

Existing Methodologies and Tools for the Development and Implementation of Sustainable Energy Action Plans (SEAP)

Methodologies and tools for CO₂ inventories in cities: Summary and signposting tables

SUMMARY OF EXISTING METHODOLOGIES ¹

Table 1 below summarizes the approach, boundaries, sectors, compounds and scopes of the different methodologies, for the purpose of the assessment of their suitability to the compilation of a Baseline Emission Inventory under Covenant of Mayors.

The following issues are summarized in Table 1:

- Approach: territorial or LCA.
- Boundaries: geographical, organizational/operational, project
- Sectors: energy, transportation, industrial processes, agriculture, land use, land use change and forestry (LULUCF) and waste
- Compounds: CO₂, CH₄, N₂O, f-gases (HFCs, PFCs, SF₆)
- Scopes: scope 1 (emissions within a municipality), scope 2 (indirect emissions due to production of electricity, heat/cooling/steam used in the municipality), scope 3 (all other indirect emissions)

Table 1. Summary of existing methodologies

Label	Approach		Boundaries			Sectors						GHGs				Scope		
	Territorial	LCA	Geographical	Organizational/ Operational	Project	Energy	Transportation	Industrial processes	Agriculture	LULUCF	Waste	CO ₂	CH ₄	N ₂ O	f- gases	1	2	3
A	X	X*	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
B	X	X*	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
C	X	X		X		X	X	X	X		X	X	X	X	X	X	X	X
D	X				X	X	X	X	X		X	X	X	X	X	X	X	
E	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
F	X				X				X	X	X	X	X	X		X		
G	X		X			X	X	X	X		X	X	X	X	X	X	X	X**
H	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
I	X		X			X	X					X				X	X	

*LCA only in scope 3

**scope 3 only regarding waste disposal outside the geographical area

Explanation of labels

- Emission tracker tool (Project 2 degree, Clinton Climate Initiative)
- International Local Government GHG emission Analysis Protocol
- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI/WBCSD)
- The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting (WRI/WBCSD)
- ADEME tools: Bilan carbone
- California Climate Action Registry Project Protocols
- GRIP tool
- ECORegion
- Local and regional CO₂ emissions estimates for 2005-2006 for 2005-2006 for the UK

¹ The present document is an extract of the full report, available on the JRC website.

http://re.jrc.ec.europa.eu/energyefficiency/pdf/CoM/Methodologies_and_tools_for_the_development_of_SEAP.pdf

SIGNPOSTING OF EXISTING METHODOLOGIES

The purpose of the signposting system is to offer an overview of the existing methodologies, in order to allow the cities to identify the most appropriate ones considering their particular context.

The existing methodologies are signposted according to their suitability for compilation of Baseline Emission Inventories under Covenant of Mayors. Each of the methodologies is evaluated against the signposting criteria, and is given one of the following marks:

- YES – method in agreement with and can be used for Baseline Emission Inventory
- PARTLY – the method is partly in agreement with specifications of Baseline Emission Inventory and can in certain circumstances be used for that purpose
- NO – method is not in agreement with specifications of Baseline Emission Inventory

The criteria used for signposting of existing methodologies are:

1. Tool – YES if a tool is available, NO if only description of methodology
2. Geographical boundaries
3. CO₂ emissions included
4. Scope for transportation
5. Methodology for transportation
6. Scope for energy sector (production and consumption of electricity, heat/cold, and other energy carriers)
7. Methodology for energy sector (e.g. electricity emission factor)

Table 2. Signposting of the existing methodologies

	Tool	Geographical boundaries	CO ₂	Scope for transportation	Methodology for transportation	Scope for energy sector	Methodology for energy sector
A	YES	YES	YES	YES	YES	PARTLY	PARTLY
B	YES	YES	YES	YES	YES	PARTLY	PARTLY
C	YES	NO	YES	NO	PARTLY	NO	PARTLY
D	NO	NO	YES	NO	PARTLY	NO	PARTLY
E*	YES	YES	YES	NO	PARTLY	PARTLY	PARTLY
F	YES	NO	YES	NO	NO	NO	NO
G	YES	YES	YES	YES	YES	PARTLY	PARTLY
H*	YES	YES	YES	YES	PARTLY	PARTLY	PARTLY
I	NO	YES	YES	YES	PARTLY	PARTLY	PARTLY

*The tool developers plan to modify the tool in a manner that it is fully in line with the Covenant of Mayors inventories in 2010

- A. Emission tracker tool (Project 2 degree, Clinton Climate Initiative)
- B. International Local Government GHG emission Analysis Protocol
- C. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard
- D. The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting
- E. ADEME tools: Bilan carbone
- F. California Climate Action Registry Project Protocols
- G. GRIP tool
- H. ECORegion
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As presented in the table, most of the methodologies are accompanied with a tool, and are thus practical for the users². Furthermore, most of the tools would be suitable for compilation of the *Baseline Emission Inventory* from the point of view of boundaries, and all regarding inclusion of CO₂ emissions. Several tools are also suitable for the estimation of emissions from transportation in the *Baseline Emission Inventory*.

The methods used to estimate emissions from use and production of electricity, heat/cold and other energy carriers varies. Some of the methods do not include these emissions based on geopolitical boundary; some include only fuel combusted inside the geopolitical boundary, but not indirect emissions occurring due to production of electricity or heat outside the territory; and some include fuel combusted in the territory as Scope 1 emissions and electricity and heat used in the city as Scope 2 emissions, in which case summing up the two would lead to double counting.

As a conclusion, it appears that some tools are closer than others to the rules and principles set out in the context of the Covenant of Mayors³. However, there is no intention to impose or restrict the usage of any specific tool. Therefore, any of the tools presented here (and also other existing tools that are deemed to be suitable) may be used for compilation of the Baseline Emission Inventory. However, local authorities are recommended to ensure that the results of the Baseline Emission Inventory compiled using such tools are in line with the specifications given in the SEAP template, related instructions and the SEAP guidelines.

² A detailed analysis of the practicability for users was not carried out.

³ The developers of ADEME and ECORegion are planning to modify the tools so that they will be in line with Covenant of Mayors inventories in 2010.