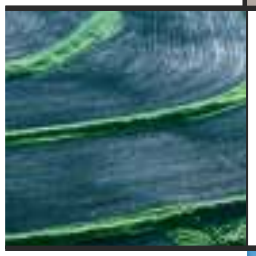


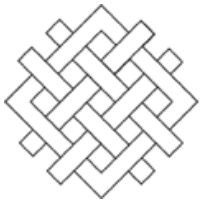




Using the GHG Protocol for UN GHG Inventories

UNEP

September 8, 2008

Taryn Fransen, WRI



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Overview

- About the GHG Protocol
- How to use the GHG Protocol Corporate Standard to create GHG inventories

GHG Protocol

- Most widely used international accounting tool to understand and manage GHG emissions
- Convened by WRI and WBCSD in 1998
- Multi-stakeholder processes involving hundreds of businesses, NGOs, governments, academics, and others
- Provides accounting framework for almost every GHG program in the world, and for 100s of individual corporate GHG inventories

GHG Protocol Resources

Corporate Standard

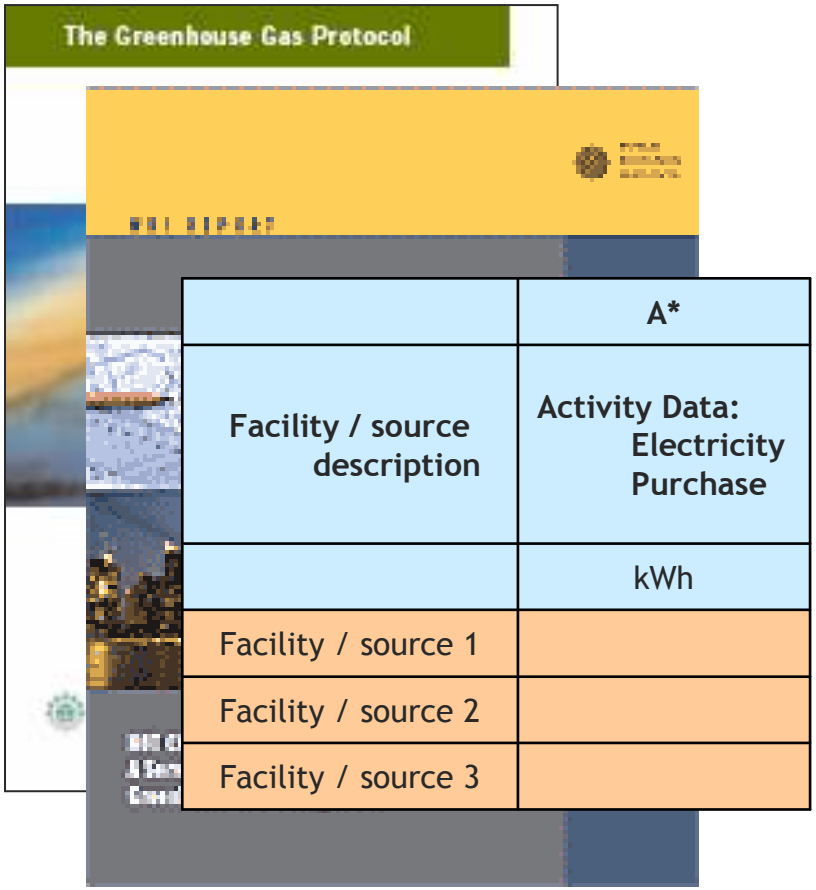
Usage: To create an inventory of a company's total GHG emissions (direct and indirect) and sources

Hot Climate, Cool Commerce

Usage: Guidance for service sector companies/organizations

Calculation Tools

Usage: Calculate emissions from transport, purchased electricity, etc.



Components of the Corporate Standard

Standards

- Accounting principles
- Organizational Boundaries
- Operational Boundaries
- Tracking emissions over time
- Reporting GHG emissions

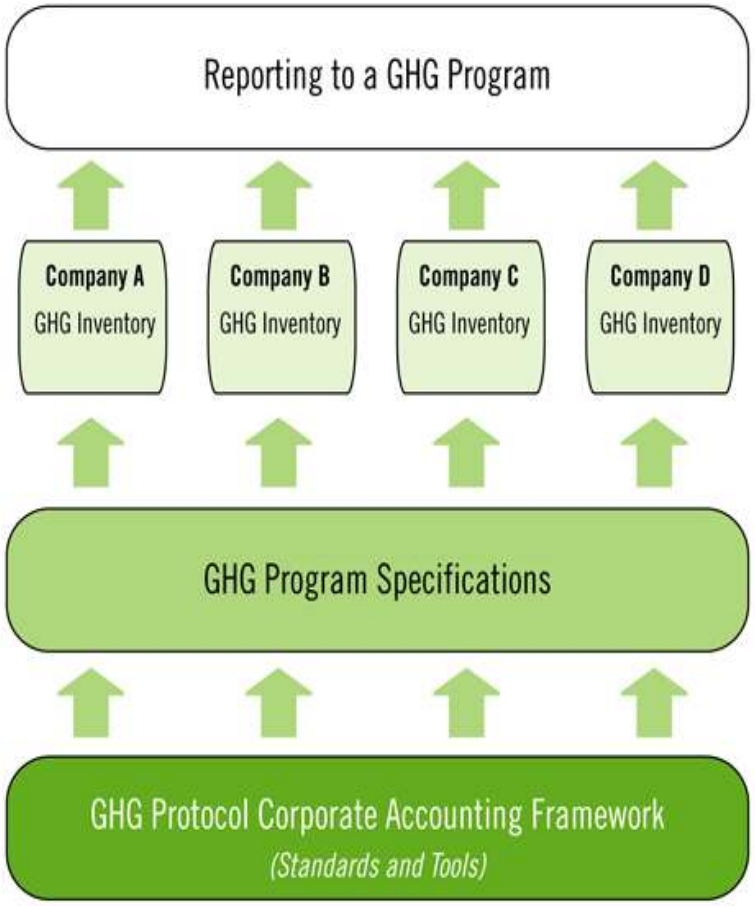
Guidance

- Business goals
- Accounting for GHG reductions
- Identifying GHG sources
- Managing inventory quality
- Verifying GHG emissions
- Setting GHG targets

Calculation tools

- Excel spreadsheets with step-by-step guidance
- Based on IPCC methodologies & industry best practice
- Available at ghgprotocol.org

Terminology & Relationships



GHG Protocol Accounting Framework

- Defines principles to guide GHG accounting decisions
- Parallels financial accounting framework
- Determines what operations and sources should be included in the inventory
- Standards:
  - GHG Protocol Corporate Standard
  - ISO 14064-1

Program Specifications

UN GHG Inventory Specifications

GHG inventory

- A quantified list of a company's or organization's GHG emissions and sources
- At corporate / organizational level (not facility level)
- Includes all 6 GHGs
- Includes direct emissions, indirect from electricity (other indirect optional)

	CO2	CH4	N2O	HFCs	PFCs	SF6	Total
1990 (base year)	31.3	N/A	N/A	N/A	17.0	2.2	50.5
2003	32.7	"	"	"	7.4	1.1	41.2
2004	32.5	"	"	"	4.2	0.7	37.4
2005	32.3	"	"	"	4.6	0.0	36.9
2006	33.6	"	"	"	4.0	0.0	37.6
2007	34.1	"	"	"	3.5	0.0	37.6

Million metric tons of CO_2 equivalents

A corporate GHG inventory …

… can:	… cannot:
Determine an organization's overall GHG emissions	Determine the reductions generated by a GHG project
Help identify organization-wide GHG reduction opportunities	Directly reduce GHG emissions
Help "ground truth" a national GHG inventory	Contribute directly to a national GHG inventory

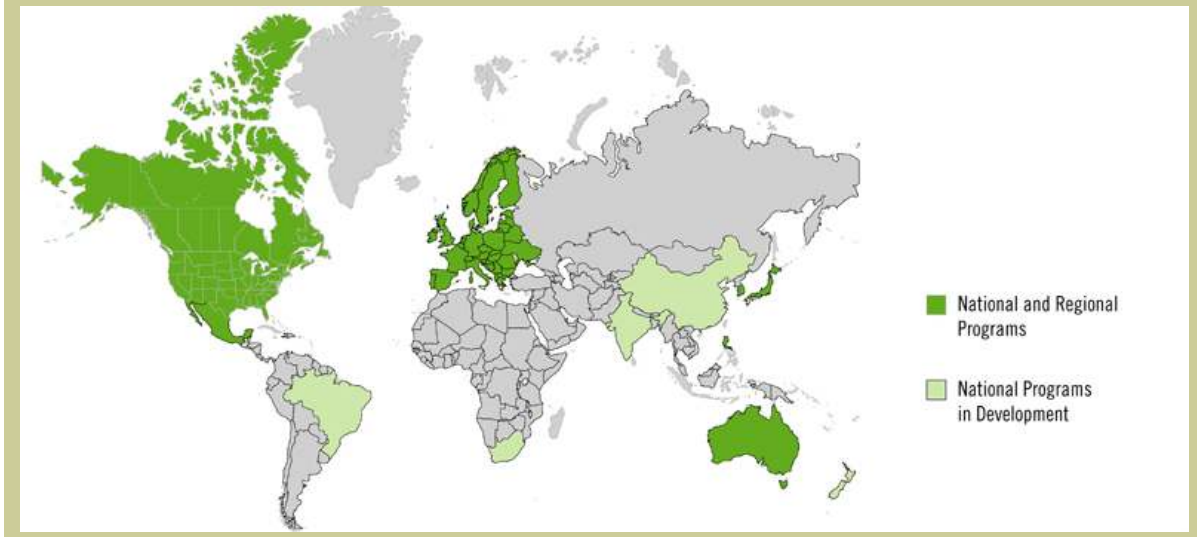
GHG Registries

- Database for receiving and storing GHG data sets
- Inventories or reductions
- Usually verified by third party
- Examples:
  - California Climate Action Registry
  - The Climate Registry

GHG Programs

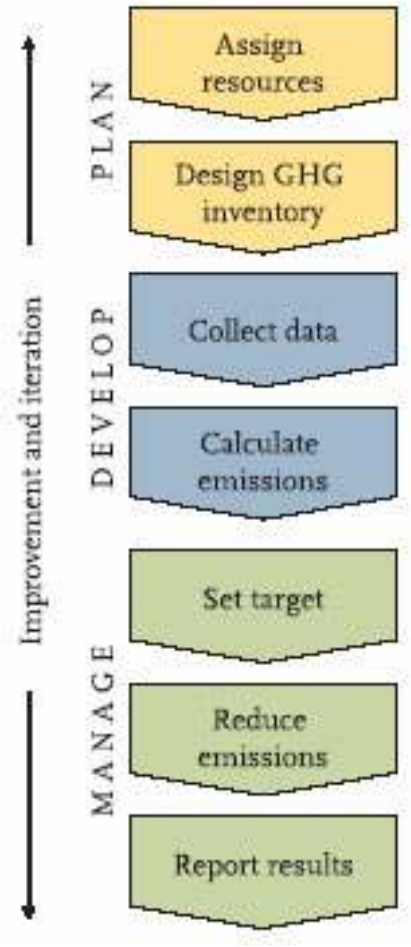
- Applies GHG inventories to:
  - Set GHG reduction targets
  - Enable trading in GHG credits
  - Make GHG information available to investors, other stakeholders
  - Etc.
- Examples:
  - EPA Climate Leaders
  - Carbon Disclosure Project
  - Chicago Climate Exchange

Examples of GHG registries & programs

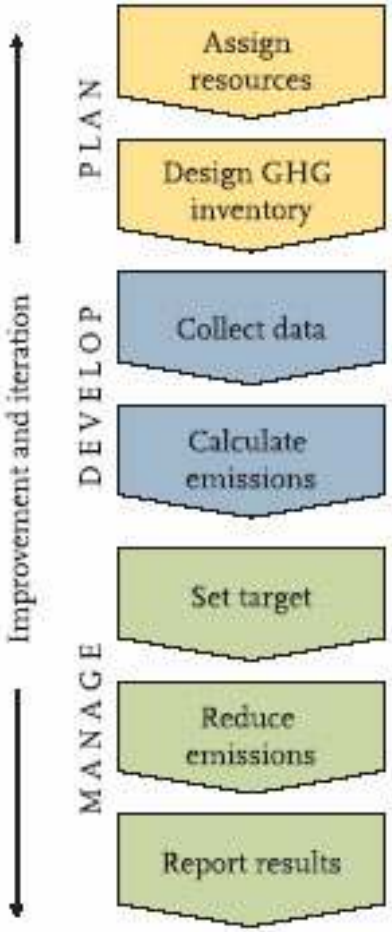


CLIMATE LEADERS
U.S. Environmental Protection Agency
RGGI
CR
The Climate Registry
carboNZero
BLICC
WWF
CCX
Chicago Climate Exchange
Programa GEI México
Programa Brasileiro GHG Protocol

Creating a GHG Inventory

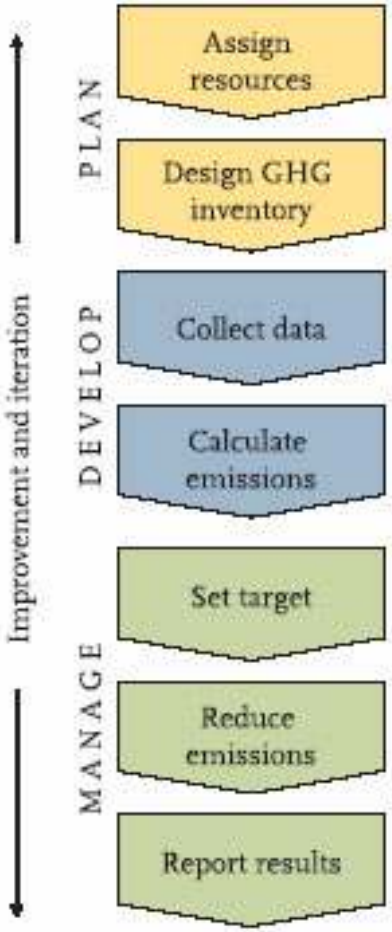


Plan: Assign Resources



- Secure management support
- Establish a team
- Prepare a budget

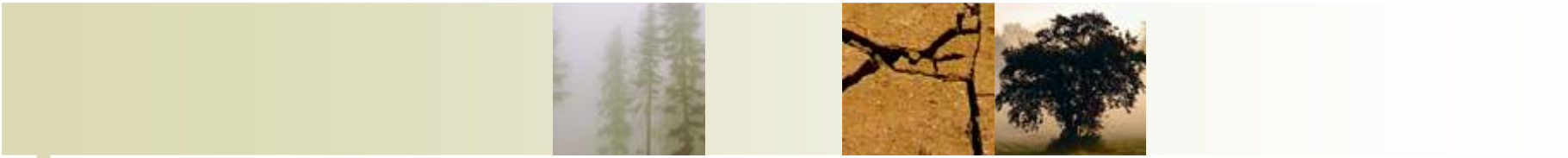
Plan: Design GHG inventory



- Consider guiding principles
- Define inventory boundary
  - Organizational
  - Operational
  - Leased assets
- Select base year

Guiding principles

- Relevance – Reflect organization's emissions and decision-making needs
- Completeness – Account for all sources and activities within boundary; justify exclusions
- Consistency – Allow comparison over time
- Transparency – Disclose assumptions; cite methodologies; leave an audit trail
- Accuracy – Provide reasonable assurance of information's integrity



Organizational boundaries

16 000 Mt CO_2/yr

Global Cement, Inc.

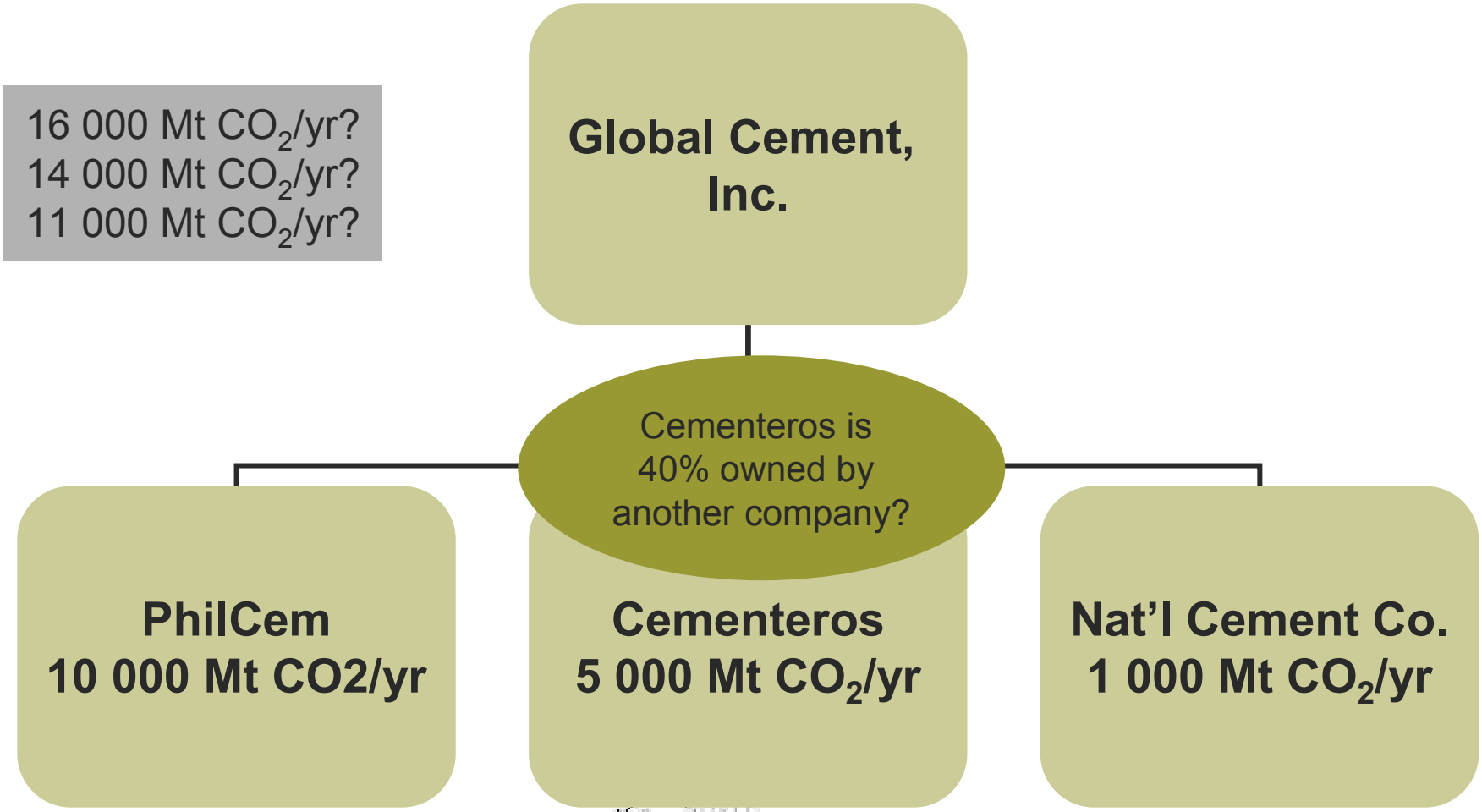
PhilCem
10 000 Mt CO_2/yr

Cementeros
5 000 Mt CO_2/yr

Nat'l Cement Co.
1 000 Mt CO_2/yr

Organizational boundaries

16 000 Mt CO_2/yr?
14 000 Mt CO_2/yr?
11 000 Mt CO_2/yr?



Organizational boundaries

16 000 Mt CO_2/yr?
13 000 Mt CO_2/yr?
11 000 Mt CO_2/yr?

Global Cement, Inc.

AND the other company controls all of the operations?

Cementeros is 60% owned by another company?

PhilCem
10 000 Mt CO_2/yr

Cementeros
5 000 Mt CO_2/yr

Nat'l Cement Co.
1 000 Mt CO_2/yr

Organizational boundaries

Company ALPHA Operations

Operation A: 500 tCO_2

Equity Share: 100%
Operational control: yes
Financial control: yes

Operation B: 1,000 tCO_2

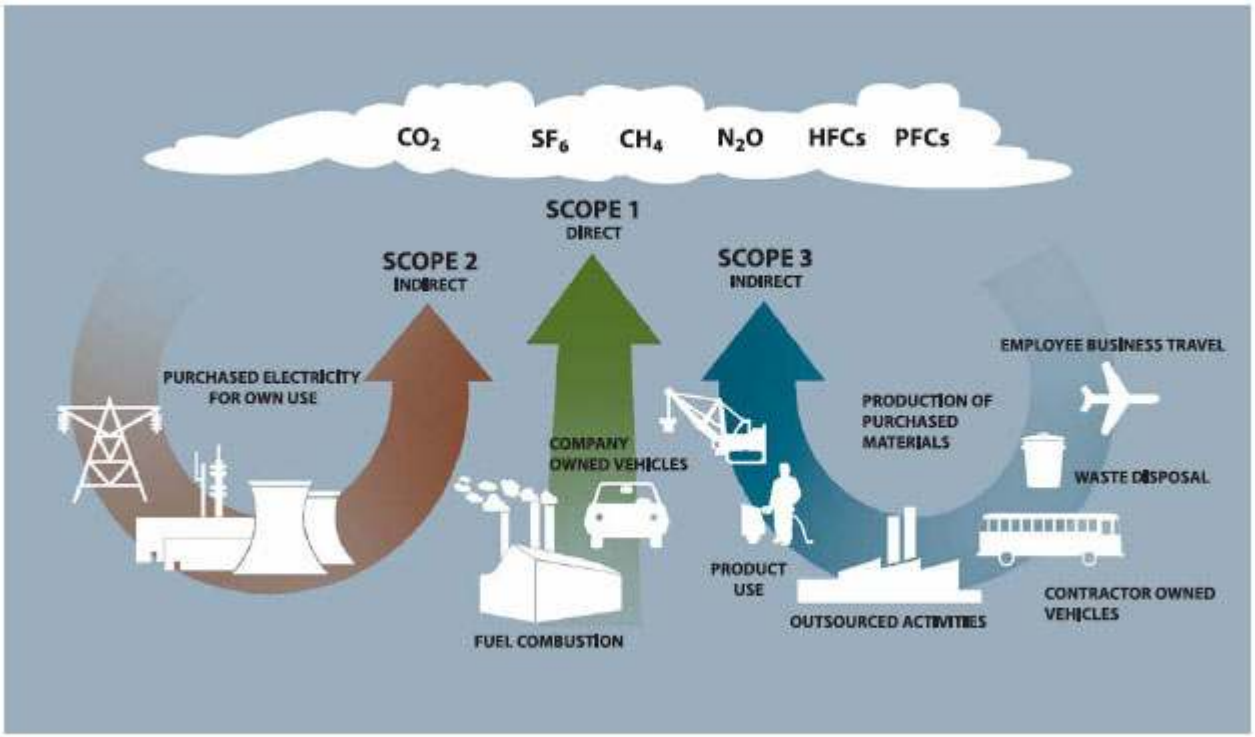
Equity Share: 51%
Operational control: yes
Financial control: yes

Emissions Accounted For and Reported by Organizational Boundary Approach

Equity Share	Financial Control	Operational Control
500 tons	500 tons	500 tons
510 tons	1,000 tons	1,000 tons

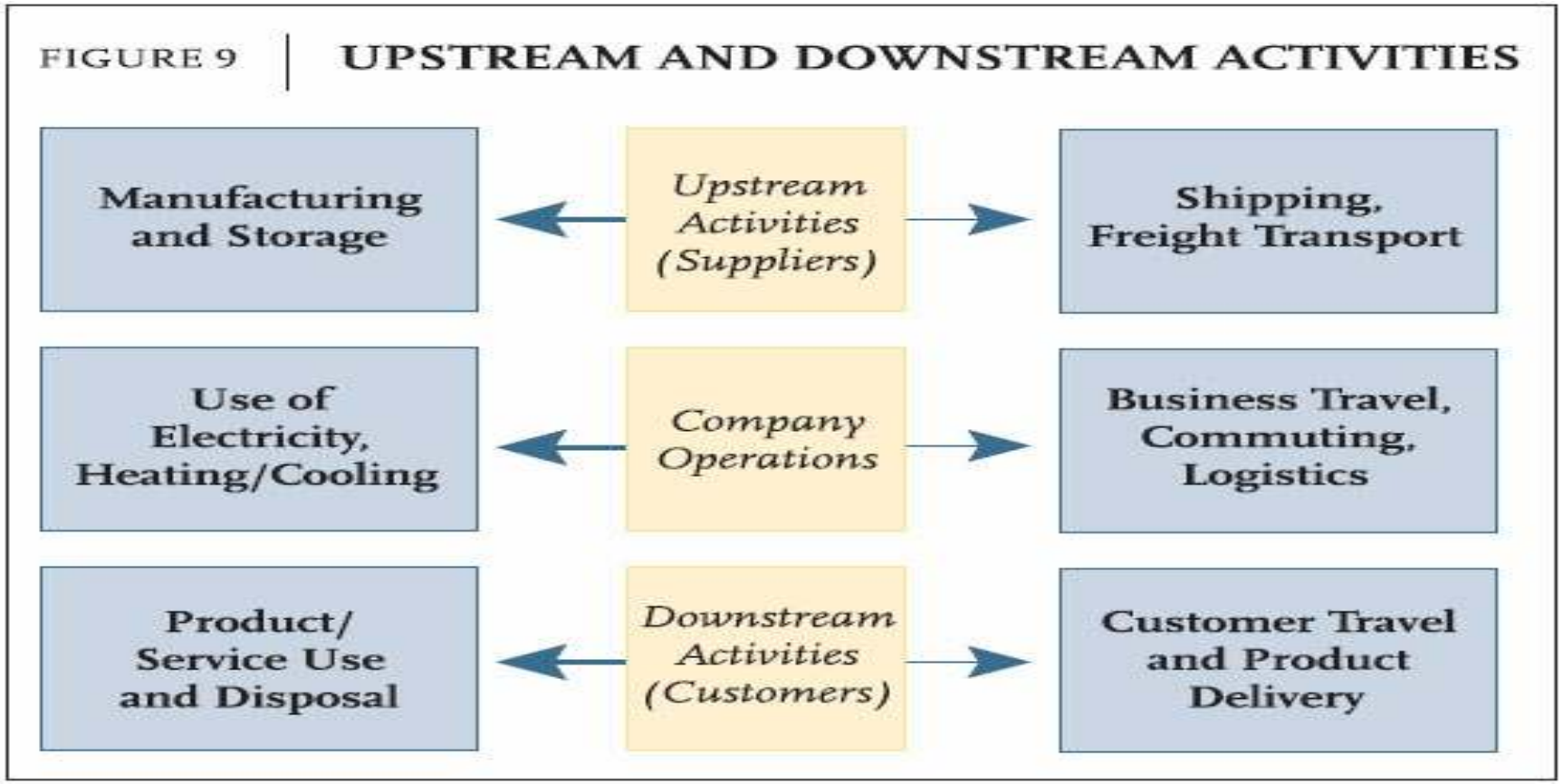
Operational boundaries - overview

FIGURE 5 | OPERATIONAL BOUNDARIES



Source: New Zealand Business Council for Sustainable Development.

Operational boundaries - indirect



Which Scope?

Action	Scope 1	Scope 2	Scope 3
Install new thermal power plant; sell power to 3rd party	↑		
Substitute new purchased vehicle fleet for leased vehicle fleet	↑		↓
Install new on-site solar power generation plant to replace grid electricity		↓	
Change from a natural-gas-based electricity supplier to a coal-based supplier		↑	
Substitute fly ash for purchased clinker			↓

Operational boundaries - leased assets

- Types of leases:
  - Finance/capital lease
  - Operating lease

Non-leasing situation	Leasing situation
Scope 1	Scope 1 or Scope 3
Scope 2	Scope 2 or Scope 3
Scope 3	Scope 3

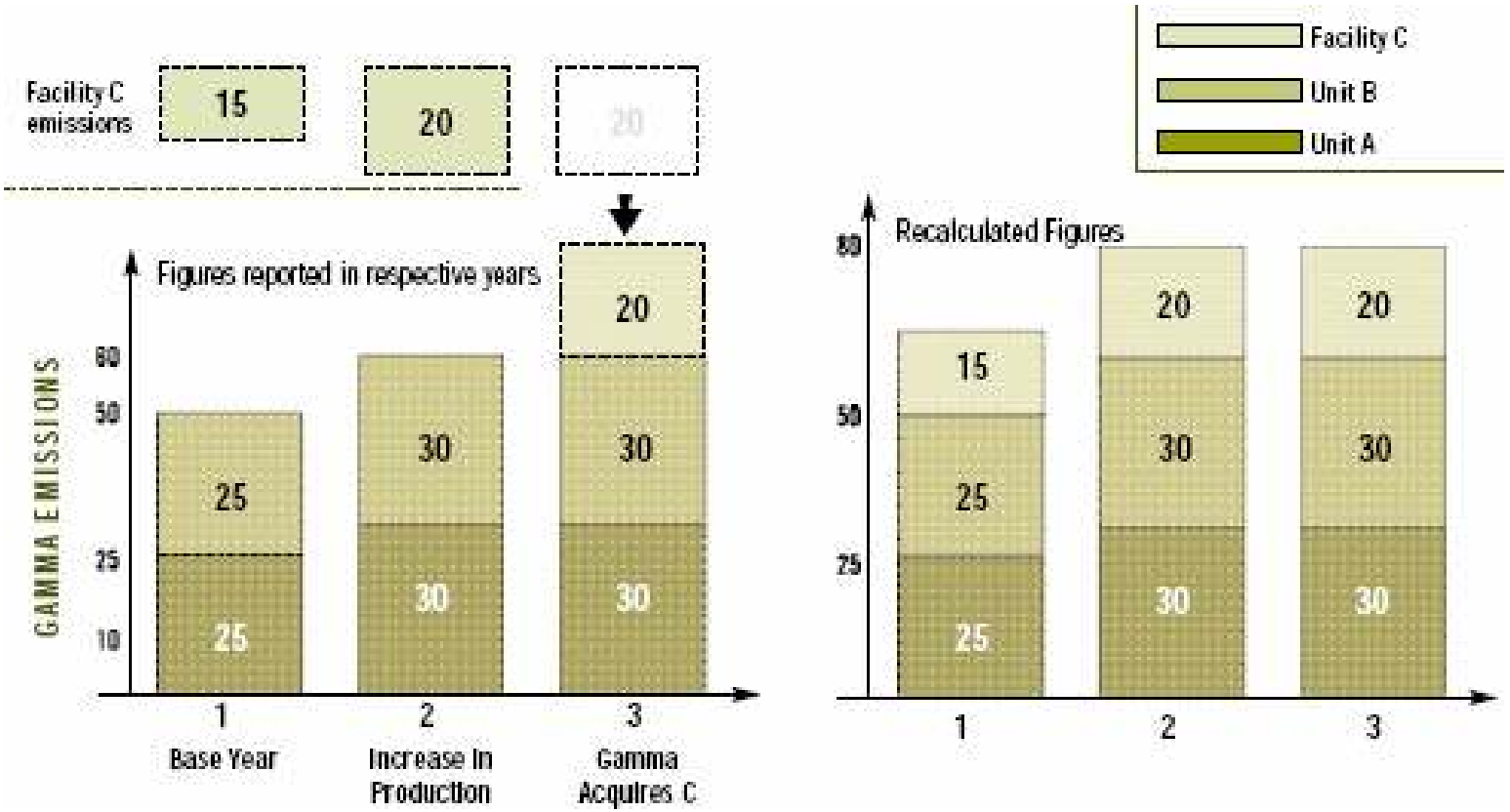
Operational boundaries - leased assets

	Type of leasing arrangement	
	Finance/Capital	Operating
Lessee's perspective		
Equity share / financial control	Scopes 1 & 2	Scope 3
Operational control	Scopes 1 & 2	Scopes 1 & 2
Lessor's perspective		
Equity share/financial control	Scope 3	Scopes 1 & 2
Operational control	Scope 3	Scope 3

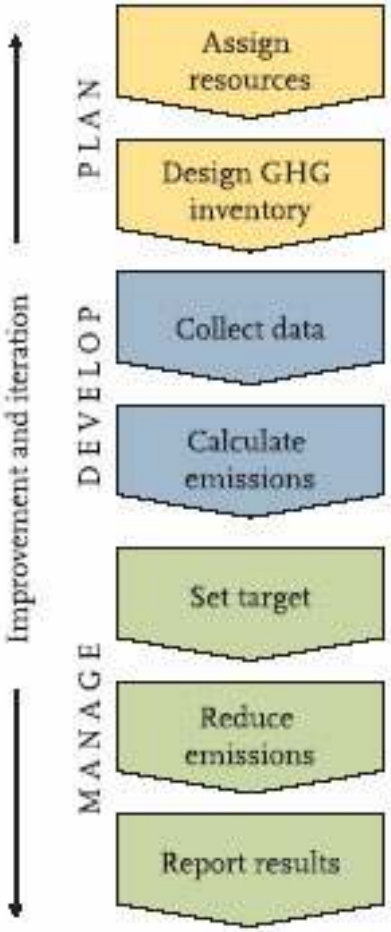
Tracking emissions over time

- Choose a base year
  - To provide a basis for tracking emissions
  - For which you have complete verifiable data
- Re-calculate base year in case of:
  - Acquisitions/divestitures
  - Outsourcing/insourcing of emitting activities
  - Changes in methodology
  - Discovery of errors
- But not in case of:
  - Organic growth/decline
  - Acquisition/divestiture of something that did not exist in base year

Tracking emissions over time



Develop: Collect data



- Identify necessary data
- Obtain appropriate data

activity data × emission factor = GHG emissions

- Ensure data quality
- Design data management system

Data Sources

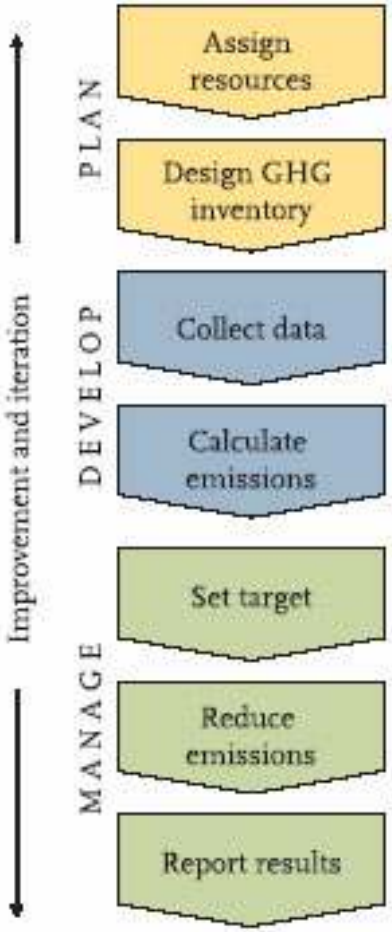
Activity Data

- Fuel receipts
- Utility bills
- Air travel records

Emission Factors

- IPCC
- IEA
- US DOE/EIA
- US EPA
- UK Defra
- Etc.

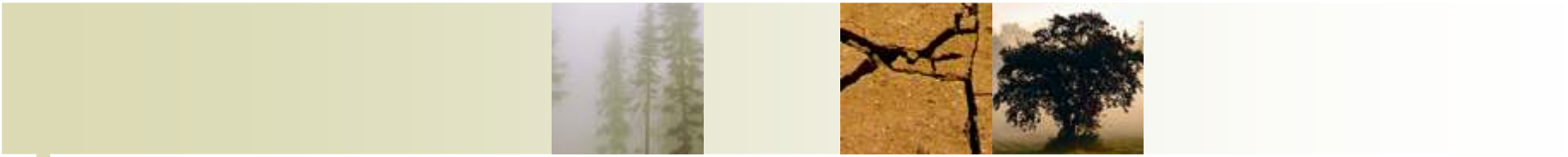
Develop: Calculate emissions



- **activity data x emission factor = emissions**
- (100 km) x (0.18 kg CO_2/km) = 18 kg CO_2
- Calculation tools
  - Fuel use in buildings
  - Purchased electricity
  - Business travel
  - Employee commuting
  - ≈12 sector-specific tools

Coming Soon: Public Sector Supplement

- Organizational boundaries
  - Types of organizational structures, e.g. govt-owned/govt-operated vs. govt-owned/contractor operated
  - Is operational control always right approach?
- Operational boundaries
  - Role of contracts/agreements
  - Which Scope 3 sources to include
- Base year considerations
  - Implications of fluctuations due to disaster relief, war, etc.
- GHG reduction instruments
  - Legal limitations on buying and selling instruments



Roll up results

Questions?

- Contact:
  - Taryn Fransen (tfransen@wri.org)

- Visit GHG Protocol at www.ghgprotocol.org