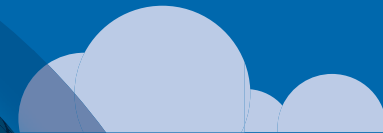




wbcasd

Scope 3 GHG emissions A data roadmap





A roadmap to the process of calculating GHG emissions through a company's value chain





► Introduction About the Roadmap

[Back to the Roadmap](#)

- The following chapters in this Roadmap introduce a series of concepts and resources related to Carbon Management along the value chain:

1. Why do companies need a carbon management strategy for its value chain? (1)
2. Which tools are available? (2)
3. How should a data collection process start?(3)
4. What can be learned from case studies and successful stories? (4)
5. How would a Transparency Platform help? (5)

- Its main objective is to provide understanding of the processes and awareness of the available resources regarding GHG management through the value chain.

- This Roadmap details the challenges that could be faced during the data collection process for the calculation of indirect greenhouse gas (GHG) emissions.

- The Roadmap also contains a series of resources (in the Resource Box sections) to further analyze and complement the concepts introduced.

- This tool is intended to be a brief overview of the process for a company unfamiliar with the process of developing a Scope 3 emissions inventory.

- The audience includes sustainability / environmental managers, suppliers and other partners involved in quantifying GHG emissions through the value chain.

- Finally, the purpose of the Roadmap is to provoke in the global sustainability agenda the development of a Transparency Platform as a solution to share carbon information in the value chain in a transparent and credible manner.

Development

The Roadmap was developed by the following engagement team, under the Future Leaders Team 2011 program of the World Business Council for Sustainable Development:

- **Myra Carpenter**, Environmental Affairs, Michelin North America, USA, myra.carpenter@us.michelin.com
- **Yuri Itoh**, Hitachi, Japan, yuri.itoh.uu@hitachi.com
- **Mareike Klein**, Sustainability Manager, Henkel, Germany, Mareike.Klein@henkel.com
- **Mariano Spitale**, Manager/Advisory Sustainability, PwC, Argentina, mariano.spitale@ar.pwc.com
- **Shannon Sung Hee Shin**, Deloitte Touche Tohmatsu, Korea, sungshin@deloitte.com





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

What are the challenges in cooperating with suppliers?

Where are the challenges in collecting data?

[> View Resource Box](#)

[> View Resource Box](#)

[> View Resource Box](#)

Why do companies need a Carbon Management strategy?



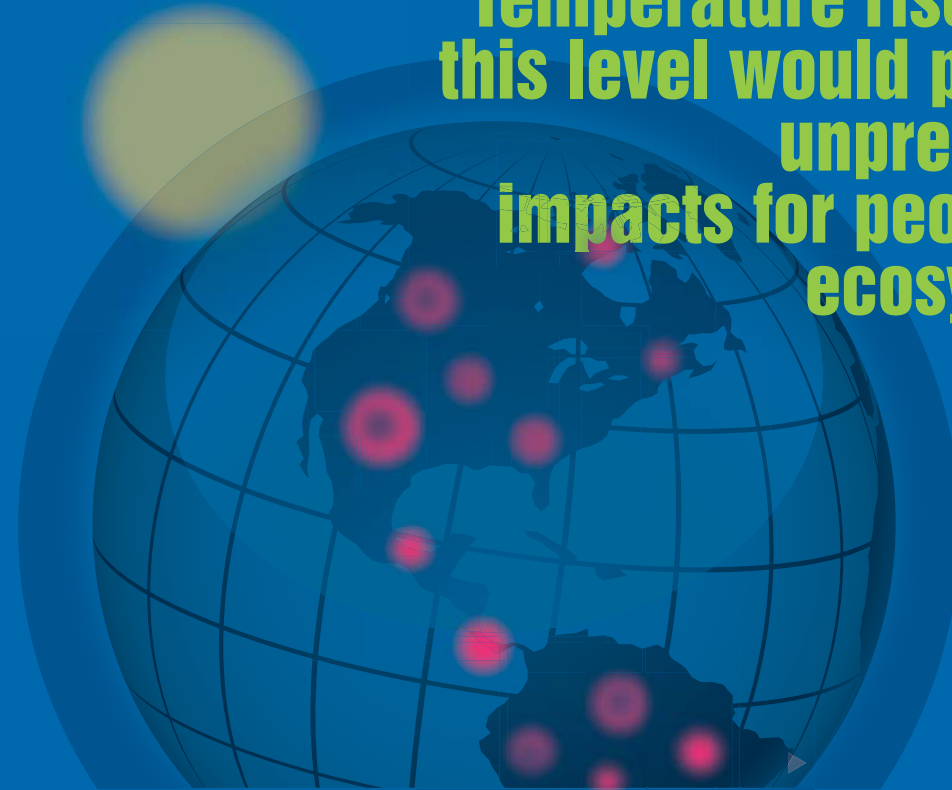
Climate change context

Climate change driven by emissions of anthropogenic greenhouse gases is one of the major environmental challenges to sustainable development.

There is consensus among climate scientists globally that carbon dioxide emissions must be cut by as much as 85% below 2000 levels by 2050 to stabilize concentrations of carbon dioxide equivalent (CO₂eq) at 450ppm by 2100 and limit global mean temperature increase to 2°C (IPCC 4th Assessment Report, 2007).

Temperature rise above this level would produce unpredictable impacts for people and ecosystems.

Temperature rise above this level would produce unpredictable impacts for people and ecosystems.





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

[> View Resource Box](#)

What are the challenges in cooperating with suppliers?

[> View Resource Box](#)

Where are the challenges in collecting data?

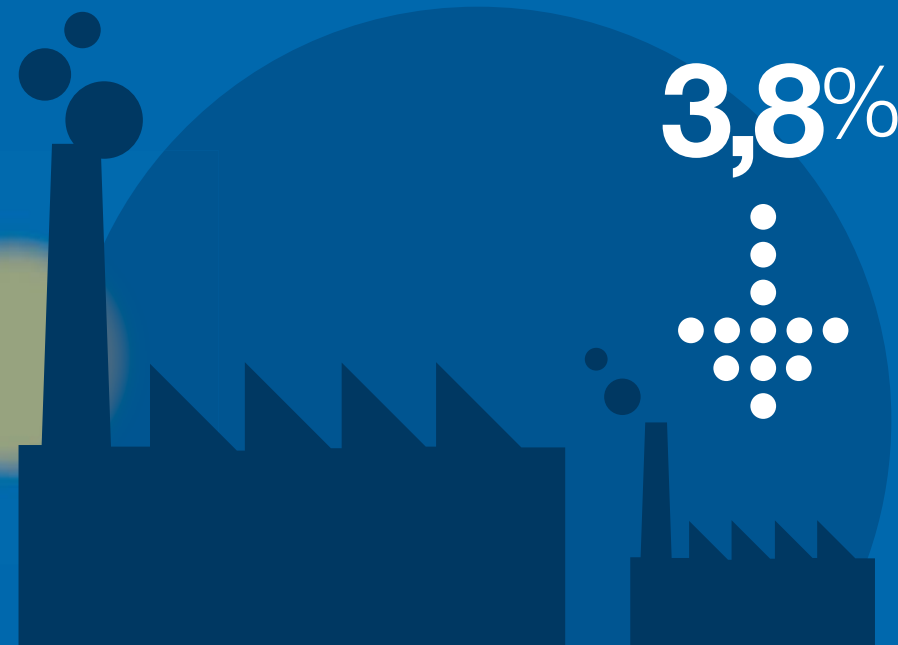
[> View Resource Box](#)

Why do companies need a Carbon Management strategy?



Towards a low-carbon economy

Taking the year 2000 as a basis, the global economy should have started to reduce carbon emissions intensity by 2% per year until 2020 to achieve lower carbon emissions. However, in view of the actual levels achieved, greater efforts should be made in the years ahead to stay on track: the world needs to reduce carbon emission intensity by 3.8% per year until 2020 to reach the 450 ppm target. In achieving these targets, it is necessary to develop a low-carbon economy as a new paradigm in the next decades.



In achieving these targets, it is necessary to develop a low-carbon economy as a new paradigm in the next decades.





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)

Why do companies need a Carbon Management strategy?



Carbon management through the value chain

This paradigm represents a series of challenges and opportunities to all economic sectors and players. Particularly for privately-owned organizations, this paradigm makes it necessary to know the carbon profile and consider possible emission reduction scenarios.

In the last few years, companies generally analyzed and estimated emissions from their own operations (direct or Scope 1 emissions, e.g.: fuel combustion) and indirect emissions from sources controlled by third parties (Scope 2 emissions, e.g.: electricity consumption) that occur as a consequence of the company's own activities. However, other indirect emissions from the value chain (Scope 3 emissions) represent most of a

company's total emissions.

The available methodologies and guidance for calculating GHG emissions in the value chain can be found in the **Existing Tools section**.

Carbon management through the value chain poses the following challenges:

- ✓ *Engaging suppliers to define the information exchange frameworks and strategies to reduce GHG emissions.*
- ✓ *The complexity of the data collection process, since the calculation of emissions through the value chain requires reliable data, which is not always available.*





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)

RESOURCE BOX

Climate change background

- [UNEP Climate Change web site](#) go link
- [UN Framework Convention on Climate Change](#) go link
- [Intergovernmental Panel on Climate Change \(IPCC\)](#) go link

Value chain

- [Unchaining Value: Innovative approaches to sustainable supply \(Sustain Ability, UNEP and UN Global Compact\)](#) go link
- [The Business Case for Supply Chain Sustainability: a brief for business leaders \(BSR\)](#) go link
- [Sustainability at Unilever – The value chain \(video\)](#) go link
- [Global Supply Chain Trends 2008-2009: driving global supply chain flexibility through innovation](#) go link

Value chain & GHG emissions

- [WRI/WBCSD Greenhouse Gas Protocol \(video\)](#) go link

Low-Carbon Economy

- [Towards a low-carbon economy](#) go link
- [Green Race is on: low carbon economy index 2010 \(PwC\)](#) go link





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)

Building good relationships with suppliers is critical to successful estimation of Scope 3 emissions.



The major challenges to formulate an effective supplier relationship strategy to exchange information on carbon are the following:

- 1** Lack of training for suppliers on issues relating to Climate Change, Carbon Inventory and Carbon Management (especially small and medium-sized enterprises).
- 2** The need to develop an information exchange tool and methodology between the company and its suppliers.
- 3** Analysis of possible language barriers.
- 4** Setting emission reduction targets and working jointly with the supplier for their accomplishment.
- 5** Assessment of the quality of data obtained.
- 6** The need to define confidentiality agreements.
- 7** Limited supplier resources (knowledge, people and measurements).





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

[> View Resource Box](#)

What are the challenges in cooperating with suppliers?

[> View Resource Box](#)

Where are the challenges in collecting data?

[> View Resource Box](#)

The priority is to set a supplier relationship strategy which contemplates at least the following (source: GHG Protocol Engagement Guidance).



- Analyze whether there is any program already in place at the company to exchange environmental information with suppliers, and/or to conduct environmental audits of suppliers
- Include carbon emission related issues in existing initiatives (keep consistency),
- Identify stakeholders internal to the company that are critical to a successful data collection process, These stakeholders may primarily represent the Procurement, Legal, Environmental, or H&S departments.
- Develop a list of suppliers (name, contact, type of supplier, annual expenses, etc.),
- Select the most important/relevant suppliers in the value chain, according to a defined criterion (based on the magnitude of the emissions or on the financial expenses, e.g.: select the suppliers included in 80% of total expenses for purchases).
- Assess the list of selected suppliers for appropriateness and applicability,
- Manage supplier relationship,
- Analyze the need for confidentiality agreements.
- A support platform into which suppliers' activity and/or carbon emissions data will be loaded,
- Examples: Excel spreadsheets; web platform; specially developed software.



► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)

RESOURCE BOX

Methodologies

- [GHG Protocol Supplier Engagement Guidance / Tools and Guidance section](#) [go link](#)

GHG emissions and suppliers

- [Carbon Disclosure Project: Supply Chain Report 2011 – Migrating to a low carbon economy through leadership and collaboration](#) [go link](#)





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)

Where are the challenges in collecting data?

The data collection process for Scope 3 emissions in the value chain is one of the most intensive stages of carbon management in terms of resources.

Detailed below are the major challenges in the data collection process:

- 1** Engage internal departments (procurement, marketing, R&D, logistics, etc);
- 2** Need to define a data collection strategy, giving priority for example to key activity data quality and accuracy;
- 3** Search for local databases to supplement information obtained directly from suppliers and other players in the value chain;
- 4** Filling data gaps.





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

[> View Resource Box](#)

What are the challenges in cooperating with suppliers?

[> View Resource Box](#)

Where are the challenges in collecting data?

[> View Resource Box](#)

In order for the results to be credible companies must make their best effort to collect data on Scope 3 emissions from activities that:

- 1. Are expected to produce significant GHG emission levels;**
- 2. Pose emission reduction opportunities;**
- 3. Are relevant to the company's business objective.**

Companies should collect high quality and reliable activity data as much as possible. In general terms, GHG emissions are estimated based on two types of information:

- 1. Activity data: quantitative measure of a level of activity that results in GHG emissions (e.g.: liters of fuel consumed), and**
- 2. Emission factors: average emission rates that convert activity data into GHG emissions data (e.g.: kg CO2 emitted per liter of fuel consumed).**

A company may collect primary data from specific activities within its value chain obtained directly from the supplier of raw materials or manufacturing plant (for instance, supplier Activity data or GHG emissions calculated directly by the supplier); or secondary data, which include industry-average data (e.g., from published databases, etc.), financial data, proxy data and other generic data.

The selection of data type is dependent on the company's business goals. For example, the use of secondary data is adequate to identify relative magnitude of activities, identify hot spots, and prioritize future data collection efforts.





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

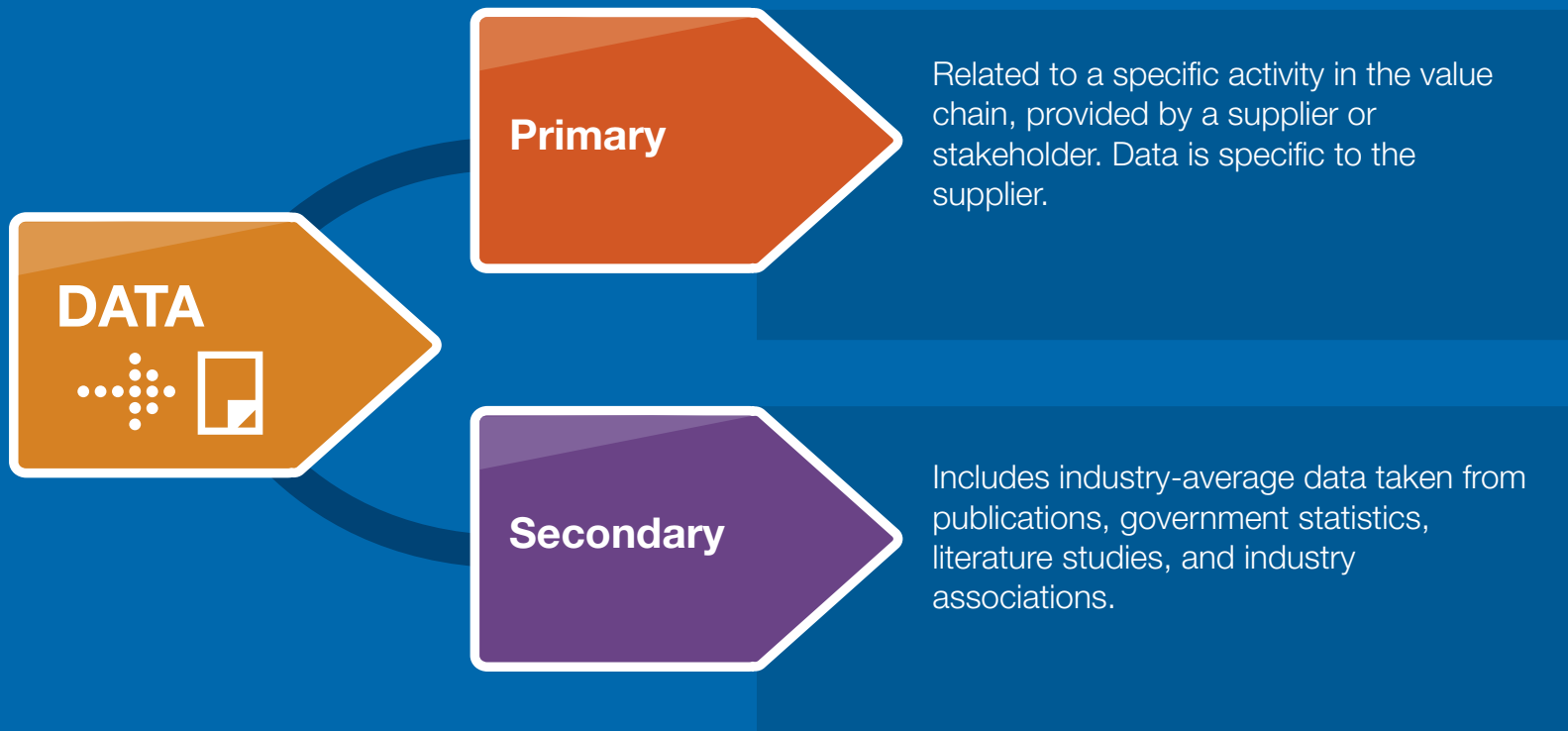
[> View Resource Box](#)

What are the challenges in cooperating with suppliers?

[> View Resource Box](#)

Where are the challenges in collecting data?

[> View Resource Box](#)



In general, the two types of data are used.

More information about the challenges in the data collection processes is provided in the data collection process section.





► Carbon management through the value chain (1)

Why do companies need a Carbon Management strategy?

> [View Resource Box](#)

What are the challenges in cooperating with suppliers?

> [View Resource Box](#)

Where are the challenges in collecting data?

> [View Resource Box](#)



RESOURCE BOX

Methodologies

- [Chapter 7 – Collecting Data, Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#) go link






► Existing tools and guidelines (2)

> View Resource Box

What kind of Carbon initiatives already exist ?

This section presents emission calculation tools, guidelines and initiatives, particularly in the value chain.



Tool/guidelines/initiative	Description	Further information
 GHG Protocol Corporate Standard	<p>The GHG Protocol Corporate Standard provides standards and guidance for companies and other organizations preparing a GHG emissions inventory. It covers the accounting and reporting of the six greenhouse gases covered by the Kyoto Protocol — carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).</p>	<p>Scope 1 and 2 emissions</p> <p>Available languages:</p> <ul style="list-style-type: none"> > Chinese (traditional) > Chinese (simplified) > Japanese > Korean > Portuguese > Spanish <p>Free to download and use.</p>





► Existing tools and guidelines (2)

> View Resource Box


Tool/guidelines/initiative	Description	Further information
 <p>GHG Protocol Corporate Value Chain (Scope 3) Standard</p>	<p>Allows companies to assess their entire value chain emissions impact and identify the most effective ways to reduce emissions.</p>	<p>Scope 3 emissions</p> <p>Available language: > English</p> <p>Free to download and use.</p>
 <p>GHG Protocol Product Life Cycle Standard</p>	<p>It can be used to understand the full life cycle emissions of a product and focus efforts on the greatest GHG reduction opportunities.</p>	<p>Available language: > English</p> <p>Free to download and use.</p>





► Existing tools and guidelines (2)

> View Resource Box


Tool/guidelines/initiative	Description	Further information
 Carbon Disclosure Project	<p>The Carbon Disclosure Project is an independent not-for-profit organization holding the largest database of primary corporate climate change information in the world. Thousands of organizations from across the world's major economies measure and disclose their greenhouse gas emissions, water use and climate change strategies through CDP. They put this information at the heart of financial and policy decision-making.</p> <p>The CDP Supply Chain initiative work with global corporations to understand the impacts of climate change across the supply chain, harnessing their collective purchasing power to encourage suppliers to measure and disclose climate change information.</p>	





► Existing tools and guidelines (2)

> View Resource Box

Tool/guidelines/initiative	Description	Further information
 <p>PAS 2050:2011 - Specification for the assessment of the life cycle greenhouse gas emissions of goods and services</p>	<p>PAS 2050 is a publicly available specification that provides a method for assessing the life cycle greenhouse gas (GHG) emissions of goods and services. It can be used by organizations of all sizes and types, in any location, to assess the climate change impact of the products they offer.</p>	<p>PAS 2050 is free to download and use. Also available:</p> <p>Guide to PAS 2050:2008 How to assess the carbon footprint of goods and services.</p>





► Existing tools and guidelines (2)

RESOURCE BOX

Methodologies

- GHG Protocol Corporate Standard [go link](#)
- GHG Protocol Corporate Value Chain (Scope 3) Standard [go link](#)
- GHG Protocol Product Life Cycle Standard [go link](#)
- Carbon Disclosure Project [go link](#)
- CDP Supply Chain [go link](#)
- PAS 2050 [go link](#)
- The best features of the new Scope 3 Emissions Standard, by Ryan Schuchard, BSR [go link](#)

Data Service Providers

- **Trucosts** quantifies environmental impacts and puts a price on them, helping understand environmental risk in business terms [go link](#)
- **Ecodesk** is the world's largest search-optimized database of carbon, energy, waste, water and support information on companies. [go link](#)
- **Bloomberg Professional** is a leading source of data, news and analytics to financial markets. This integrates ESG information with the financial statements, valuations, and ratio analyses used to evaluate equity investments. [go link](#)
- **Sustainalytics** is a global provider of environmental, social and governance (ESG) research and analysis, with experience in the Responsible Investment (RI) and Socially Responsible Investment (SRI) markets. [go link](#)

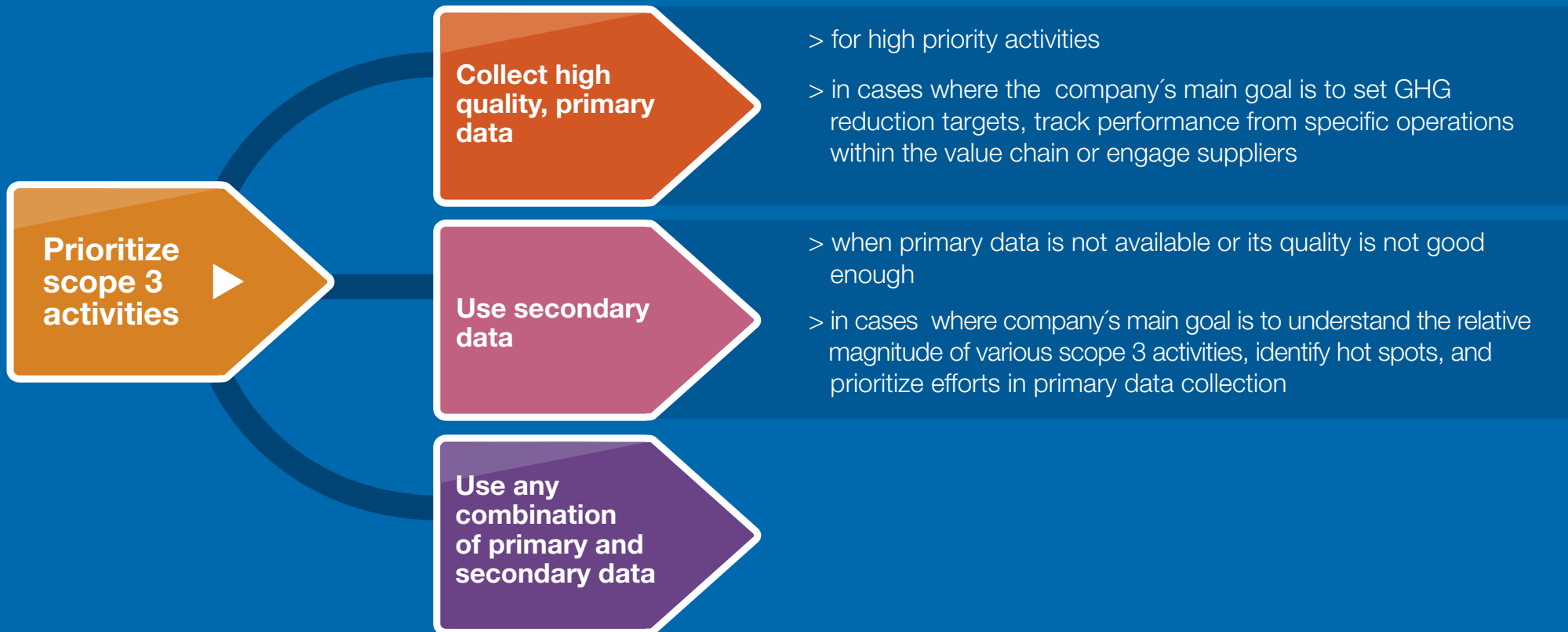


▶ The data collection process (3)

▶ Available Data (3.1)

> [View Resource Box](#)

What kind of data can be used and how?





▶ The data collection process (3)

▶ Available Data (3.1)

> View Resource Box

How should data collection be prioritized?

- Scope 3 activities that are expected to have the most significant GHG emissions
- Activities that offer the most significant GHG reduction opportunities
- Most relevant to the company's business goal
- Main scope 3 activities from a financial significance perspective
- A combination of above approaches



▶ The data collection process (3)

▶ Available Data (3.1)

> View Resource Box

What challenges exist for primary data collection efforts?

Challenge

How to overcome it?

Cost intensive

Cost sharing customer – supplier.

Provide assistance to value chain for significant activities

Verification of the accuracy, relevance and quality of the data provided by a supplier/partner in the value chain may be difficult.

Focus on „hot spots“, definition of these hot spots together with suppliers. Definition of a business case: What kind of data do I need? Where should I focus? What level of accuracy is needed?

Require certification of data and/or conduct periodic audits

Confidentiality, often sensitive information is requested

Work with open data pools, confidentiality agreements

Limited understanding, and knowledge within value chain

Create training modules and provide on company portal






▶ The data collection process (3)

▶ Available Data (3.1)

> View Resource Box

What challenges exist for primary data collection efforts?

Challenge	How to overcome it?
 Lack of resources within value chain to provide information	Provide assistance to value chain for significant activities
 No data available	Establish expectation that primary data will be available at a specified time in the future and use secondary data in the interim
 Lack of influence with value chain to encourage sharing of data	Cooperate with value chain partners that can be influenced because of magnitude of purchasing volume or their interest





▶ The data collection process (3)

▶ Available Data (3.1)

> View Resource Box

What challenges exist for secondary data collection efforts?

Challenge

How to overcome it?

✔ Verification of the source and quality of secondary data may be difficult

Prioritize databases and publications that are internationally recognized, provided by national governments or peer-reviewed.

✔ Data for a specific region is not available (e.g. Latin America)

Use proxy data to fill data gaps (data from similar activity that is used as stand-in for given activity).

✔ Data for a specific activity is not available

Model using information which is available on a macroeconomic level.

✔ Accuracy of results

Improve accuracy over time.



▶ The data collection process (3)

▶ Available Data (3.1)

> View Resource Box

What tips and tricks are useful to get started?

1

Define your business case: what kind of data do you really need? What should be measured? Where are my hotspots?

2

Establish **clear objectives** from the beginning.

3

Create Partnerships: How do I convince my suppliers to deliver good primary data? Where could I find the best secondary data?

4

Use **business objectives** to drive data collection strategy.





► The data collection process (3)

► Available Data (3.1)

> View Resource Box

What tips and tricks are useful to get started?

5

Assess data quality: is the data I get is comparable, relevant, accurate and valid?

6

If secondary data are not publicly available in the geographical boundaries of the study, contact **local relevant NGOs** or **academic institutions** to get further information or help; create partnerships with these stakeholders.

7

Sign **confidentiality agreements** with suppliers before the calculation of GHG emissions, to ensure prompt delivery of the primary information (note that it is a time consuming process).



For secondary data available around the globe: Available data (by country and industrial sector)





▶ **The data collection process (3)**

▶ **Available Data (3.1)**

RESOURCE BOX

Methodologies

- Chapter 7 – Collecting Data, Corporate Value Chain (Scope 3) Accounting and Reporting Standard [go link](#)

What data should be collected

- Guidance for Calculating Scope 3 Emissions, GHG Protocol [go link](#)

Global Guidance on data collection

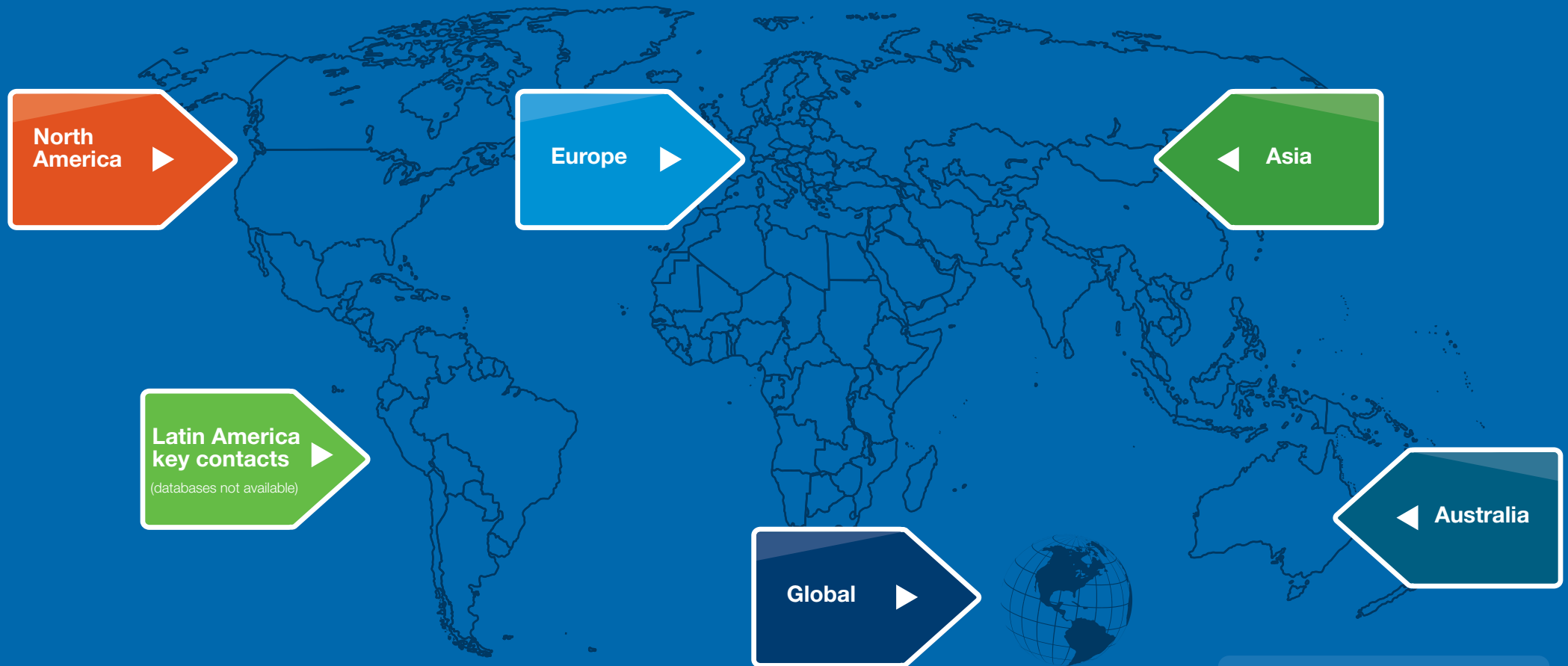
- Principles for Life Cycle Assessment Databases: a basis for greener processes and products (UNEP, SETAC) [go link](#)



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



▶ Back to the data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
USA, Canada	Athena Life Cycle Inventory Product Databases	Building Materials & Products: Construction	go link	Free	English	go link
Canada	Canadian Raw Materials Database	Canadian commodity materials: Metals and semi-metals; Glass and ceramics; Plastics; Wood	go link	Free (with registration)	English, French	mgriwm@envmail.uwaterloo.ca
USA	CEDA Factors for the United States	Energy carriers and technologies, Materials production, Systems, Transport services, Other Services, Wastes	go link	\$250 / month	English	Corinne Reich-Weiser, Corinne@ClimateEarth.com
USA, Germany, Spain, Canada, China	Carnegie-Mellon	Production of Packaging: Energy carriers and technologies; Materials production; Systems; Transport services; Other Services; End-of-life treatment; Wastes	go link	Free (non-commercial use)	English, French	green-design@andrew.cmu.edu

[▶ Back to The data collection process](#)



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
USA	Franklin US LCI	Energy carriers and technologies; Materials production: Metals and semimetals; Glass and ceramics; Paper and cardboards	go link	Free	English	FranklinAssociates@erg.com
USA	Greenhouse gases, Regulated Emissions, and Energy use in Transportation	Transportation: vehicles, energy carriers and technologies	go link	Free (with registration)	English	greet@anl.gov
USA	ProBas	Commodity materials: metals, plastics, building materials, food, etc.	go link	Free	German	Uwe R. Fritsche (project manager) u.fritsche@oeko.de
USA, Canada	OPEN IO	Electronics, Food, Beverage, & Agriculture, Home & Personal Care, Packaging, Paper	go link	Free	German	open-io@walton.uark.edu

▶ Back to The data collection process





▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Denmark	LCA Food Database	Food products	go link	Free	Danish, English	Bo P. Weidema (bow@lca-net.com)
Switzerland	BUWAL 250 LibraryTM	Packaging	go link	Licensed (purchased PDF from website)	English, French, German	
Switzerland	Swiss Agricultural Life Cycle Assessment (SALCA)	Agriculture	go link	By arrangement	English, German	Thomas Nemecek
UK	Bath Inventory of Carbon & Energy (ICE)	Building Materials & Products: Construction	go link	Free (with registration)	English	Craig Jones, C.Jones@bath.ac.uk
UK	Biomass Environmental Assessment Tool (BEAT)	Bioenergy Technology	go link	Free	English	BEAT@aeat.co.uk

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
UK	Building Research Establishment (BRE)	Building Materials & Products; Construction	go link	Free	English	lpcb@bre.co.uk
UK	Center for Sustainability Accounting (GenSA)	Energy carriers and technologies; Materials production; Systems; End-of-life treatment; Transport services; Other Services; Wastes	go link	Free (2004 factors published by Defra/DECC). Updated factors – undisclosed fee	English	info@censa.org.uk
Europe	Bilan Carbone	Energy Carriers and Technologies; Transport Services; Materials Production	go link	Free	English, French	
Europe	DEAM – Data for Environmental Analysis and Management	Energy Carriers and Technologies; Transport Services; Materials Production	go link	Free	English, French	

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Europe	E3IOT	Energy carriers and technologies; Materials production; Systems; End-of-life treatment; Transport services; Other Services	go link	Licensing 3500,- with CMLCA software	English	Dr. R. Heijungs, +31 (0)71 527 7483, heijungs@cml.leidenuniv.nl
Europe	EIME (Environmental Improvement Made Easy) database V11.0 (2009)	Energy Carriers and Technologies; Metals and Semimetals; Textiles; Furniture and other interiors; Plastics; End-of-Life treatment	go link	Licensing Several licensing schemes: University (3,000 /year, unlimited users), Classic (3,000 /year, 5 users), Comfort (10,000 /year, 5 users), Light (2,180 /year, 1 user).	English	codde@codde.fr

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Europe	ELCD	End-of-life treatment; Energy carriers and technologies; Materials production; Systems; Transport services	go link	Free	English	lca@jrc.ec.europa.eu
Europe	ESU-ETH 96	Primary energy extraction, Refining and delivery, Mineral resource extraction, Raw material production, Production of semi-manufactures, Auxiliary and working materials, Supply of transport and waste treatment services, Construction of infrastructures and energy conversion and transmission	go link	Free	English	frischknecht@esu-services.ch

▶ Back to The data collection process





▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Europe	European Aluminum Association	Aluminum production and transformation processes	go link	Free	English	eea@aluminium.org
Europe	European Container Glass Association (CGA)	Container glass production and transformation	go link	Free	English	Laure Vanderbrugge (L.Vanderbrugge@feve.org)
Europe	European Copper Institute (ECI)	Copper products (tubes, sheets, wire)	go link	Free	English	Laure Vanderbrugge (L.Vanderbrugge@feve.org)
Europe	FEFCO	Corrugated Board	go link	Free	English	info@fefco.org
Europe	Plastics Europe	Plastics	go link	Free	English	Aafko Schanssema (aafko.schanssema@plasticseurope.org)

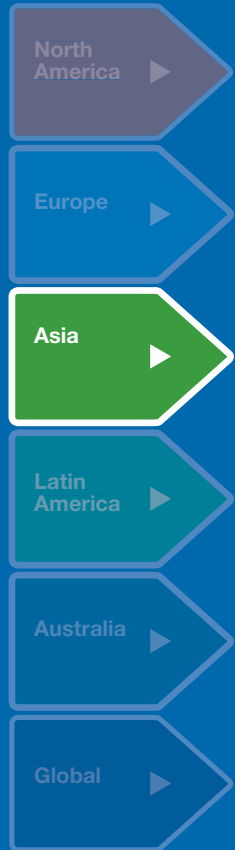
▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Japan	3EID (Emissions per 1 million yen)	Agriculture, mining, food, metals, etc. (32 major sectors)		Free	Japanese, English	www-cger@nies.go.jp
Japan	Life Cycle Assessment of Japan	Electronics, automobile, automotive parts, gas, steel, fine ceramics, chemical fibers, cements, mining, plastic wastes (54 industrial organizations)		Fee required	Japanese	lca-project@jemai.or.jp
Japan	Carbon Footprint of Products	Agriculture, forestry, fishery, mining, food, drink, tobacco, feed, fiber, wooden products, pulp, paper, chemical, petroleum product, plastic, rubber, steel, metal, etc. (30 sectors)		Free (for METI's CFP trial project)	Japanese	cfp@jemai.or.jp
Japan	MILCA	Not limited		Free (limited functionality) Fee (full functionality)	Japanese	jemai-lca@jemai.or.jp
Korea	Korea LCI database	Energy carriers and technologies; Inorganic chemicals; Organic chemicals; Metals and semimetals; Electrics and electronics; Construction; End-of-life treatment; Paper; Transport		Free (limited functionality) Fee (full functionality)	English	Jo Kyu-su jksyo@keiti.re.kr

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Latin America	Latin America Life Cycle Assessment Network		go link		Spanish	Claudia Peña (chair) cpenau@gmail.com
Brazil	Brazilian Life Cycle Assessment Association		go link		Portuguese	Gil Anderi da Silva (Presidente)
Mexico	LCA Center Mexico		go link		Spanish	Contact address contact@centroacv.mx

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region

- North America ▶
- Europe ▶
- Asia ▶
- Latin America ▶
- Australia ▶**
- Global ▶

Country	Database	Sector	Websites	Licensing	Language	Contact
Australia	Australian National Life Cycle Inventory Database	Energy, Agriculture, Building & construction, Plastics, Manufacturing, Transport		Free with registration	English	Tim Grant tim@lifecycles.com.au

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Global	Australia Department of Climate Change	Oil & gas, mining, nitric acid production	go link	Free	English	gnrm@climatechange.gov.au
Global	Boustead Model	Fuel production and materials processing	go link	Licensed	English	Dr Ian Boustead, Tel. +44 (0) 1403 864 561, sales@boustead-consulting.co.uk
Global	CCaLC	Materials, energy, transport, packaging, waste	go link		English	Professor Adisa Azapagic
Global	CPM LCA Database	Energy carriers and technologies; Materials production; Transport services; Systems; End-of-Life treatment; Wastes; Agriculture; Food	go link	Free	English	contact@cpm.chalmers.se
Global	Defra	Emission factors for energy use, water consumption, waste disposal, recycling and transport activities.	go link	Free	English	ghgreporting@defra.gsi.gov.uk

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region

- North America ▶
- Europe ▶
- Asia ▶
- Latin America ▶
- Australia ▶
- Global ▶**

Country	Database	Sector	Websites	Licensing	Language	Contact
Global	EcoInvent	Energy carriers and technologies; Materials production; Systems; End-of-life treatment; Transport services; Other Services; Use and consumption; Wastes	go link	Ecoinvent Database v2.2 for commercial single-user / OECD countries educational license 1800 (excluding VAT), each subsequent commercial user license 900 (excluding VAT). Upgrade for commercial single-user / OECD countries educational license 1500 (excluding VAT), each subsequent commercial user license 750 (excluding VAT). Educational license for non-OECD countries (free)	English, German	support@ecoinvent.org
Global	Environmental Product Declarations OPEN IO (EPD)	Agriculture, forestry and fishery products, Ores, Energy and water, Food and beverages, Textile and furniture, Wood and paper, Rubber, plastics, glass and chemicals , Metal, Machinery and appliances, Transport equipment and services, Construction	go link	Free	English	info@environdec.com

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region

North America ▶

Europe ▶

Asia ▶

Latin America ▶

Australia ▶

Global ▶

Country	Database	Sector	Websites	Licensing	Language	Contact
Global	ESU Services LCIA	energy, basic minerals, materials, food and lifestyles	go link	Fee (160 per system data set; 240 per unit process raw data)	English, German	Niels Jungbluth (+41 44 940 61 32), jungbluth@esu-services.ch skype:niels.jungbluth

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Global	Footprint Expert	Agriculture, construction, advertising	go link	Free	English	footprintexpert@carbontrust.co.uk
Global	GEMIS	Energy, Electricity and heat processes, Materials, Construction, Transport	go link	Free	German, English	Uwe R. Fritsche (project manager) u.fritsche@oeko.de
Global	Greenhouse Gas Protocol	Energy, Transport, Refrigeration & Air Conditioning, Aluminum, Cement, Iron & Steel, Lime, Ammonia, Nitric Acid, Refrigerant manufacture, Pulp & Paper, Adipic Acid	go link	Free	German, English	ghgquestions@wri.org

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region

- North America ▶
- Europe ▶
- Asia ▶
- Latin America ▶
- Australia ▶
- Global ▶**

Country	Database	Sector	Websites	Licensing	Language	Contact
Global	iLCA2010+ LCI Data Base System	Agricultural production means; Glass and ceramics; Organic chemicals; Inorganic chemicals; Food and renewable raw materials; Electrics and electronics; Energy carriers and technologies; Health, social services, beauty and wellness; Metals and semimetals; Paper and cardboards; Plastics; Textiles, furnitures and other interiors; Wood.	mail@gruner.ch	Fee (various)	German, French, English	mail@gruner.ch
Global	IEA GHG CO2 Emissions Database	Energy carriers and technologies	go link	Free, requires database request	English	samantha.neades@ieaghg.org
Global	IISI Life Cycle Inventory Study	Steel Industry Products	go link	Free, requires database request	English	go link

▶ Back to The data collection process



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Global	ITRI Life Cycle Inventory / Analysis of Stainless Steel	Processing of cold roll and white hot rolled steel	go link	Free, requires database request	English	kay.nimmo@itri.co.uk
Global	IZA Zinc Environmental Profile	primary zinc, zinc sheet roofing and zinc sheet	go link	Free	English	info@iza.com
Global	IDEA	Agriculture and fisheries, mining, construction and civil construction and other non-manufacturing, food and beverages, textiles, chemicals, ceramics and building materials, metals, machinery, and other manufacturing, electricity gas, water and sanitation, etc.	go link	Free in MiLCA software	Japanese, English	Jemai-lca@jemai.or.jp
Global	IPCC Emissions Factor Database	Energy carriers and technologies	go link	Free	English	ipcc-efdb@iges.or.jp

[▶ Back to The data collection process](#)



▶ The data collection process (3)

▶ Available Data (3.1)

Available Data By Country / Region



Country	Database	Sector	Websites	Licensing	Language	Contact
Global	IVAM LCA DATA 4	Energy carriers and technologies; Materials production; Transport services; End-of-life treatment	go link	IVAM LCA Data 4 for professional use 1575 (excluding VAT), for academic use 800 (excluding VAT), upgrade from IVAM LCA DATA 3 800 (excluding VAT)	English	Ewijk (lcadata@ivam.uva.nl)
Global	Nickel Institute (NI) LCA	Class 1 nickel metal, Nickel oxide, Ferronickel	go link	Free	English	go link
Global	National Renewable Energy Laboratory (NREL) LCI	Energy carriers and technologies; Materials production; Transport services; Agriculture, Food	go link	Free (requires registration)	English	go link

▶ Back to The data collection process



► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | Honda

Walmart:



Reducing greenhouse gas footprint

I. Objective

Help suppliers reduce the emissions associated with the manufacture, shipment, and use of their products.

II. Goal

Eliminate 20 million metric tons of greenhouse gas (GHG) emissions from Walmart's global supply chain by the end of 2015.

III. Solution

Work with suppliers to take carbon out of product manufacturing, packaging, transportation, and use.

> **Supplier Energy Efficiency Project (SEEP):** voluntary program where Walmart energy experts conduct energy efficiency audits of participating supplier buildings. The program helps:

- suppliers learn from Walmart's experiences with energy efficiency in their own stores and buildings.
 - form the basis of an energy efficiency model that can be adopted by any private or public sector organization that manages a supply chain.
- Product Energy (LCA):

- Working with 40 suppliers representing 7 categories (dvd, milk, beer, soap, toothpaste, bathroom cleaners) to conduct life cycle analyses (LCA)

> **Carbon Disclosure Project (CDP):**

Walmart partnered with CDP to determine the capacity of its supply chain to provide carbon footprint information and a carbon management strategy.





► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | Honda

Walmart:



Reducing greenhouse gas footprint

IV. Results to Date

- Walmart merchants and energy experts are working with suppliers in more than 20 product categories to identify GHG reduction opportunities, launch new projects and implement changes.

• Product LCA (example)

Reduced DVD packaging resulting in 30% reduction in energy consumption from life cycle

Video: <http://walmartstores.com/Video/?id=1221>

• SEEP Program (2 examples)

annual cost savings of \$30,000 for a tissue products manufacturer

70% reduction in annual energy costs for a clothing manufacturer

Actively engaged with 40 different suppliers

Video: <http://walmartstores.com/Video/?id=1233>

Data Source: Walmart Climate & Energy/Greenhouse Gas, <http://walmartstores.com/Sustainability/8141.aspx>





► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | Honda

Samsung:

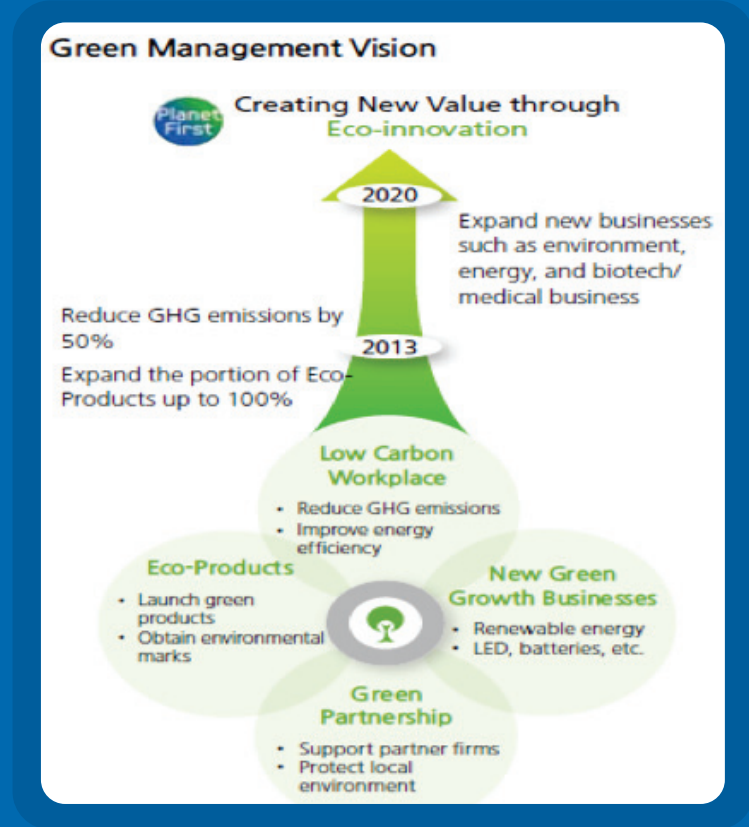
◆ Samsung Electronics-
“Climate Change Leadership”

I Objective

Within Samsung Electronics’ Green Management Vision is to create a low carbon workplace.

II Goal

Reduce GHG emissions by 50 percent by 2013, and expand new businesses such as environment, energy, and biotech medical business by 2020.





► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | Honda

Samsung:

◆ Samsung Electronics-
“Climate Change Leadership”

III. Strategies

Introduce energy management system and apply new facility certification system.

> Samsung Electronics set up GHG inventories at 9 Korean and 30 overseas production sites in 2010. It also received third-party verification to ensure accuracy of their GHG emissions data. In an effort to expand the scope of their GHG reduction activities, Samsung Electronics helped 662 suppliers in Korea to build inventories to manage their greenhouse gas emissions with plans to expand the support to global suppliers in 2011.

> Samsung Electronics ranked first among global IT companies in the Carbon Disclosure Leadership Index (CDLI). The CDLI is published by the Carbon Disclosure Project (CDP) based on a survey of

global corporate activities and policies to address climate change.

> Global Green Communication

Korea: One mountain, one stream campaign with neighboring girls school, stream clean-up efforts, biodiversity preservation classes for sisterhood schools and Gumi plant climate change campaign

Entire Europe: Introducing ways to practice eco-friendly habits in daily life, providing information about green products and eco-home solutions and encouraging consumers' involvement.

U.S.A: “Solve for Tomorrow” program for junior and high school students across the United States: Receive ideas on how science or mathematics can improve the environment and award



► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | Honda

Samsung:

► Samsung Electronics- “Climate Change Leadership”

winners. Winning ideas are posted online.

Brazil: Established education infrastructure by granting scholarships to the natives & building schools in Amazon rainforests.

IV. Results to Date

> In 2010, its greenhouse gas emission relative to sales reached 5.11 tons of CO₂, down 12% from 5.83 tons of CO₂ in 2009.

Savings of KRW
11.1 billion

Reduction activity	Details	Savings	GHG reduction (Ton/CO ₂)
Waste heat recovery reuse	Reuse cooling water discarded after manufacturing proces	2.8 billion	10,500
Facility efficiency operation	Improve pneumatic system such as introduction of non-purge drye	4.9 billion	29,000
High efficiency facility replacement	Implement high efficiency energy boiler facility	3.4 billion	15,000

> In 2010, Samsung Electronics saved a total of KRW51.9 billion in energy costs by cutting energy consumption by 135,000 TOE (Ton of Oil Equivalent) which led to a 270,000 ton reduction in greenhouse gas emissions.

Classification	Item	(tons of CO ₂ /KRW100 million)	2010 Performance	2013 Target
Climate change	GHG emissions relative to sales [Korea]	(tons of CO ₂ /KRW100 million)	5.11	3.72
	GHG reduction rate in the use phase	(%)	23	40
Eco-products	Eco-product ↑ ratio	(%)	91	100
	Eco-device ↑ ratio	(%)	72	100
Green workplace	International environment, health/safety certification rate (ISO14001/OHSAS 18001)	(%)	100	100

Data Source: 2011 Samsung electronics sustainability report

<http://www.samsung.com/us/aboutsamsung/ir/corporategovernance/corporatesocialresponsibility/download/2011EnvironmentalSocialReport.pdf>



► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | **Hyundai** | Honda


Hyundai:

I. Objective

Focus on improving the energy efficiency of the powertrain and minimizing energy loss. Manage carbon in the supply chain through the SCCM program.

II. Goal

Reduce GHG emissions through the development and commercialization of fuel efficient vehicles. Reduce CO2 emissions in the supply chain by 16,187 tons by 2010.

 Overall, a total CO2 reduction of 16,187 tons was achieved by participating suppliers as a result of the project.

III. Strategies

Supplier management
In 2007, HMC signed an environmentally friendly parts supply agreement with first tier suppliers and provided guidelines on environmental and ethical management practices. The company also announced the 'HMC Environmental Standards Guideline' which contains information on the set of environmental requirements for manufacturing of auto parts to be supplied to HMC.

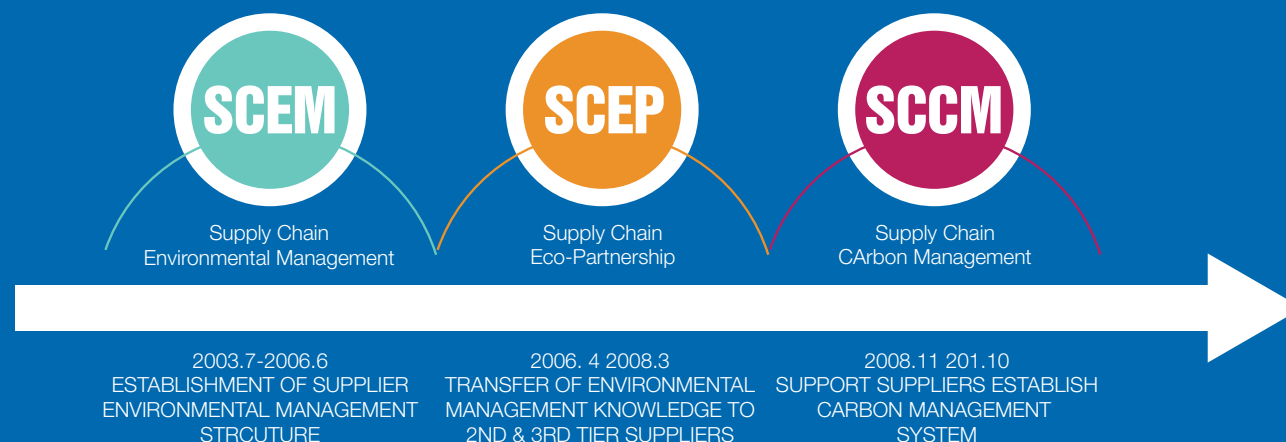




► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | **Hyundai** | Honda

Hyundai:



Consumer engagement:

Eco Coach

Eco-Coach is a scoring system that keeps track of the consumer's MPG and driving habits, then provides custom tailored reports on how to improve fuel economy and reduce the carbon footprint.

IV. Results to Date

Employment of fuel-efficiency technologies led to fuel efficiency improvement of 8.6% in the new Avante (Elantra) and a 10.6% improvement in the Accent released in 2010. Likewise fuel efficiency of the all-new Grandeur (Azera) released in January





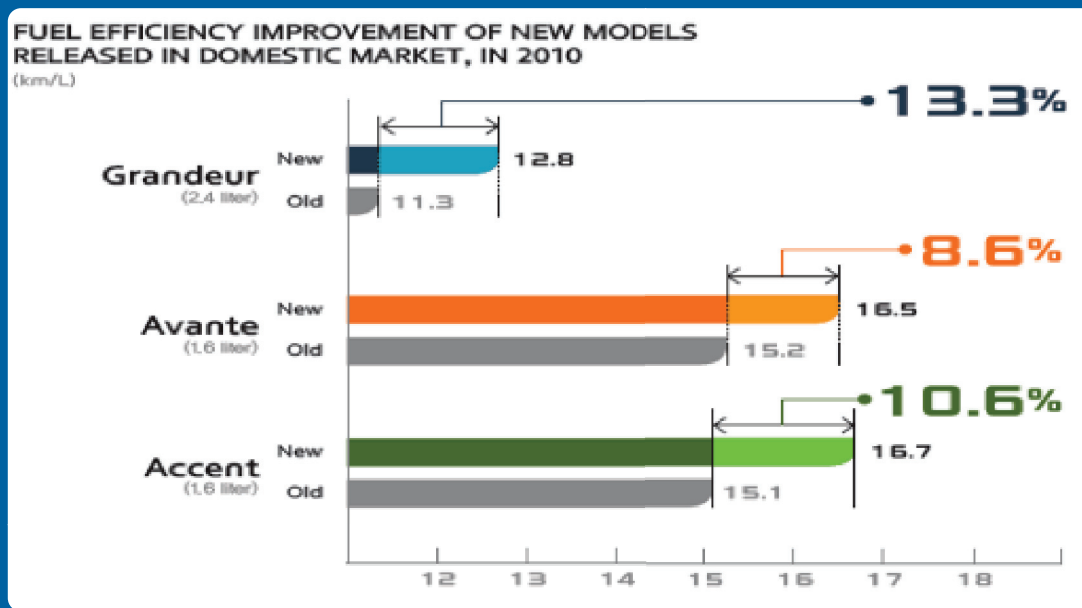
► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | **Hyundai** | Honda

Hyundai:

2011 was improved by 13.3%. Thanks to sales of more fuel efficient vehicles, the average CO2 emissions per kilometer have been reduced to

135g/km, a 27% decrease when compared to the 1995 level.



Data Source:
<http://csr.hyundai.com/>
(Hyundai Motors sustainability report 2011)



► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | **Honda**

◆ **Honda:**

Having the history to become the world's first automaker to comply with the 1970s U.S. Clean Air Act (Muskie Act) by its CVCC engine, Honda is keen on managing and reducing its environmental impacts, especially reducing CO2 emission. In 2006, Honda became the world's first automaker to announce voluntary global targets for reduction of CO2 emissions by FY2010.

I. Vision

realizing "the joy and freedom of mobility" and "a sustainable society where people can enjoy life."

II. Goal

In 2006, it adopted global CO2 emissions reduction targets with the aim of maintaining its ability to supply customers with products that have

the lowest CO2 emissions through corporate activities that also have the lowest CO2 emissions. When setting these targets, Honda sought to lead the industry in improving the energy efficiency of both products and production operations. Having achieved all reduction targets for 2010, Honda has set a new target in 2010 for 2020, aiming at a 30% CO2 emission reduction. They set a mid-term action plan in order to realize it.

2020 Reduction Targets for Product-Related CO2 (Baseline: 2000)

Global average of CO2 emitted by Honda Products



Scope of statistics

Automobiles: Japan, North America, Europe, Asia/Oceania, China, Central and South America (more than 90% of worldwide sales) **Motorcycles:** Japan, North America, Europe, Thailand, India, China, Indonesia, Vietnam, Brazil, Philippines, Malaysia, Pakistan (more than 90% of worldwide sales) **Power products:** All products sold in all regions (excluding marine outboards)





► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | **Honda**

◆ Honda:

III. Strategies

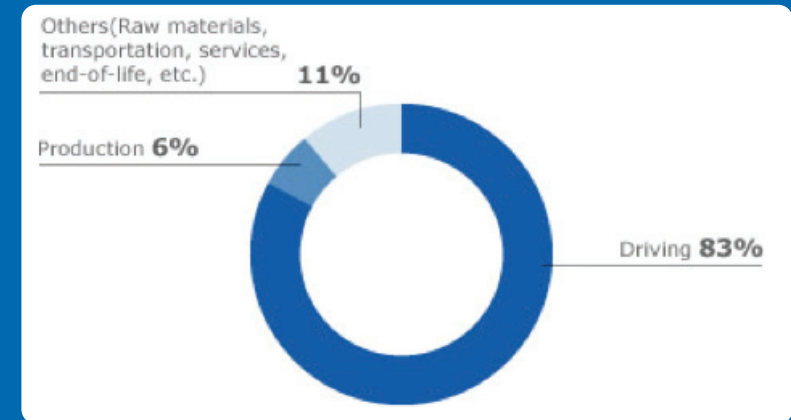
In order to achieve the goal by 2020, they instituted various policies within and outside of the Group. Below are some of them, focusing on carbon management and supplier engagement.

1) Life Cycle Assessment

In order to analyze their activities and find the area(s) where they should focus, Honda has developed the “Honda LCA Data System” in 2002.

Furthermore, since 2006 they have expanded to include an LCA database per model concerning CO2 emission. The above goal is set based on the LCA analysis.

CO2 emissions over the life cycle of a vehicle (as assessed with the Honda LCA system)





► Case studies (4) How do companies deal with this issue? Best case examples

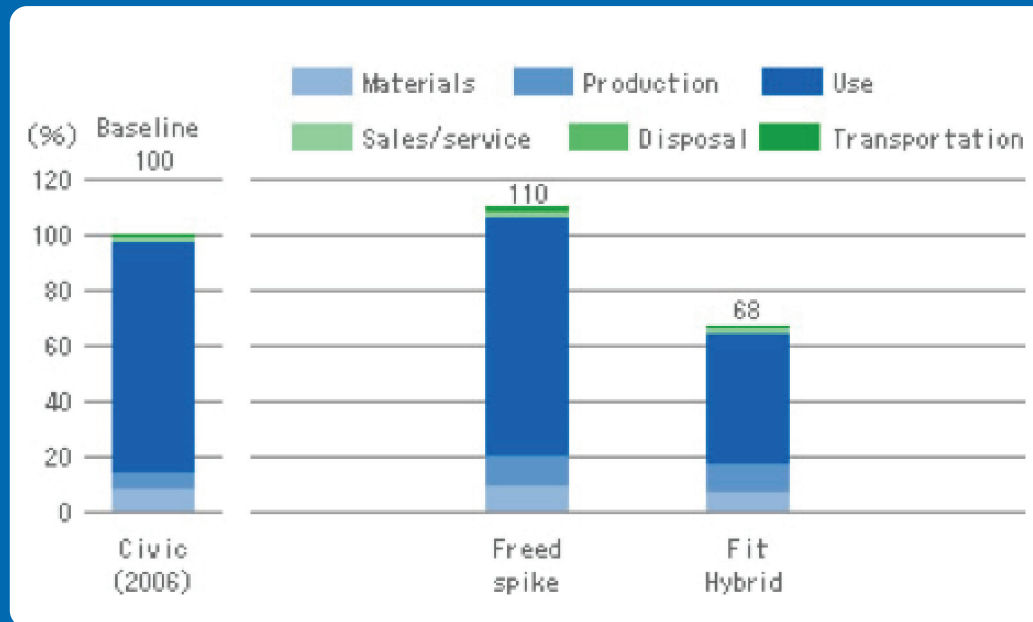
Walmart | Samsung | Hyundai | Honda

Honda:

Example based on a conventional model (automobile with gasoline engine)

Note: Calculations are based on a total vehicle mileage of 100,000km.

LCA results for major car models released in FY2011 (models for Japanese market)



Note: Calculations are based on a total vehicle mileage of 100,000 km.

Since 83% of CO2 is emitted during the use phase and 6% during the production phase, Honda considers setting a global target of CO2 emission reduction for both production and use phases will cover almost 90% of emissions of the product during its lifecycle.



► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | **Honda**

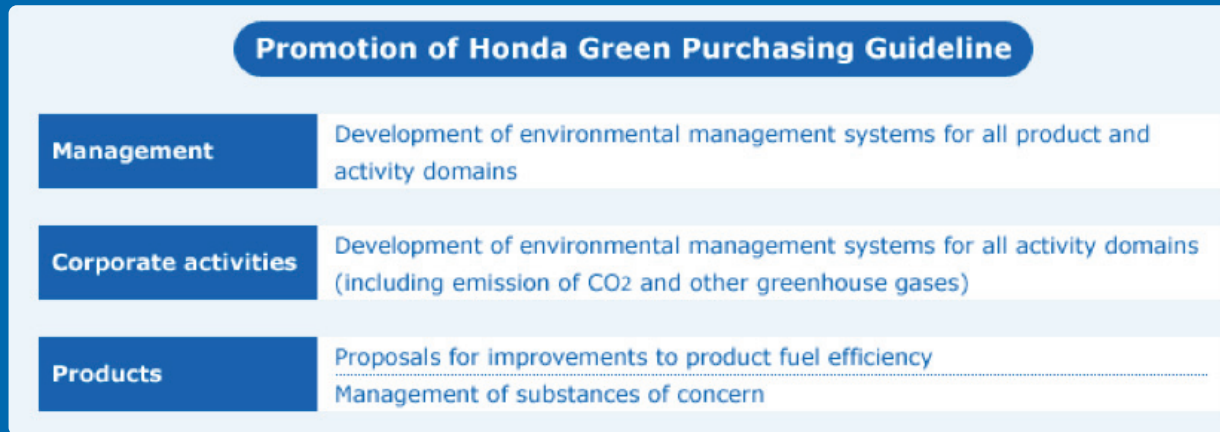
Honda:



2) Engaging Suppliers

The company issued Honda Green Purchasing Guidelines in 2001 which were recently updated in 2011. They set mid-term targets (2011-2014) which include monitoring and reducing supply chain greenhouse gas emissions under the Guidelines. In 2010, 32 suppliers which belong to Honda Group achieved a reduction in CO2 emissions per unit by 17.1% (baseline FY2001*)

*year ended March 31, 2001. They organized the Honda Green Network meeting twice a year with 46 suppliers in Japan for information exchange and the Honda Green Conference every three year to conclude the mid-term plan and to share the new management policy. The Green Conference is an all-company event including suppliers with more than 300 people attending. Several case studies are awarded during the conference.





► Case studies (4) How do companies deal with this issue? Best case examples

Walmart | Samsung | Hyundai | **Honda**

Honda:



IV. Results to Date and Future Plan

All of the targets they set in 2006 have been achieved except lower CO2 emissions from the production operation, which became unattainable because of massive reductions in the number of vehicles produced and sold and the resulting postponement of these measures after the 2008 global economic crisis.

Currently, Honda reports Scope 3 emissions from transportation and distribution of products sold. Under a new Environmental Vision set in 2011, they will try to reduce their CO2 emissions throughout their product life cycles enhancing their activities outside of Honda Group.

The diagrams are all cited from Honda's webpage:
<http://world.honda.com/environment/index.html>





► Transparency Platform (5)

How a Transparency Platform would help to solve the data jungle issue?

As we can see, there is a need for optimized international cooperation and networks to share information.

There are rising expectations from customers and regulators to disclose ever more business details, also carbon information. A data infrastructure like a transparency platform could decrease (future) costs, create foundations for future KPIs and value creation networks.

Here are some ideas and concepts that we would like to float.

Rationale: why do we need a “new“ carbon platform?

- Along the value chain, there is already far more information available today than is being used by the different stakeholders.
- The disclosure formats currently most widely used commonly – e.g. annual reports, sustainability reports and questionnaires – involve significant costs of information provision, are not widely adopted by SMEs or non-business organizations and can be challenging to access for non-expert stakeholders.
- A common platform would underline the fact that carbon data disclosure and transparency is not an end in itself but serve the purpose of better informed decisions.

Therefore there is a need to make specialist information available to a broad range of stakeholders using an approach that is both efficient for the organization disclosing information as well as the party wanting to obtain and use the information.

Strategic Intent: open for all interested stakeholders

- A central information platform for carbon data to be open for all interested stakeholders as a first point of reference for disclosing or obtaining carbon information – thus facilitating the access to and transparency of carbon information.





► Transparency Platform (5)

How a Transparency Platform would help to solve the data jungle issue?

- Based on very general principles organizations could either provide an overview of the information already available, e.g. in their annual and sustainability reports as well as on their websites, or, if such information is not yet available, provide a summary of their activities.
- The platform is meant to provide an overview of an organization's approach to carbon issues and serves as a link to more specific information and a starting point for concrete dialogue or engagement between two parties.
- The platform should enable decisions to be based on an organizations overall approach to carbon information and positioning, for example in pre-selection suppliers or other partners. Scope: who should be included?
- The platform should be accessible to and relevant for any organization (SMEs as well as large companies, NGOs as well as public authorities or institutions) worldwide or members of WBCSD.
- The information disclosed by these organizations should be accessible and relevant for a breath of stakeholder as a first point of reference, in particular for NGOs, financial analysts, consumer organizations, trade and industry customers, project partners and donors.
- As the disclosure will be based on general principles it should be manageable for a broad range of organizations and accessible for a wide variety of interested stakeholders – not just experts.





► Transparency Platform (5)

How a Transparency Platform would help to solve the data jungle issue?

Costs: financial implications

- As a platform should be both voluntary and “market driven” – in the sense of information being requested and used – there should be no additional costs for the parties involved.
- It would not generate new information needs but channel information needs and enable the efficient provision of information.
- It would increase the carbon transparency on the actors involved and the information provided and reduce complexity and thus costs for all sides.
- The operation of the platform would require some resources, but due to the collective and standardized action this should be a fraction of the costs resulting from individual actions

Partners

A multiple stakeholder platform must be a common effort. Stakeholders using the same platform as starting point will create incentives for disclosure by entities and in turn make the platform more attractive starting point for information users.

The platforms would be open to all entities. But it would be good if the platform had some initial supporter, e.g. selected companies (members of WBCSD) which use scope 3 as pilot, WBCSD itself, governmental institutions (e.g. UN) or existing data platforms like Bloomberg or the Carbon Disclosure Project.

This project is the outcome of one of the WBCSD Future Leaders Team group projects as part of their learning journey. It does not represent a policy or a position of the organization. The Roadmap is not promoting nor validating any particular approaches or tools.

