Quality requirements of LCA in policy

Antonio Valente, Fulvio Ardente, Simone Fazio, Esther Sanye Mengual, Luca Zampori, Serenella Sala

77th Discussion Forum on Life Cycle Assessment - Quality Control in LCA
21 April 2021

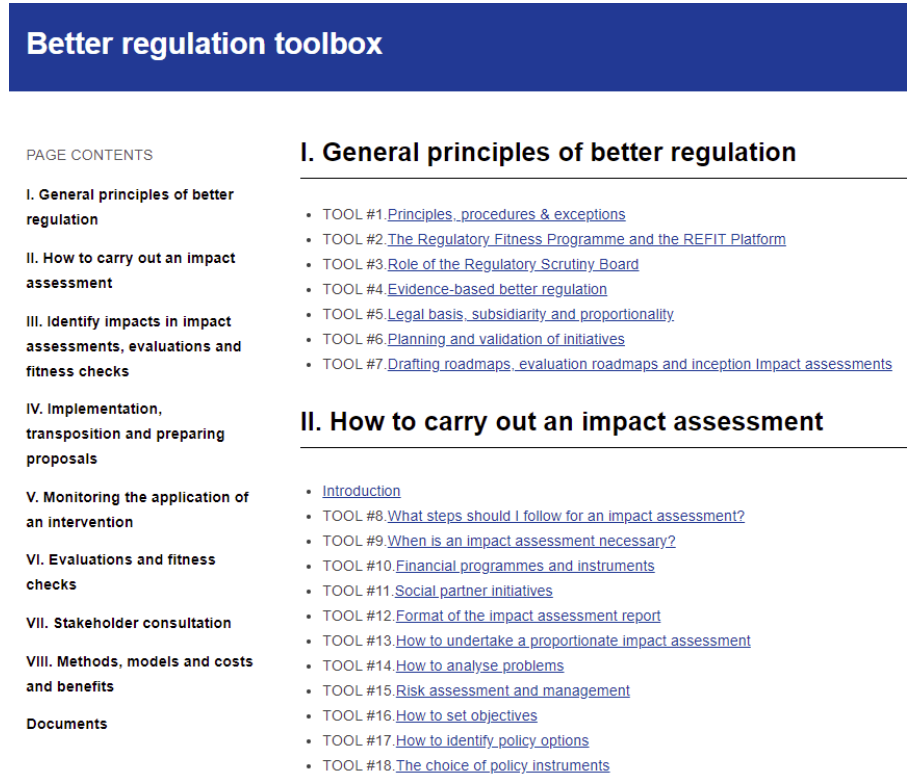
Contents

1. LCA in policies
2. Product level vs system level
3. Quality at the inventory level
4. Quality at the impact assessment level
5. Quality at the LCI and LCIA interface
6. Conclusions

Better Regulation Agenda

Design and evaluate EU policies:

- ✓ transparently
- ✓ comprehensively with respect to SDGs
- ✓ based on scientific evidence
- ✓ unveiling synergies and trade-offs and avoiding burden shifting
- ✓ considering all different steps of the policy cycle.



Better regulation toolbox

PAGE CONTENTS

I. General principles of better regulation

II. How to carry out an impact assessment

III. Identify impacts in impact assessments, evaluations and fitness checks

IV. Implementation, transposition and preparing proposals

V. Monitoring the application of an intervention

VI. Evaluations and fitness checks

VII. Stakeholder consultation

VIII. Methods, models and costs and benefits

Documents

I. General principles of better regulation

- TOOL #1.Principles, procedures & exceptions
- TOOL #2.The Regulatory Fitness Programme and the REFIT Platform
- TOOL #3.Role of the Regulatory Scrutiny Board
- TOOL #4.Evidence-based better regulation
- TOOL #5.Legal basis, subsidiarity and proportionality
- TOOL #6.Planning and validation of initiatives
- TOOL #7.Drafting roadmaps, evaluation roadmaps and inception Impact assessments

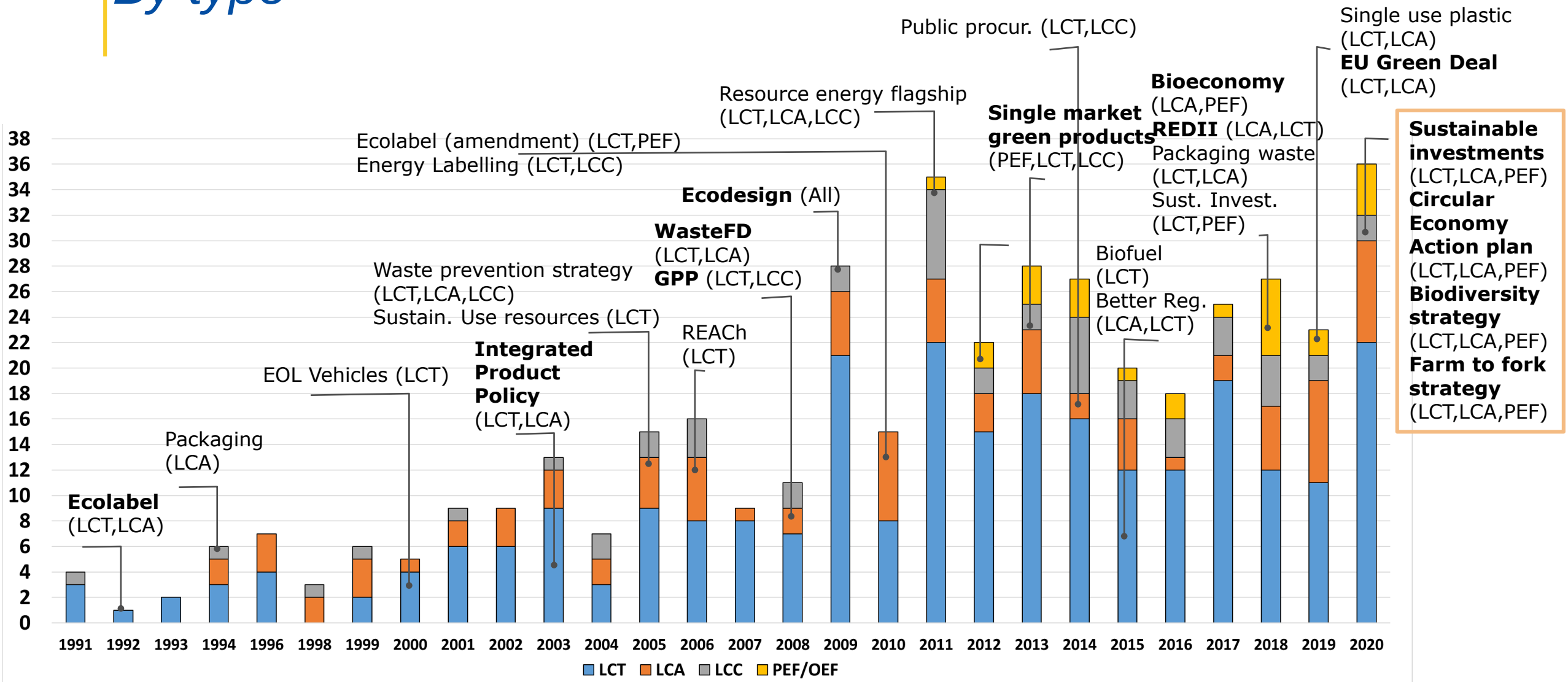
II. How to carry out an impact assessment

- Introduction
- TOOL #8.What steps should I follow for an impact assessment?
- TOOL #9.When is an impact assessment necessary?
- TOOL #10.Financial programmes and instruments
- TOOL #11.Social partner initiatives
- TOOL #12.Format of the impact assessment report
- TOOL #13.How to undertake a proportionate impact assessment
- TOOL #14.How to analyse problems
- TOOL #15.Risk assessment and management
- TOOL #16.How to set objectives
- TOOL #17.How to identify policy options
- TOOL #18.The choice of policy instruments

Better regulation Toolbox to evaluate policy options:
https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en

European Commission

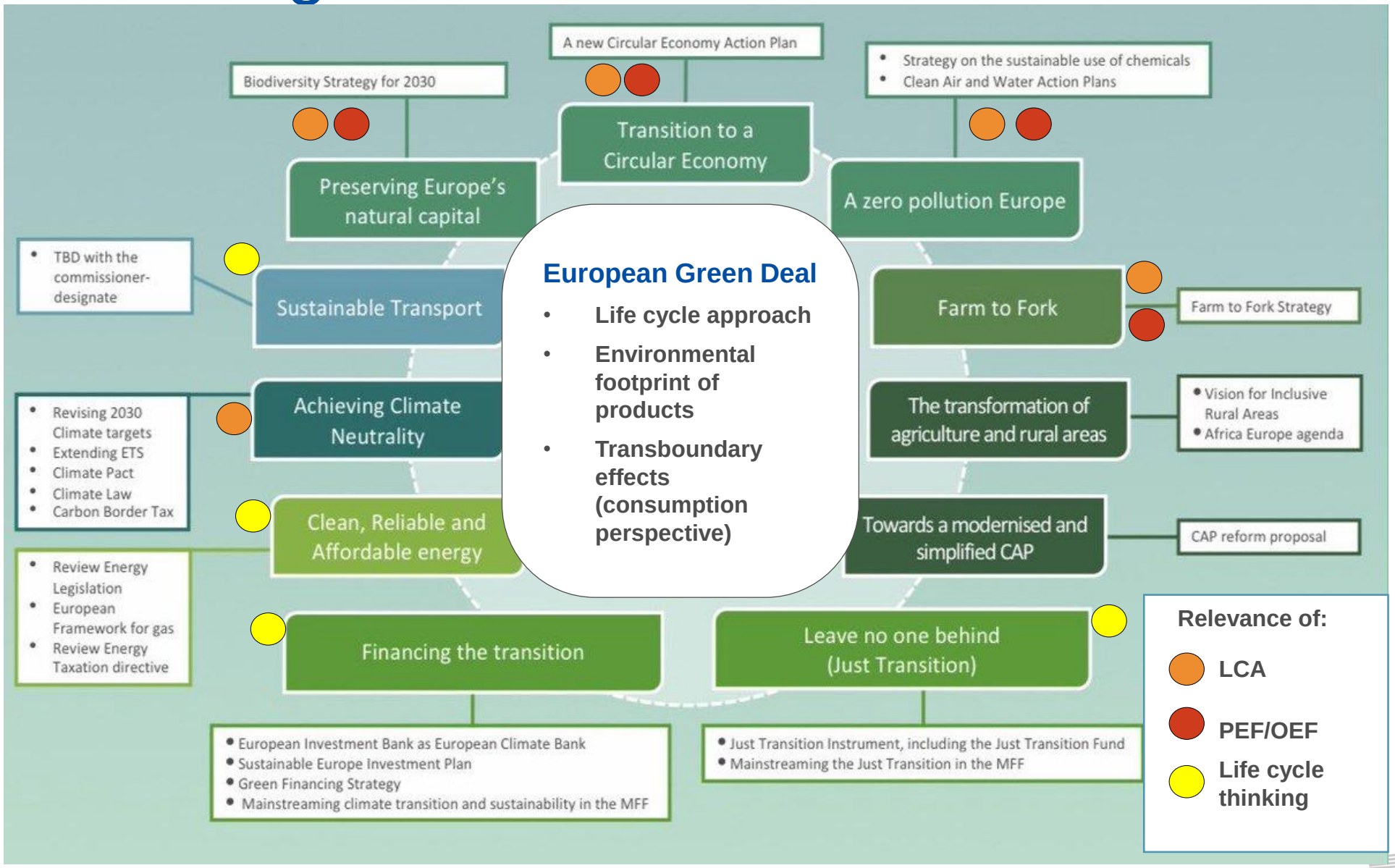
Evolution of LCT/LCA/LCC/PEF in the EU policies
By type



Sala, S., Amadei, A., Beylot, A. and Ardente, F., (2021) The evolution of Life Cycle Assessment in European policies over three decades International Journal of Life Cycle Assessment. https://doi.org/10.1007/s11367-021-01893-2

European Commission

The EU green deal, LCA and PEF/OEF



https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

Product vs system level

PRODUCT/ORGANISATION LEVEL

comparison of the environmental profile of PRODUCTS and organisations

Product and organisation environmental footprint: evolution and methodological details

Green claims initiative

SYSTEM LEVEL

Production and consumption SYSTEM analysis

Overall environmental footprint of production and consumption systems

e.g. for the food system or consumption footprint in the monitoring of circular economy

Environmental footprint

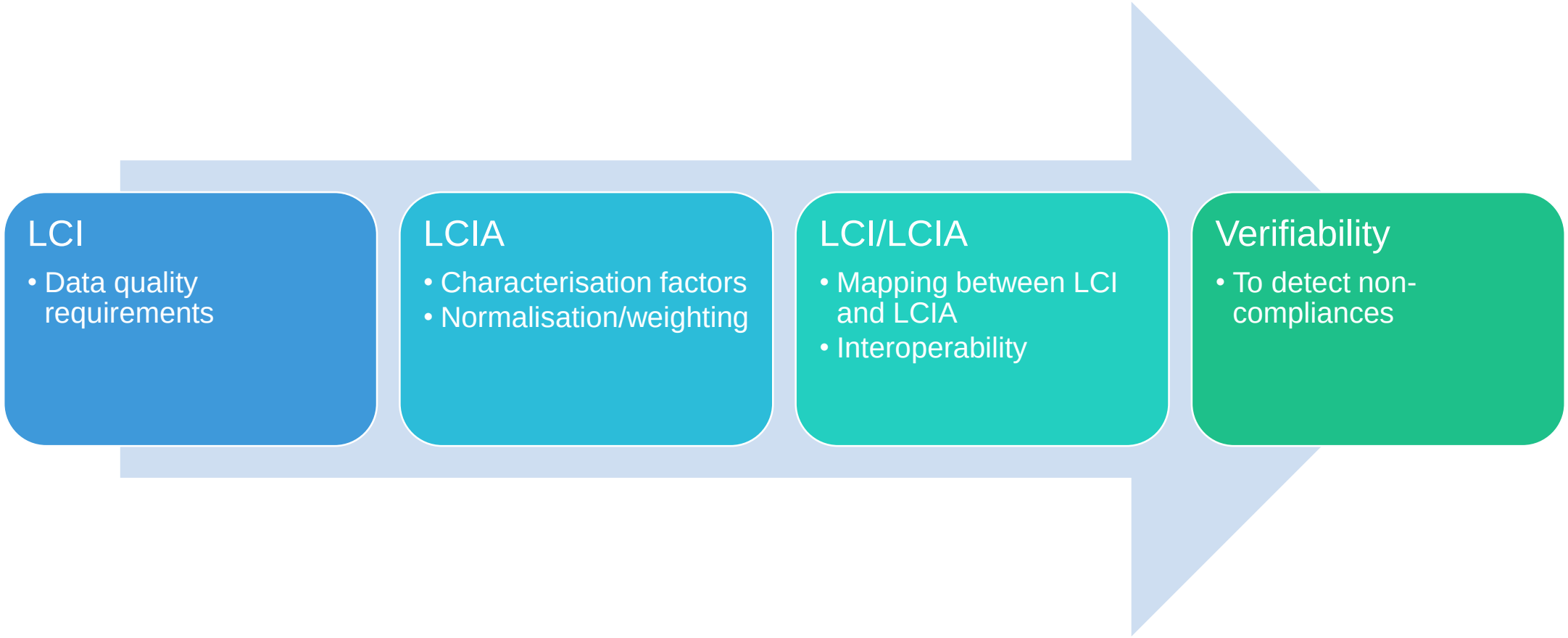
https://eplca.jrc.ec.europa.eu/EnvironmentalFootprint.html

Consumption footprint

https://eplca.jrc.ec.europa.eu/sustainableConsumption.html

European Commission

Data quality issues in LCA for policies



Inventory level

PEF/OEF as a prescriptive system for aspects including

- **Data Quality Rating**

  Four quality criteria
  - Technological representativeness (TeR)
  - Geographical representativeness (GeR)
  - Time-related representativeness (TiR)
  - Precision (P)

Data Quality Rating of Data Quality Criteria (TeR, GeR, TiR, P)	Data Quality Level
1	Excellent
2	Very Good
3	Good
4	Fair
5	Poor

- **Minimum requirements** (Completness, Methodological appropriateness and consistency)
- **Documentation** (ILCD format-compliant)
- **Nomenclature and format** (ILCD-compliant)
- **Review** (by "Qualified reviewer"; Separate review report)

European Commission

Data Working Group

Main goal: to enhance the communication and the interaction between data providers and LCA software developers for:

- EF reference package (items that are considered as a reference for the EF framework)
- Generation of data within the EF framework

DWG Milestones:

a) Define a procedure and timeline for the update and release of EF reference packages (finalised)

b) Fine tune the current EF reference package (ongoing)

c) Exchange of models across software (finalised)

d) Define a set of minimum requirements to be fulfilled by a software to be “EF ready” (finalised)

e) Agree on an improved review procedure and data quality rating system (ongoing)

f) Information exchange beyond the format (finalised)

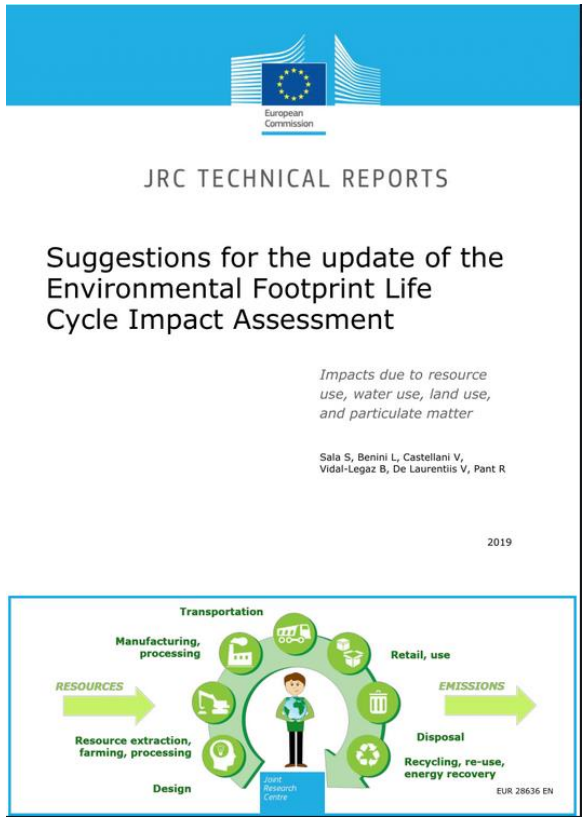
European Commission

Impact assessment level

LCI	LCIA	LCI/LCIA
• Data quality requirements	• Characterisation factors • Normalisation/weighting	• Mapping between LCI and LCIA • interoperability

Data quality is fundamental for LCIA as well

- **For characterisation:**
  - Main challenges are both in the robustness of characterisation models **and** in the input data to calculate characterization factors
- **For normalisation:**
  - Coverage of statistical and modelled data compared to LCI inventories
  - Consistency between characterisation and normalisation



European Commission

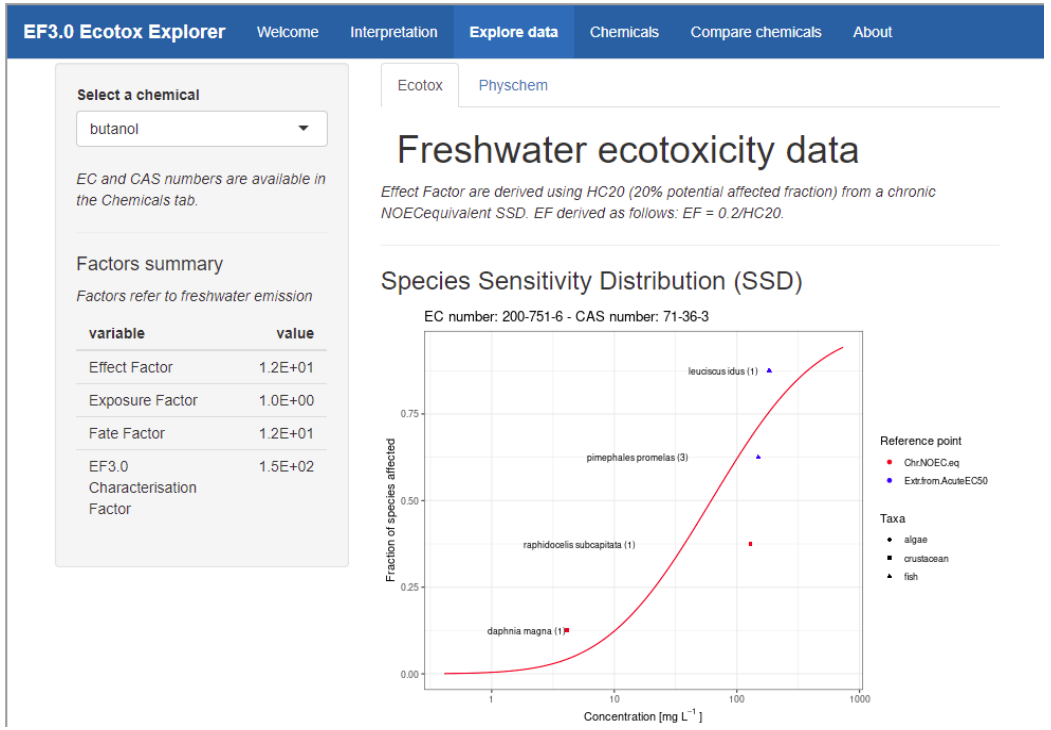
Ecotoxicity explorer

LCI	LCIA	LCI/LCIA
• Data quality requirements	• Characterisation factors • Normalisation/weighting	• Mapping between LCI and LCIA • interoperability

- To support EF3.0 users and to allow them accessing data and understand better CFs for ecotoxicity, a data exploring app (EF3.0 Ecotox Explorer) is available.

Environmental Footprint: Update of Life Cycle Impact Assessment Methods – Ecotoxicity freshwater, human toxicity cancer, and non-cancer

Saouter E, Biganzoli F, Ceriani L, Versteeg D, Crenna E, Zampori L, Sala S, Pant R



https://eplca.jrc.ec.europa.eu/ecotoxProject.html

European Commission

Mapping issues between LCI and LCIA

Main problems in mapping:

- 1) **In LCI/LCIA connection**: LCIA methods developers are often independent from data providers, and the nomenclature systems (compartments, subcompartment, flow names, regionalization) are not always 100% consistent. The quality of the assessment provided also depends on the quality of this match.

- 2) **Characterization under different nomenclature systems :** differences in nomenclature systems leads to deviation of results when characterizing the same LCI.

- 3) ongoing effort on **interoperabililty** at global level

Verifiability of results as key

- Application of LCA can occur in voluntary policies (e.g. claims and labels) and mandatory policies (e.g. mandatory communications, maximum thresholds).
- Verifiability of results is therefore key for application of LCA to policies, to allow checking and detecting potential non-compliances (even allowing to undertake legal penalties).
- Verifiability implies therefore to have unambiguous rules (e.g. Product Environmental Footprint categories rules), limiting possible freedom for interpretation.
- Verification should imply both documental and on-site audits, to be potentially conducted even along the value chain

Conclusions

- EU Commission priorities, e.g. the Green Deal, **aims to develop into the so-called evidence-based policies** and LCA is playing a pivotal role, both at product and macro scale.
- Data quality issues central to ensure robustness and reproducibility:
  - Inventory
  - Impact assessment
  - LCI/LCIA interface

Thank you

Antonio.valente@ec.europa.eu

European Commission