.

Table 8: WRI's 2008 Scope 3 emissions from employee commuting. (Appropriate unit
conversions are applied to achieve data in metric tons of CO_2).

		Source of emissions	Activity data	Emission factor	Metric tons of CO ₂
	£.=>	Bus	42,142 miles	0.107 kg of CO ₂ /mile	4
Scope		Metro	250,181 miles	0.163 kg of CO ₂ /mile	41
3 <i>(employee</i>		Commuter rail	144,190 miles	0.185 kg of CO ₂ /mile	27
commuting)		Car	4,522 gallons of gas	8.81 kg of CO ₂ /gallon	40
	(A)	Walk/bike	37,712 miles	0	0
	Total 112 t				

Emission factor sources: UK DEFRA & U.S. EPA.

Appendix III: WRI Reported CO₂ Emissions, 2000-2002

Emissions totals presented in this appendix represent data for years preceding WRI's (reestablished) base year—2003. Data presented in Table 9 have not been adjusted using 2008 emissions factors (as documented in Appendix I). These data have previously been reported in WRI's 2002, 2003, 2004-2005, and 2006-2007 CO₂ inventory reports (see <u>http://www.wri.org/publication/co2-inventory-report</u>) and represent an important historical record of WRI's CO₂ accounting practices.

Table 9: WRI's CO₂ emissions, 2000 – 2002

	2000	2001	2002
Scope 2 Electricity	431	503	535
Scope 3 Air travel Employee commuting	535 98	598 104	529 94
Total Emissions	1,064	1,205	1,158