

World Resources Institute
Annual Carbon Dioxide (CO₂) Inventory Report
Calendar Year 2003

October 2004

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Summary

This report describes WRI's CO₂ inventory in detail for calendar year 2003 including how data was gathered and calculations made. It compares our emissions performance over time, describes challenges encountered, our outreach activities as well as planned activities for 2004.

WRI's 2003 emissions were 1,133 metric tons of CO₂, a 21 percent reduction below our 2000 base year emissions. As in past years, we offset our emissions to meet our "net zero" goal. A key highlight this year was our purchase of green power. The equivalent of 100 percent of our purchased electricity is now from clean, renewable sources. Another significant activity was our decision to join the Chicago Climate Exchange, a voluntary emissions trading pilot program. 2003 was also an important year for promoting our "walk the talk" philosophy. WRI worked with several organizations and conducted workshops on implementing an effective office climate action plan.

This report along with our calculation spreadsheets, are also available online on WRI's SafeClimate.net website. For more information about WRI's CO₂ commitment and our outreach activities, contact Samantha Putt del Pino at 202-729-7660 or sam@wri.org.

Introduction

In 1999, WRI – a nonprofit environmental think tank dedicated to protecting the planet and improving people’s lives – committed to “walk the talk” by reducing its carbon dioxide (CO₂) emissions to net zero by 2005 and publicly report its progress annually. Through this project WRI gains direct experience in developing a CO₂ inventory and reducing emissions. WRI uses this first-hand knowledge to help others understand climate change and actions they can take to measure and reduce their CO₂ emissions.

To track our emissions and performance, we conduct a CO₂ inventory each year. The inventory follows the guidance in *Working 9 to 5 on Climate Change: An Office Guide*, which is consistent with the Greenhouse Gas Protocol (GHG Protocol). A copy of these standards can be downloaded from www.safeclimate.net or www.ghgprotocol.org. This report details our emissions and performance for calendar year 2003.

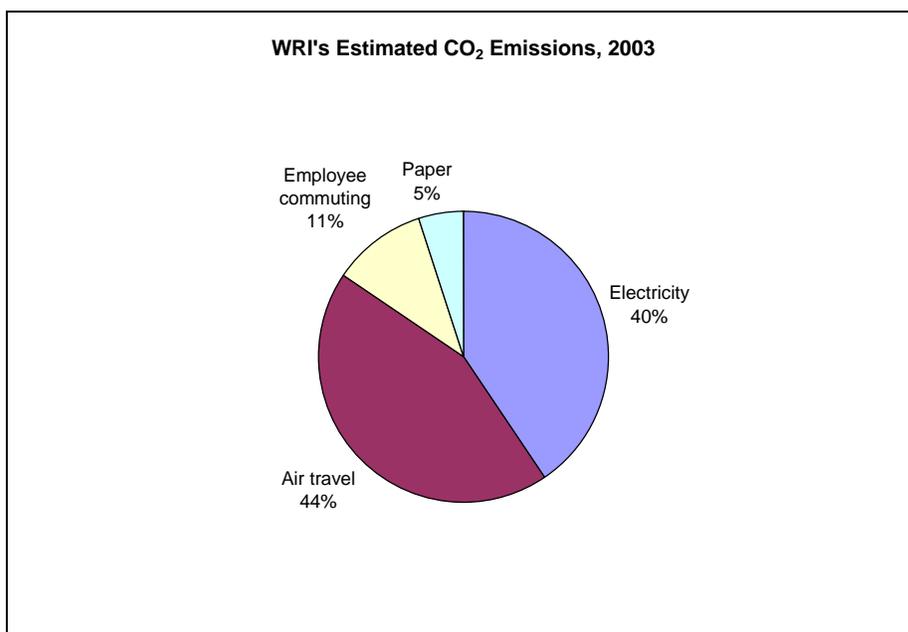
Our emissions for calendar year 2003

WRI’s total emissions for calendar year 2003 were as follows. The activity data and emissions factors used are detailed in Appendix II.

Table 1: WRI’s estimated CO₂ emissions for calendar year 2003

CATEGORY OF EMISSIONS	QUANTITY (SOURCE) IN METRIC TONS OF CO ₂
SCOPE 1 (DIRECT)	0
SUBTOTAL	0
SCOPE 2 (CONSUMPTION OF PURCHASED ELECTRICITY)	459 (from purchased electricity)
SUBTOTAL	459
SCOPE 3 (OTHER INDIRECTS)	497 (from business air travel)
	121 (from employee commuting)
	56 (from paper)
SUBTOTAL	674
TOTAL CO₂ EMISSIONS FOR 2003:	1,133

Chart 1: WRI's estimated CO₂ emissions, 2003



Performance over time (2000 – 2003)

WRI's total emissions have decreased 21 percent since 2000. The changes for each emissions source are described in this section. Table 2 illustrates WRI's emissions performance for the period 2000 through 2003.

Table 2: WRI's emissions, 2000-2003

All emissions shown in metric tons of CO ₂				
	2000 (base year)	2001	2002	2003
Scope 2 <i>Electricity</i>	431	503	535	459
Scope 3 <i>Air travel</i>	535	598	529	497
<i>Paper</i>	372	148	148	56
<i>Employee commuting</i>	98	104	94	121
Total	1,436	1,353	1,306	1,133

Electricity. WRI's estimated share of electricity use is dependent on the total building electricity use. In 2003, although our estimated emissions from the use of purchased electricity were still above our base year, they have been decreasing since 2001. According to our property managers, adjustments to the building's chillers have improved the building's energy efficiency. This is an important measure that all office buildings can take to reduce energy use.

Air travel: WRI's emissions from air travel are steadily decreasing and are now 7 percent less than 2000. Although fewer miles are being flown, the trend between short, medium and long haul flights has remained consistent with less than 1 percent of flights classified as short (less than 281 miles/452 km), around 90 percent classified as long (more than 994 miles/1600 km) and the remainder falling in between (from 281 miles/452 km to 994 miles/1600 km).

Employee commuting: Employee commuting emissions are 29 percent higher than 2002 and 23 percent higher than 2000. Since a large percentage of our staff use mass transit to commute, the increase could be a result of improvements to our data collection methods. WRI collects information about average employee commuting patterns through an annual survey of staff. In 2003, we improved our web-based survey to make it more user-friendly and decrease the amount of time needed to complete the survey to an average of less than a minute. This improved our staff participation rate from a low of 48 percent in 2000 to a high of 88 percent in 2003. Therefore, it is likely that our estimated emissions from employee commuting are now more accurate and complete than in the past.

Paper: WRI's emissions from paper have decreased dramatically. They are 62 percent less than 2002 and 85 percent less than 2000. While our office paper use gradually declined over this timeframe, the most significant reductions have been in our output of publications. WRI's Publications Manager has confirmed the decreased output and speculates this could be partly due to increased online publishing.

Emissions reduction activities: green power

Consumption of electricity comprises 40 percent of WRI's annual emissions and therefore represents a significant reduction opportunity. To this end, in 2003, WRI pursued the opportunity to purchase green power.

Since WRI's office space is not separately metered, we had two options available to us in our pursuit of green power -- we could purchase renewable energy certificates (RECs) ¹ for WRI based on our estimated electricity use or we could explore our building owners' interest in procuring green power for the entire building. We elected to pursue the latter because it would provide us with an opportunity to educate our building owners and property managers about renewable energy and, if successful, would result in a larger purchase of green power than if WRI went ahead alone.

After evaluating options, WRI's building owners – the American Psychological Association (APA) – elected to switch to a new utility provider and purchase RECs from a separate green power marketer, in this case Green Mountain Energy. The RECs are from wind and landfill gas resources and are equivalent to 75 percent of their two buildings electricity use.

The RECs purchased were "Green-e" certified by the Center for Resource Solutions. This certification ensures the integrity of the RECs purchase by confirming that the renewable energy is generated in the amount specified and ensuring it is not "double sold" or claimed by more than one party.

¹ RECs represent the environmental benefits created when electricity is generated from renewable resources instead of from fossil fuels. Each REC purchase supports the generation of renewable electricity. For more information on RECs, visit the Green Power Market Development Group web site at www.thegreenpowergroup.org.

Although the building WRI shares now had the equivalent of 75 percent green power, WRI's desire was to go to 100 percent for its office space. With the support of WRI's management, we "greened" the remaining 25 percent of our electricity supply by purchasing additional RECs through the same supplier.

At the conclusion of the process, three key successes were achieved:

- WRI was able to educate a new audience about green power - our building owners and property managers.
- More than six times more green power was purchased than if WRI had moved ahead alone.
- The cost to WRI to "green" 100 percent of its electricity was negligible.

The RECs purchases are equivalent to 21 million kWh of electricity from June 2003 through December 2004.

Following our purchases, several challenges emerged related to how to account for and report the emissions value of RECs. These are discussed in the "Issues" section on page 9.

Offsets

An offset is an emissions reduction or removal project that occurs outside the inventory boundary of an organization. WRI's annual goal is to achieve "net zero" emissions. To reach this target, we must offset our emissions.

Offset purchases

2002 offsets: WRI purchased 1,000 RECs from Green Mountain Energy. These RECs are in addition to those purchased as part of our 2003 green power arrangement described in the previous section. The approximate emissions reduction value of these RECs was estimated at 860 metric tons of CO₂. There is currently considerable uncertainty associated with the appropriate method to use to calculate emissions reductions from RECs purchases. This is described more in the "Issues" section on page 9. The GHG Protocol will issue guidance in 2005. In the interim, WRI calculated the emissions value of the offset using the methodology described below.

MWh of RECs purchased	X	emissions factor for power pool(s) in which RECs were generated (sourced from E-GRID) ²	=	Estimated CO ₂ emissions value of RECs
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2003 offsets: In 2003, WRI joined the Chicago Climate Exchange (CCX), a voluntary cap-and-trade system. Under this system, WRI may purchase allowances³ or CCX-approved offsets to meet its "net zero" target. In 2003, we chose to purchase the requisite number of CCX allowances. Several issues related to our participation in CCX are discussed in the "Issues" section of this report.

² E-GRID (Emissions & Generation Resource Integrated Database) provides information on the air quality attributes of electricity generated in the U.S. and is compiled by the U.S. EPA.

³ An allowance is a commodity giving its holder the right to emit a certain quantity of GHGs (source: The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Revised Edition). Allowances are further explained in the Chicago Climate Exchange section on p. 10.

Offsets accounting

From time to time, WRI adjusts its reported emissions when more accurate emissions factors have become available or improved calculation methodologies developed. This has resulted in a "surplus" of offsets which we have "banked" to use in subsequent years. Table 3 describes WRI's offsets and emissions balance. Note all values are in metric tons of CO₂e.

Table 3: Offsets and emissions balance summary

	2000	2001	2002	2003
Offsets "banked" from previous years	0	575	1,169	723
Additional offsets purchased	2,011	1,947	860*	120*
<i>Offsets subtotal</i>	<i>2,011</i>	<i>2,522</i>	<i>2,029</i>	<i>843</i>
CCX allowances "banked" from previous years	0	0	0	0
CCX allowances purchased	0	0	0	1,100
<i>CCX allowances subtotal</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>1,100</i>
Emissions including CCX and non-CCX sources	1,436	1,353	1,306	1,133
Emissions reported to CCX	0	0	0	1,100
CCX Allowances applied	0	0	0	-1,100
Offsets applied	-1,436	-1,353	-1,306	-57
<i>Emissions balance at year end⁴</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-24</i>
<i>Offsets balance available to carry forward</i>	<i>575</i>	<i>1,169</i>	<i>723</i>	<i>786</i>
<i>CCX allowances balance available to carry forward</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

* Offsets purchased in 2002 and 2003 were RECs. The CO₂ value of these RECs was estimated at the time of purchase and will be adjusted once the GHG Protocol issues appropriate guidance. (See "Issues" for more information).

⁴ CCX rules require that reported emissions be rounded to the nearest 100 tons. As a result, in 2003, WRI's reported emissions from CCX-included sources were greater than its actual emissions from those sources leading to a small credit in our year-end emissions balance. This is discussed in greater detail on page 11.

Issues

In 2003, two challenges emerged related to our CO₂ commitment: accounting for and reporting the emissions related to our RECs purchases and the implications of WRI's decision to join the Chicago Climate Exchange.

RECs purchase

WRI made two RECs purchases in 2003: one to partially offset our 2002 emissions and one to “green” our electricity for 2003-2004. Three related issues subsequently came to light.

- 1) According to the GHG Protocol's revised corporate accounting standards, REC purchases cannot be deducted from an organization's Scope 2 emissions but must be reported separately as an offset. As a result, despite "greening" its electricity supply, WRI's Scope 2 emissions will not decrease. (See Table 3: Offsets and emissions balance summary).
- 2) When WRI's building owner purchased RECs equivalent to 75 percent of the building's electricity use, the intent was that each tenant could also claim the benefits of green power. However this was not formally documented. Therefore, although WRI – and the other building tenants – may say that 75 percent of our electricity has been “greened up”, we cannot include the emissions value of those RECs in our CO₂ reporting since we neither own the RECs nor have a formal document allowing us to claim the emissions benefits. The RECs recorded as offsets in our Offsets and Emissions Balance Summary (Table 3) are those purchased by WRI. The RECs purchased by our building owner are not included.
- 3) When WRI “topped off” our building owner's purchase so that 100 percent of our electricity would be “green”, our intent was that every kilowatt hour of electricity we use would be matched by a kilowatt hour of electricity from renewable resources delivered to the grid and that the carbon value of this green electricity would completely offset the emissions from electricity we use. However, it quickly became evident that there are a number of different models for calculating the CO₂ value of RECs and no widely accepted standard.

To address this, WRI's GHG Protocol team – which is currently working on a Project Quantification Standard – will take this up as part of that work in the coming year. Recommended guidance on how to account for the emissions value of RECs is expected to be published in 2005. In the meantime, WRI has recorded the value of its RECs purchases as follows:

- RECs purchased to offset its 2002 emissions: 860 metric tons of CO₂.
- RECs purchased to “green” its June through December 2003 electricity use: 120 metric tons of CO₂.
- metric tons of CO₂. (Note: RECs purchased to offset our 2004 electricity use are not shown in Table 3: Offsets and emissions balance summary, but will be included in our 2004 inventory report.)

See “Offset purchases” on page 7 for the methodology used. These amounts will be adjusted accordingly once the Project Quantification Standards are issued by the GHG Protocol team.

Chicago Climate Exchange

In 2003, WRI joined the Chicago Climate Exchange (CCX), a voluntary emissions trading program. Our primary reason for joining was to gain direct practical experience of the challenges and opportunities represented by cap-and-trade programs. By participating in this pilot, WRI can play a role in shaping it and will be better equipped to transfer lessons learned to influence the design of other emerging trading programs.

Under an emissions cap-and-trade program, participants are allowed to emit a pre-determined amount until the cap is reached and are given that many “allowances”. Members that emit less than the cap can sell their surplus allowances to members that have exceeded the cap. To drive reductions, the cap is reduced over time. In the case of CCX, member companies have a minimum reduction target of 4 percent below base year emissions by 2006. Base year emissions are calculated as the average of the member’s emissions from 1998-2001. In joining CCX, WRI elected to adopt the more stringent “net zero” target of its already established internal CO₂ commitment. Our obligation to meet our CCX target is legally binding.

To meet their targets, CCX member companies may either purchase CCX allowances or verified offsets approved by CCX. Since WRI’s target is “net zero”, it is granted no allowances and must purchase a sufficient quantity of allowances or CCX-approved offsets each year to match its total CCX emissions.

Although our CCX target mirrors our internal target, there are four discrepancies to note:

- 1) *Accounting and reporting timeframe.* CCX requires that its members report emissions on a calendar year basis. This has necessitated that WRI switch from fiscal year accounting to calendar year accounting. WRI’s fiscal year runs from October through September. As a result of the switch, the three months of emissions that fall between the end of fiscal year 2002 and the beginning of calendar year 2003 i.e. October through December 2002 are not captured in our regular reporting of emissions performance over time (Table 2). Instead, these emissions are recorded in this report in Appendix III.
- 2) *Offsets versus allowances.* Since 2000, WRI has offset its emissions (see “Offsets”) to achieve its “net zero” target. Now, through its membership in CCX, WRI has the option to achieve its target through purchase of CCX allowances or CCX-approved offsets. The primary difference is that any offsets WRI purchases represent an emissions reduction that is external to the CCX system, whereas allowances represent an emissions reduction within the context of CCX – that is they are reductions made by CCX companies that have exceeded their CCX target for the year. Whether or not CCX allowances represent additional reductions in terms of global CO₂ emissions depends on a number of factors including the stringency of the rules, the company’s overall emissions profile including sources not falling within CCX and whether or not CCX targets represent a better than “business as usual” case.

WRI’s CCX target includes emissions from electricity, air travel and employee commuting but not paper. Although WRI may apply CCX offsets or allowances to sources not included in its CCX target – in this case paper, for the time being we are using banked (non-CCX) offsets (see Table 3: Offsets and emissions balance summary) to cover this emissions source.

- 3) *CCX rounding.* CCX requires member companies to report their emissions to the nearest 100 metric tons of CO₂ and allowances may only be purchased in blocks of 100 tons. As a result, WRI's allowances purchases will probably never exactly match its emissions. For example, in 2003 our emissions from included sources were 1,076 metric tons of CO₂ therefore they were reported to CCX as 1,100 metric tons of CO₂ and 1,100 allowances were purchased. In future years, the reverse could occur with WRI purchasing fewer allowances than tons of CO₂ it has emitted. For example, if WRI's emissions were 1,049 metric tons of CO₂, we would report our emissions to CCX as 1,000 metric tons of CO₂ and would only be required to purchase 1,000 allowances. In this situation, WRI would be in compliance with its CCX target but would not have met its "net zero" target. If this were to occur, we could purchase an additional block of 100 allowances, use banked allowances or offsets or purchase additional offsets.

WRI must always apply sufficient allowances to match the emissions it has reported to CCX. CCX rounding means that WRI's year end emissions balance may sometimes be less than zero. For example, due to rounding, in 2003 WRI had to apply 1,100 CCX allowances even though its' emissions from CCX sources was only 1,076 metric tons of CO₂. WRI also had 57 tons of CO₂ from non-CCX sources (i.e. paper) that it had to offset to meet its "net zero" target. It could not apply any of the CCX allowances since they had already been used against the emissions from CCX sources so had to use the required number of banked offsets. As a result, the combination of CCX allowances and offsets applied in 2003 were greater than its emissions so its year end emissions balance is a negative number.

- 4) *Reporting.* Another challenge associated with WRI's CCX participation is reporting. Although CCX requires member companies to report their annual emissions to them, a full report that describes issues and challenges – such as this report – is not required. This, plus the discrepancy between sources included in our CO₂ commitment and those included in CCX require that WRI must now prepare two annual emissions reports.

The price WRI paid for CCX allowances in 2003 averaged just below \$1 per metric ton of CO₂.

Engaging other organizations in climate protection

Part of WRI's CO₂ commitment is to expand our impact by transferring our "lessons learned" to others. To this end, WRI engaged in a number of outreach activities during 2003.

- *Green power.* In addition to working with our building owners and property managers to secure green power for our building, we also reached out to other groups. Working with WRI's Green Power Market Development Group, we convened a workshop for metro DC-area NGOs to help them understand green power and the opportunities available to obtain it in this area.
- *Tenant outreach.* WRI hosted a meeting for tenants of our building to share information about our "green" office space and provide information about how they can save money by improving their energy efficiency.
- *Climate strategies for offices workshops.* WRI developed a half-day workshop based on *Working 9 to 5 on Climate Change: An Office Guide* to further facilitate understanding of how to implement an office climate change action plan and to promote

peer-to-peer learning and networking. The first workshop was held at WRI and included 20 participants from 12 DC-area NGOs. Another 2 workshops are planned for early 2004.

Plans for calendar year 2004

The project activities being undertaken in calendar year 2004 include:

- *Intranet site.* To continue to improve Institute-wide awareness of our CO₂ commitment, we will develop an intranet site to serve as a central resource for our staff on the related activities.
- *Workshops.* Building on the success of our first "Climate strategies for offices" workshop, WRI will plan at least two more for calendar year 2004 to further reach out to the NGO community as well as other office-based companies.
- *Update guidance and tools.* Now that the revised edition of the GHG Protocol corporate accounting and reporting standards has been published, we will begin updating *Working 9 to 5 on Climate Change: An Office Guide* to capture the relevant updates. We will also consider how the Guide might be enhanced to improve its specificity and relevance to larger office-based companies.
- *Expanded outreach.* WRI will explore opportunities to expand its outreach to office-based businesses and organizations both in the DC-area and in other regions. In particular, regional opportunities will be explored in the Northeast to build off the success of WRI's Climate Northeast project which is working with a group of 9 corporate partners on climate change issues.

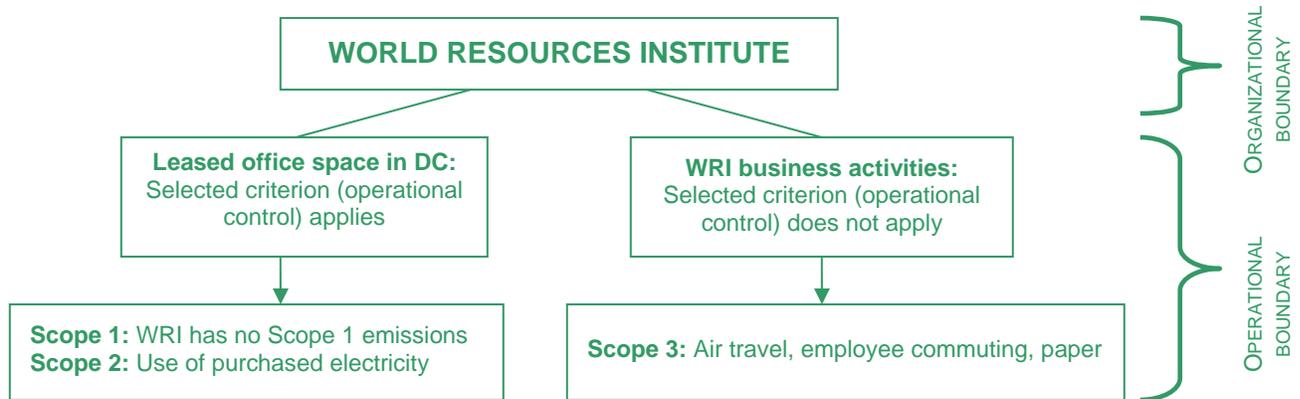
Appendix I

Overview of accounting methodology

Accounting and reporting boundaries

Figure 1 depicts WRI's organizational and operational boundaries⁵.

Figure 1: WRI's CO₂ inventory boundaries



1) **Organizational boundary:** This defines the businesses and operations that constitute an organization and the criteria for how the emissions will be reported. WRI's organizational structure is simple, consisting of one office located in Washington, DC which WRI leases. It is considered part of WRI's organizational boundary based on the GHG Protocol's control criteria. For the purposes of reporting our inventory, WRI applies the GHG Protocol's control approach based on the operational control criterion.

2) **Operational boundary:** This identifies and categorizes emissions sources associated with an organization as defined in the organizational boundary. WRI's inventory includes emissions from electricity consumption, business air travel, use of paper and employee commuting. These emissions are further categorized into the following "scopes" as defined by the GHG Protocol:

- Scope 1 (direct emissions from sources that are controlled by WRI)
 - WRI has no Scope 1 emissions
- Scope 2 (indirect emissions from the generation of purchased electricity consumed by WRI)
 - Use of electricity (purchased electricity is the only source of energy in the building WRI occupies)
- Scope 3 (all other indirect emissions)
 - Business air travel by staff if booked through WRI (via travel agency or other sources)
 - Business air travel by partners/consultants (booked through WRI's travel agency)
 - Use of paper, including office paper, publications and checks
 - Employee commuting

⁵ For more information on setting inventory boundaries, refer to *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition, March 2004*.

Inventory omissions

The following emissions sources are not currently included in WRI's inventory:

- Transmission and distribution losses associated with the consumption of purchased electricity
- Business car or train travel
- Business air travel when the travel is not booked by WRI (for example if the travel is arranged by a partner)
- Business travel organized by WRI for its partners and consultants but WRI's travel agency is not used
- Shipping/courier services

Base year

A base year is a reference year against which emissions performance can be measured over time. Initially WRI selected 1990 for its base year to mirror what the U.S. requirements would have been had it ratified the Kyoto Protocol. The major challenge with this has been that data from 1990 is largely incomplete making comparisons against this base year less meaningful.

Following the guiding principles of the GHG Protocol to use a base year for which accurate and complete data is available, WRI changed its base year to 2000, the first year for which WRI had reliable and complete data.

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 emissions 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.

2003 emissions adjustments: WRI estimates its electricity use based on the percentage of office space it occupies and the building's overall energy use (see Appendix II) as there is no separate metering for our office space. In our 2002 report, we stated that we would also factor in the occupancy rate of the building to improve the accuracy of this calculation. The building's occupancy rate was 98 percent in 2000 and 100 percent in 2001, 2002 and all but 3 months of 2003 when it was again 98 percent. Since the change to WRI's estimated electricity use would be minimal, we have chosen not to make adjustments at this time.

Calculation methodology

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

$$\boxed{\text{Activity data}} \times \boxed{\text{Emissions factor}} = \boxed{\text{CO}_2 \text{ emissions}}$$

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.

Inventory quality. To ensure inventory quality, a WRI staff person external to the inventory team, reviews all calculation spreadsheets for accuracy. WRI's inventory is also subject to audit by the Chicago Climate Exchange.

Appendix II

Our calendar year 2003 CO₂ emissions

Scope 2

- *Electricity.* WRI occupies one complete floor and a small portion 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:

$$\boxed{\text{(area of WRI's space } \div \text{ total building area)}} \times \boxed{\text{Total building usage of electricity}} = \boxed{\text{WRI's estimated electricity use}}$$

Table 4: WRI's 2003 Scope 2 emissions

Scope		Source of emissions	Activity data	Emissions factor	Metric tons of CO ₂ *
2 (electricity)		<i>Purchased electricity</i>	919,519 kWh	1.1 lbs of CO ₂ /kWh	459
		Total			459 tCO₂

*Appropriate unit conversions are applied to achieve data in metric tons of CO₂. Emissions factor source: U.S. EPA E-Grid database, MAAC (owner), 2000 data

Scope 3

- *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 web site.
 - 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 5: WRI's 2003 Scope 3 emissions from air travel

Scope 3 (air travel)		Source of emissions	Activity data	Emissions factor	Metric tons of CO ₂ *
		Air travel, short flights	53,204 km	0.18 kg of CO ₂ /km	10
		Air travel, medium flights	450,191 km	0.13 kg of CO ₂ /km	57
		Air travel, long flights	3,911,098 km	0.11 kg of CO ₂ /km	430
Total					497 tCO₂

*Appropriate unit conversions are applied to achieve data in metric tons of CO₂.

Emissions factor source: Short and long flights, UK DEFRA. Medium flights, derived from UK DEFRA.

- **Paper.** Emissions from paper result from the manufacturing and disposal processes, not the use of the paper itself. Activity data is collected in the following way:
 - **Office paper:** WRI's facilities director supplies information, obtained from vendor invoices, about annual use of office paper.
 - **Checks:** WRI's staff accountant provides information about the number of checks written each year.
 - **Publications paper:** Staff provide WRI's CO₂ commitment manager with a copy of each publication (includes reports, brochures, invitations, postcards, etc.) produced by their program along with the quantity included in the print run and the number of partners associated with the publication. This information is used to calculate the amount of paper used.

Table 6: WRI's 2003 Scope 3 emissions from paper

Scope 3 (paper)		Source of emissions	Activity data	Emissions factor	Metric tons of CO ₂ *
		Office paper	10,535 lbs	9,863 lbs of CO ₂ /ton	21
		Checks	176 lbs	11,571 lbs of CO ₂ /ton	0.4
		Publications	15,973 lbs	10,249 lbs of CO ₂ /ton	34
Total					56 tCO₂

* Appropriate unit conversions are applied to achieve data in metric tons of CO₂.

Emissions factor source: Environmental Defense's Paper Task Force, 1995, 2002.

- *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.

Table 7: WRI's 2003 Scope 3 emissions from employee commuting

Scope 3 (employee commuting)		Source of emissions	Activity data	Emissions factor	Metric tons of CO ₂ *
		Bus	23,419 miles	0.66 lbs of CO ₂ /mile	7
		Metro	237,466 miles	0.35 lbs of CO ₂ /mile	38
		Commuter rail	252,947 miles	0.36 lbs of CO ₂ /mile	41
		Car	3,834 gallons of gas	19.88 lbs of CO ₂ /gallon	35
		Walk/bike	48,914 miles	0	0
					Total

* Appropriate unit conversions are applied to achieve data in metric tons of CO₂.

Emissions factor sources:

- Car travel: Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2000*, Appendix B, Table B1.
- Metro travel: Transportation Energy Data Book, Edition 22, 2002, Tables 2.11, A15
- Commuter rail: Transportation Energy Data Book, Edition 22, 2002, Tables 2.11, A14.
- Bus travel: Bureau of Transportation, National Transportation Statistics, 2000.

Appendix III

Our October – December 2002 emissions

CCX reporting requirements necessitated that WRI switch from fiscal year accounting of our CO₂ emissions to calendar year accounting (see “Chicago Climate Exchange” on page 11 for more information). As a result, WRI’s emissions for the first quarter of fiscal year 2003 i.e. October through December 2002, are not captured in our regular reporting of emissions performance over time (Table 2). Below is an accounting of those emissions.

Table 8: WRI’s estimated CO₂ emissions, October – December 2002

SCOPE	QUANTITY (SOURCE)
SCOPE 1	0 metric tons of CO ₂
SUBTOTAL	0 metric tons of CO₂
SCOPE 2	111 metric tons of CO ₂ (from purchased electricity)
SUBTOTAL	111 metric tons of CO₂
SCOPE 3	114 metric tons of CO ₂ (from business air travel)
	14 metric tons of CO ₂ (from paper)
SUBTOTAL	128 metric tons of CO₂
TOTAL CO₂ EMISSIONS FOR CALENDAR YEAR 2003	239 metric tons of CO₂

Note: Since WRI’s employee commuting emissions are estimated based on an annual employee survey, those emissions are already captured in our reporting and do not need to be included here.