



REMEDIES

MEDITERRANEAN SEA BASIN LIGHTHOUSE

FACTSHEET USER GUIDE & METHODOLOGY MANUAL

A guide on how to read REMEDIES
environmental and economic performance
factsheets

Master guide for Life Cycle Assessment (LCA), Life
Cycle Costing (LCC), and Product Environmental
Footprint (PEF) interpretation.

www.remedies-for-ocean.eu



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USER GUIDE RATIONAL

ABOUT THE REMEDIES FACTSHEETS

These factsheets present the environmental and economic performance of innovative technologies and circular solutions developed within the REMEDIES project to tackle plastic and microplastic pollution across the Mediterranean Sea basin. The objective is to evaluate not only technical efficacy, but also resource intensity, environmental burden distribution, and economic competitiveness compared to conventional practices.

WHO CONDUCTED THE ASSESSMENTS?

All evaluations were conducted by the University of Maribor under Work Package 4 (Sustainability assessment and optimisation of implemented measures), applying internationally recognised Life Cycle Assessment (LCA) and Life Cycle Costing (LCC) methodologies in compliance with ISO 14040/14044 standards.

WHAT THE FRAMEWORKS COVER?

TECHNICAL
EFFICACY

RESOURCE
INTENSITY

ENVIRONMENTAL
BURDENS

ECONOMIC
COMPETITIVENESS

A COMPLETE LIFE-CYCLE VIEW

Rather than evaluating only the operational phase of a solution, these frameworks assess the complete life cycle - from raw material extraction, through manufacturing and active deployment, to end-of-life recycling or disposal.



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ASSESSMENT FRAMEWORKS

The factsheets incorporate two distinct types of evaluations depending on the nature and maturity of the solution:

A

ENVIRONMENTAL HOTSPOT ASSESSMENT

A hotspot assessment evaluates a single technology across its full life cycle to identify where the largest environmental burdens occur. The result pinpoints engineering improvement areas for future technology iterations and scale-up.

KEY QUESTIONS

- Which life-cycle stage contributes most to the environmental footprint?
- Are impacts mainly driven by materials or energy consumption?
- Which components should be improved in future versions?

B

COMPARATIVE ASSESSMENT

A comparative assessment benchmarks a REMEDIES solution directly against a conventional market alternative that performs the same functional service. It quantifies the environmental and economic benefits of replacing linear practices with REMEDIES innovations.

KEY QUESTIONS

- Does the REMEDIES solution reduce environmental impacts?
- Does it deliver operational or whole-life savings?
- Which life-cycle stages are responsible for the improvements?

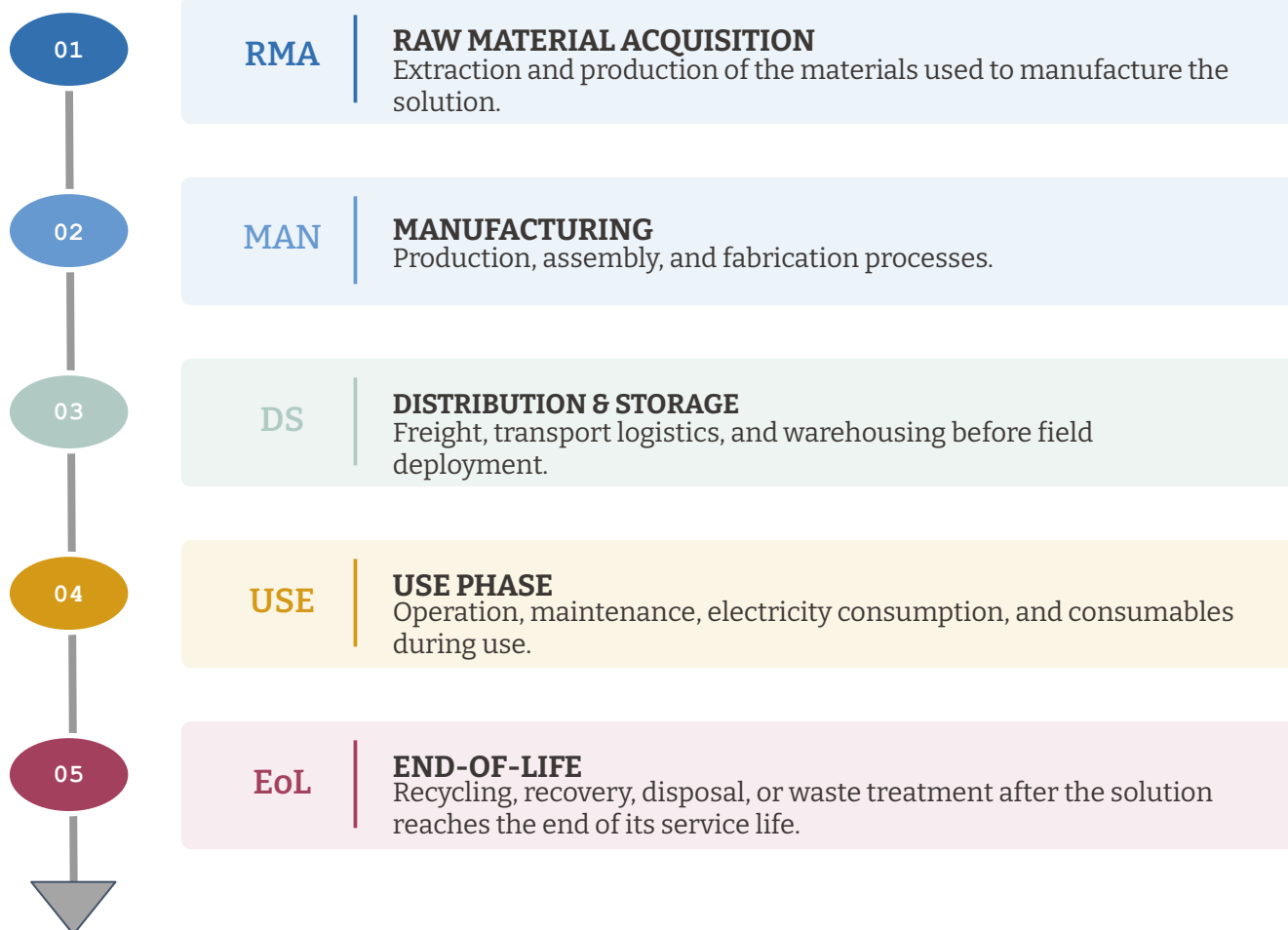


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UNDERSTANDING LIFE-CYCLE STAGES

Both hotspot and comparative assessments organise inputs and outputs across 5 standardised phases.



WHY THIS MATTERS

A life-cycle perspective prevents burden shifting. A solution may perform efficiently during use but still carry significant impacts from materials, manufacturing, transport, or disposal.



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ENVIRONMENTAL IMPACT METRICS

PEF METHODOLOGY

Environmental burdens are calculated using the European Commission's Product Environmental Footprint (PEF) methodology. To maximise accessibility, clarity, and comparability for municipal authorities, policymakers, and private investors, environmental results are expressed in terms of Carbon Footprint.

PRIMARY METRIC

kg CO₂-eq

CARBON FOOTPRINT

Total greenhouse gas emissions across raw materials, manufacturing, operation, and disposal.

LOWER VALUE

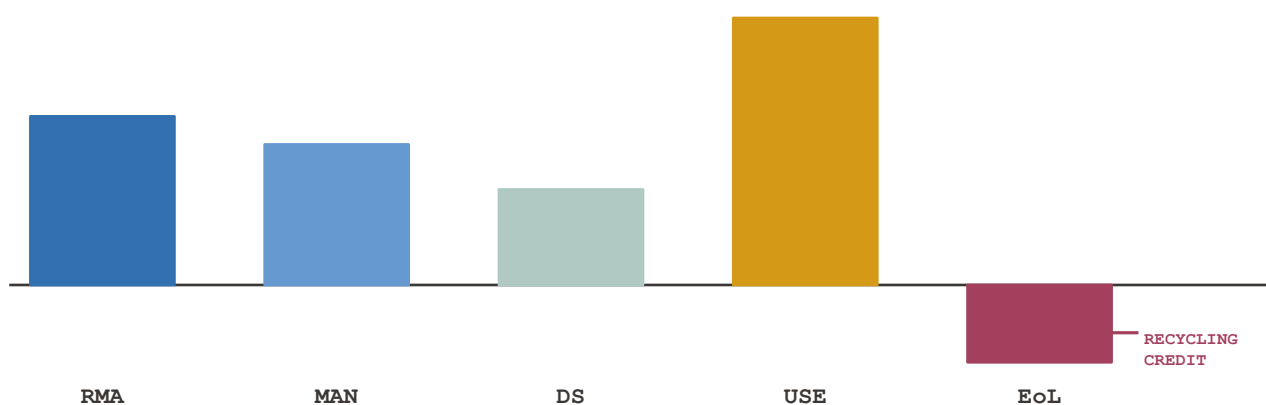
A lower carbon footprint indicates a reduced overall climate burden.

NEGATIVE VALUE

A negative value can reflect net carbon offsets or recycling credits.

ILLUSTRATIVE FOOTPRINT PROFILE

How the total footprint can be distributed across life-cycle stages?



Illustrative example only.

PEF reference: [European Commission - Product Environmental Footprint method](#)



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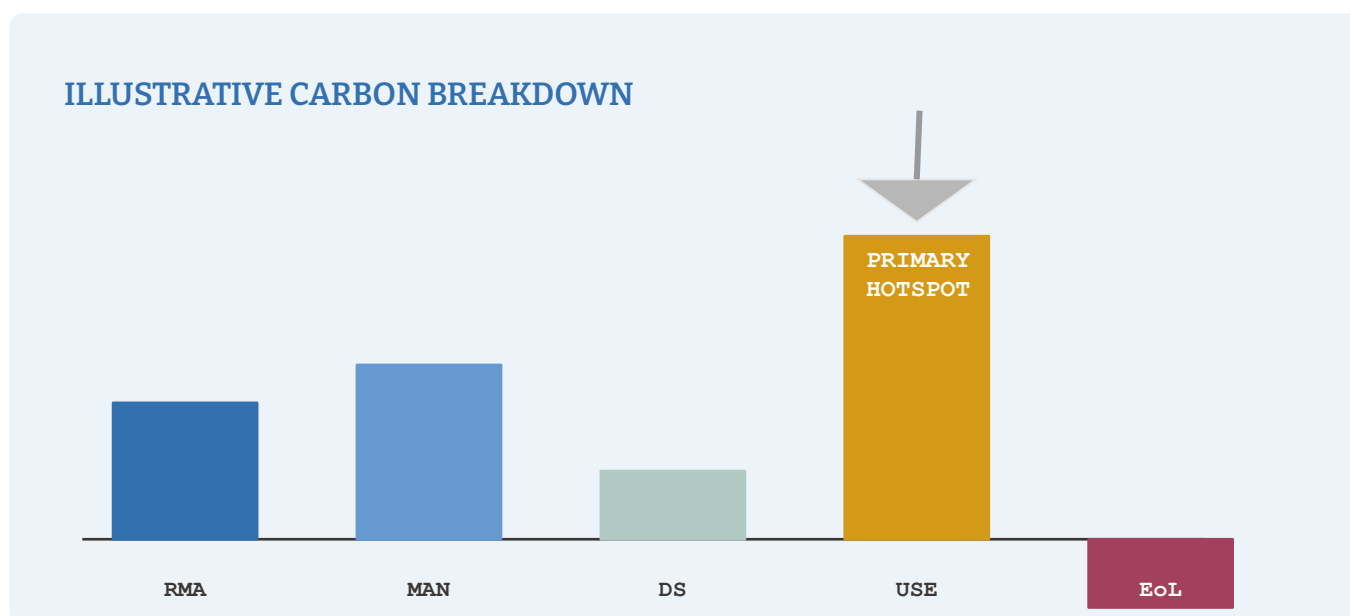
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FACTSHEET VISUALS

WHERE IS THE PRIMARY CARBON HOTSPOT?

Examine the carbon footprint breakdown across all life-cycle stages, from RMA to EoL. The tallest positive bar, in yellow, identifies the stage or process that contributes most to the total greenhouse gas footprint.



Illustrative example only. Actual profiles depend on the solution and functional unit.

TYPICAL PATTERNS

ACTIVE TECHNOLOGIES

For energy-consuming technologies, the USE phase typically dominates because operation, maintenance, electricity, and consumables recur over the service life.

PASSIVE OR STATIC SYSTEMS

For passive barriers or static systems, RMA or MAN often represent the primary drivers because material inputs and fabrication carry most of the burden.



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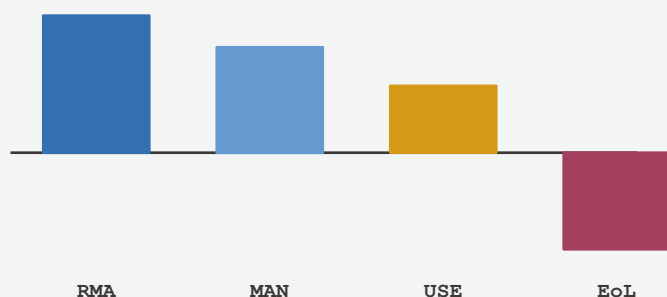
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READ BEYOND THE HEADLINE NUMBER

DOES END-OF-LIFE DELIVER CREDITS OR BURDENS?



Illustrative example only.

Negative values or sub-zero bars in the EoL phase indicate net environmental benefits. This can happen when material recycling, such as stainless steel recovery, offsets emissions associated with primary material production.

DO CARBON REDUCTIONS ALIGN WITH COST SAVINGS?

LCA / CARBON



Illustrative example only.

LCC / COST



Illustrative example only.

Compare the carbon footprint reduction with the accompanying Life Cycle Costing (LCC) chart. This shows whether lower emissions also translate into lower operational cost savings (OpEx), improved capital efficiency, or savings across the full-service life.



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METHODOLOGY AT A GLANCE

Use these 3 questions as a guide when reviewing the REMEDIES factsheet:

1

WHERE IS THE PRIMARY CARBON HOTSPOT?

Identify the life-cycle stage or process with the highest positive contribution.

2

DOES END-OF-LIFE CREATE CREDITS OR BURDENS?

Check whether recycling and recovery offset impacts or add further emissions.

3

DO CARBON REDUCTIONS ALIGN WITH COST SAVINGS?

Read the LCA result together with the LCC chart to understand environmental and financial performance.

For more information check:
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