

Comparative Analysis of Local GHG Inventory Tools for Cities

IETA side event

“GHG inventory of the cities and how that can
be used as an input for carbon finance
activities”

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Presentation of the Institut Veolia Environnement

- The Institut Veolia Environnement is a non-profit organization created in September 2001
- The Institut Veolia Environnement promotes foresight reflection on subjects related to the environment in partnership with universities or research organizations in order to shed light on the important issues for the upcoming decades.

Veolia Environnement

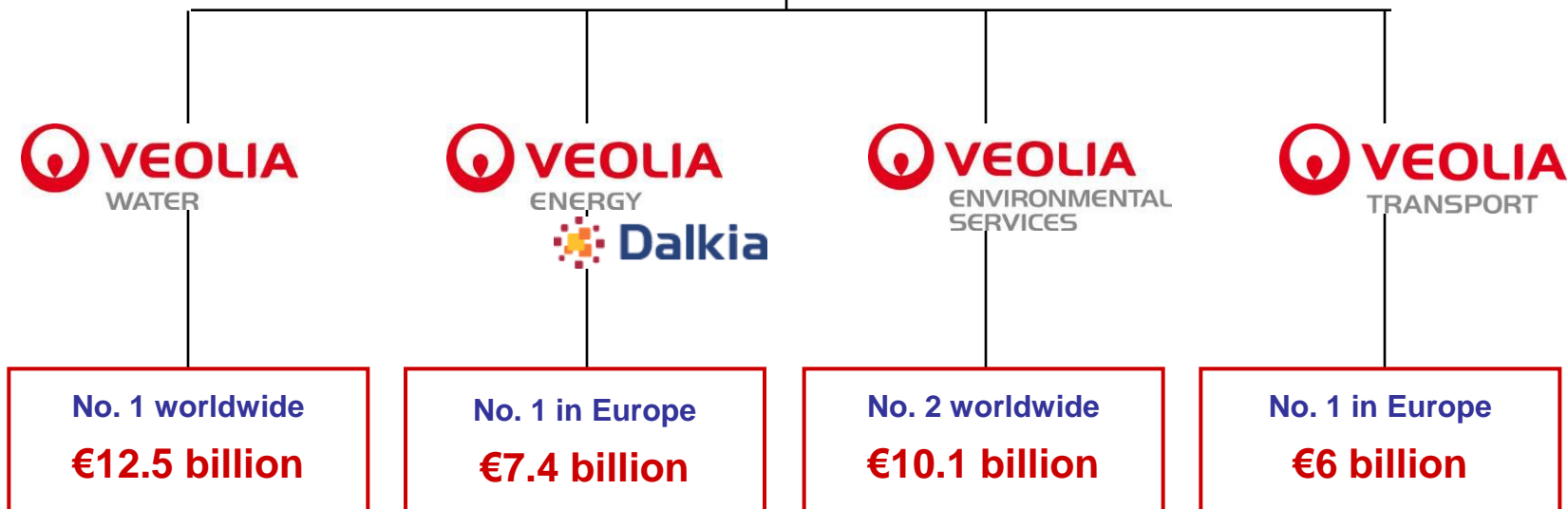


2008 revenue: €36.2 billion

336,013 employees

4 divisions

World leader in environmental solutions

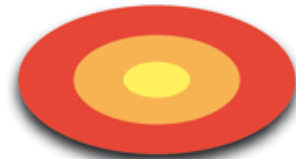


→ The only global company that can provide a full range of environmental solutions in water, energy, waste management and transport.

From measurements to measures



CO2-Grobbilanz



BILAN CARBONE®



energie
agentur
der regionen



Danmarks Miljøportal



And many more...

Key questions

- Do these GHG inventory tools differ?
- If so, does it matter?
- Is it possible to get comparable results?

Key questions

- Do these GHG inventory tools differ?
- **Yes**
- If so, does it matter?
- **Yes**
- Is it possible to get comparable results?
- **Yes, to some extent.**

Tools analysed

- **CO2 Grobbilanz/EMSIG** (Climate Alliance Austria, Energy Agency of the Regions)

CO2-Grobbilanz

- **ECO2Region** (Climate Alliance, Ecospeed)

ECO₂Region

- **GRIP** (Tyndall Centre, UK Environment Agency)

grip for Europe
The Greenhouse Gas Regional Inventory Project

- **Bilan Carbone** (ADEME)



- **CO2 Calculator** (Danish National Environmental Research Institute, Local Government Denmark, COWI)

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- **Project 2 Degrees** (ICLEI, Clinton Climate Initiative, Microsoft)

PROJECT
TWO DEGREES

A Framework for Analysis

- 1. Identification of methodological problems related to GHG accounting
- 2. The specific issues when working with cities
- 3. Comparison of GHG inventory tools and identification of critical variables

A Framework for Analysis

- 1. Identification of methodological problems related to GHG accounting

GHG, sectors, GWP

- 2. The specific issues when working with cities

Territory, Boundaries, Responsibility, Availability

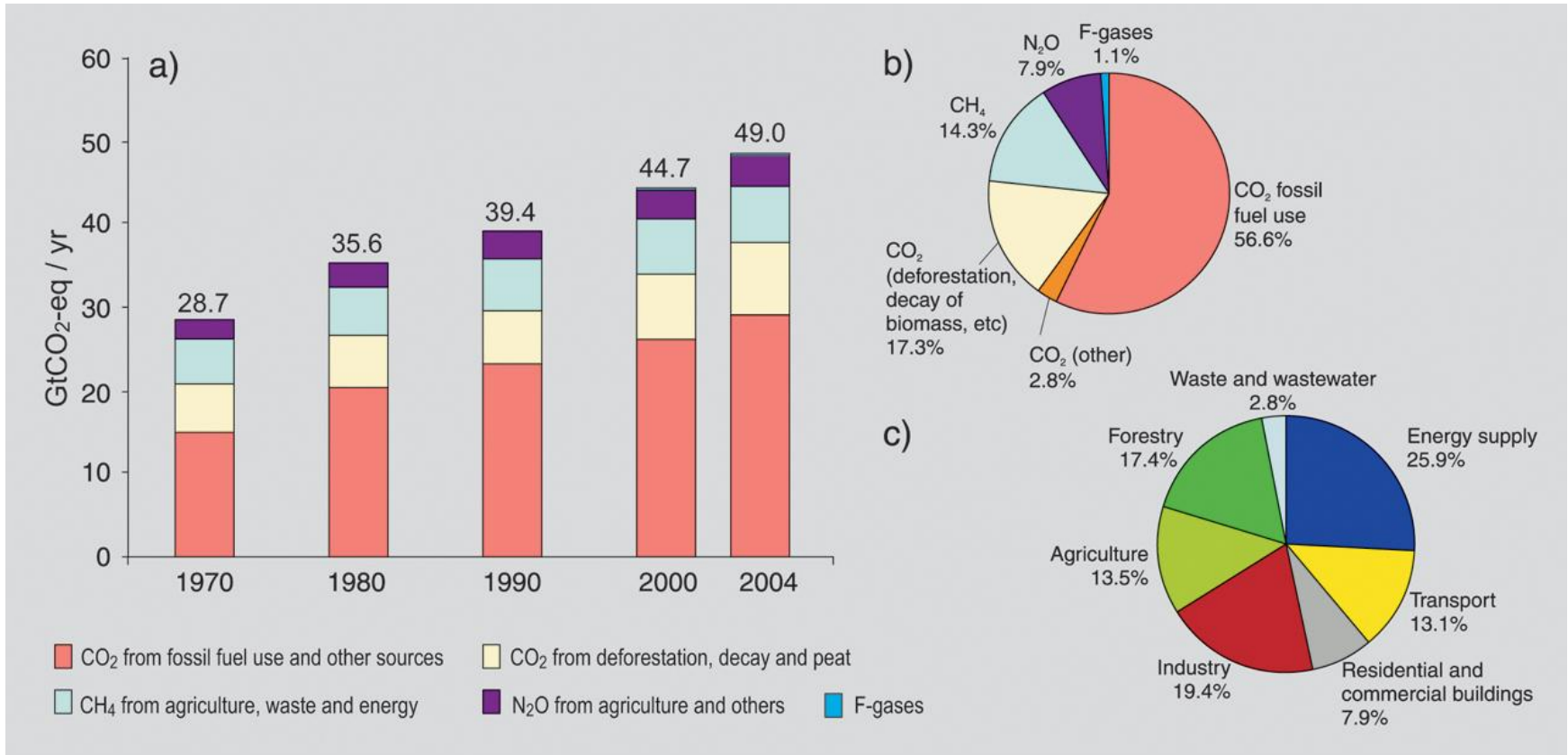
- 3. Comparison of GHG inventory tools and identification of critical variables

Synopsis

What is measured?

Different GHG

Different sectors



What is measured?

- Different GHG are measured
 - The six GHGs of the Kyoto Protocol
 - Carbon dioxide, methane and nitrous oxide
 - Carbon dioxide

	Carbon dioxide	Methane	Nitrous oxide	Sulphur Hexafluoride	Hydrofluorocarbons	Perfluorocarbons	Other GHGs
CO2 Grobbilanz	X	X	X				
Eco2-Region	X	(X)	(X)	(X)	(X)	(X)	
GRIP	X	X	X	X	X	X	
Bilan Carbone	X	X	X	X	X	X	X
CO2 Calculator	X	X	X				
Project 2 Degrees	X	X	X	X	X	X	

How are GHG measured?

Different Global Warming Potential values are used

	Second Assessment Report (1995)	Third Assessment Report (2001)	Fourth Assessment Report (2007)
CO2 Grobbilanz		X	
Eco2-Region	X		
GRIP	X		
Bilan Carbone		X	
CO2 Calculator		X	
Project 2 Degrees	X	(X)	(X)

Whose emissions are measured?

Issue 1: Activity boundaries:

- the activities of the public authority or
- all the activities of the city?

Issue 2: Territory boundaries:

- administrative boundaries of the city or
- greater agglomeration of the city?

Data availability (No municipal data in Greece)

What is measured?

- **Point of use:** In general local GHG inventories are based on the territory principle: the GHG are allocated to the territory where they were emitted.
- **Point of generation:** In some cases, GHG that are emitted outside the territory are also included in the inventory because the activity principle is applied (e.g. emissions of electricity produced outside of the territory).

What is measured for electricity emissions?

- Different scopes of measurement
- The allocation of electricity emissions illustrates how the scope of the measurement differs

	Point of use	Point of generation
CO2 Grobbilanz	X	
ECO2Region	(X)	(X)
GRIP	X	
Bilan Carbone	X	X
CO2 Calculator		X
Project 2 Degrees	X	X

Consistency with international standards

	GHG Protocol	ISO	ICLEI	IPCC
CO2 Grobbilanz				
ECO2Region	(X) a	(X) a		(X) a
GRIP				(X) b
Bilan Carbone		X		
CO2 Calculator				X
Project 2 Degrees	X	X	X	(X) c

- a) The inventories following the recommendations of the Climate Alliance are not consistent with the IPCC guidelines. However, the Eco2-Region tool allows also for the compilation of inventories that are consistent with the IPCC guidelines.
- b) GRIP inventories allocate electricity to the point of use and not the point of generation. Otherwise they are consistent with the IPCC guidelines.
- c) Project 2 Degrees states that the inventory is consistent with the IPCC. However, it is not clear whether some adjustment for the local level (and if so in which fields) have been made.

Lack of a common reporting standard

- Different standards in use
- no standard seems to be widely accepted
- Tools are not always consistent with IPCC guidelines:
 1. Transparency
 2. Completeness
 3. Consistency
 4. Comparability
 5. Accuracy

Results Synopsis

Variable	Range of variation
GHG measured	Only CO ₂ ⇔ all GHGs
Global warming potential values	2 nd IPCC AR ⇔ 4 th IPCC AR
Setting organizational boundaries	only operations controlled by the public authority ⇔ all activities of the city
Scope of measurement	only direct emissions ⇔ direct, indirect and life cycle emissions
Sector definitions	Highly variable: e.g. transport
Quantifying emissions	Default emission factors ⇔ regional/local emission factors

Results Synopsis

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T	GHG measured	Only CO ₂ ⇔ all GHGs
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Aiming at Interoperability:

- Objectives:
 - ensuring interoperability of methodologies to allow cities to gauge their policies;
 - facilitate an effective action-driven decision-making process
- The options:
 - Enabling communication between existing tools
 - development of an international standard
 - adoption of a unique tool

- The study can be downloaded here:
- http://www.institut.veolia.org/ive/ressources/documents/2/491_Final-report-Comparative-Analysis-of.pdf

Credits

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Thank you for your attention

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