



*New approaches for the valorisation of URBAN
bulky waste into high added value RECycled
products*

URBANREC Final Conference

6Th November, 2019

WP 4 - SOCIETAL ISSUES, ENVIRONMENTAL, SOCIAL & ECONOMIC
FEASIBILITY

WP Leader: IOŚ-PIB



WP4. SOCIETAL ISSUES, ENVIRONMENTAL, SOCIAL & ECONOMIC FEASIBILITY OBJECTIVES



OBJECTIVES

Environmental, social and economic feasibility evaluation of the global management system considering the four selected areas in URBANREC project and developed products (project demonstrators):

- **Environmental analysis** of bulky waste management systems and of developed demonstrators (LCA)
- **Eco-label** for the demonstrators
- Technology verification according to **ETV** (quick scan, recommendation for verification document)
- **Economic analysis**
- Evaluation of the **social perception**



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ENVIRONMENTAL ANALYSIS

Assessing the potential environmental impacts of products and services implemented during the URBANREC project with the **special focus on the reduction of CO₂ emissions**



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LCA for demonstrators

- FRC chair and storage box (CENTEXBEL)
- WPC box and chair/table legs (IYTE)
- Polyols (RAMPF)
- Adhesives (RESCOLL)
- Foam top layer (EUROSPUMA)
- Needlefelt and corrugated insulation panels (PROCOTEX)
- Mattress (DELAX)
- Methylal (BPP)

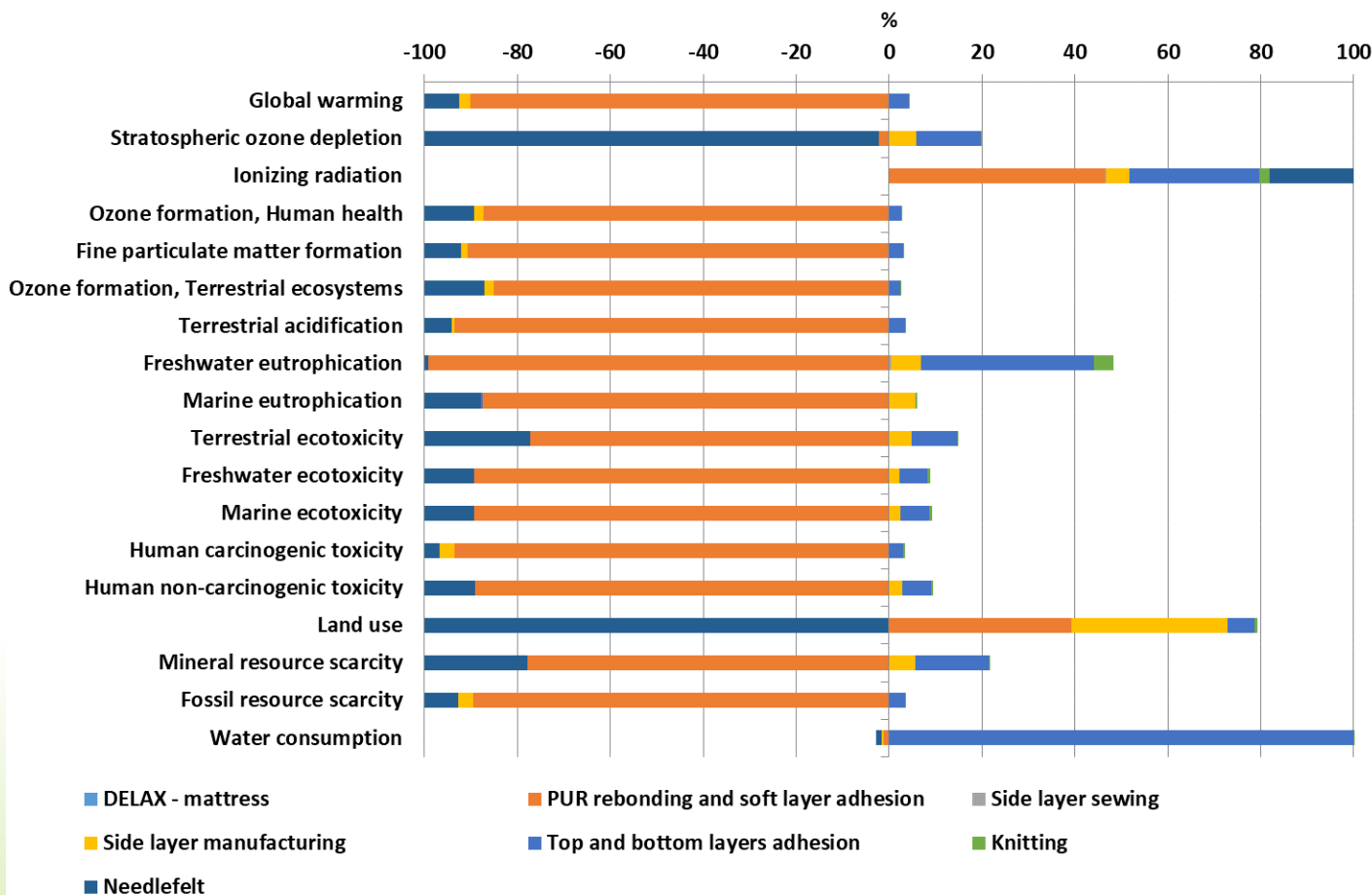




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LCA for mattress produced with materials coming from bulky waste stream



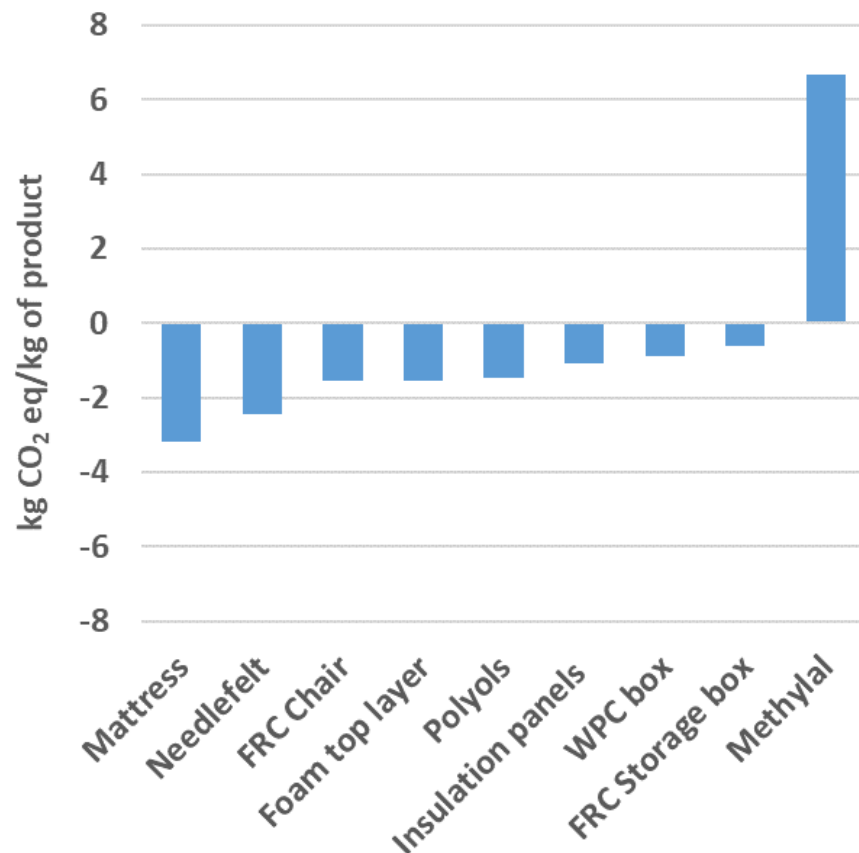


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Environmental performance of demonstrators in „global warming,, category

- environmental benefits for all demonstrators, except one (methylal – the negative impact due to the high energy consumption, pilot plant)
- demonstrators with high amount of material from recycling – higher benefits, except those from technologies with high energy consumption

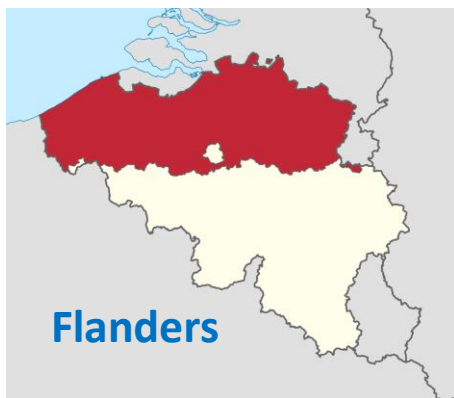




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LCA for waste management system in URBANREC regions



IMOG region





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IMOG

Mixed bulky waste: 1 213 Sorting: 1 213

BORNOVA

VALENCIA

Bulky waste: 7 313

Mixed bulky waste: 6 079

Sorting: 7 313

OVAM

Mixed bulky waste: 151 779
Sorting: 151 779

Incineration with energy recovery: 136 847

Recycling: 4 856

Landfilling: 10 076

Landfilling: 6 157

Landfilling: 10 776

Mattresses: 78

Wood: 919

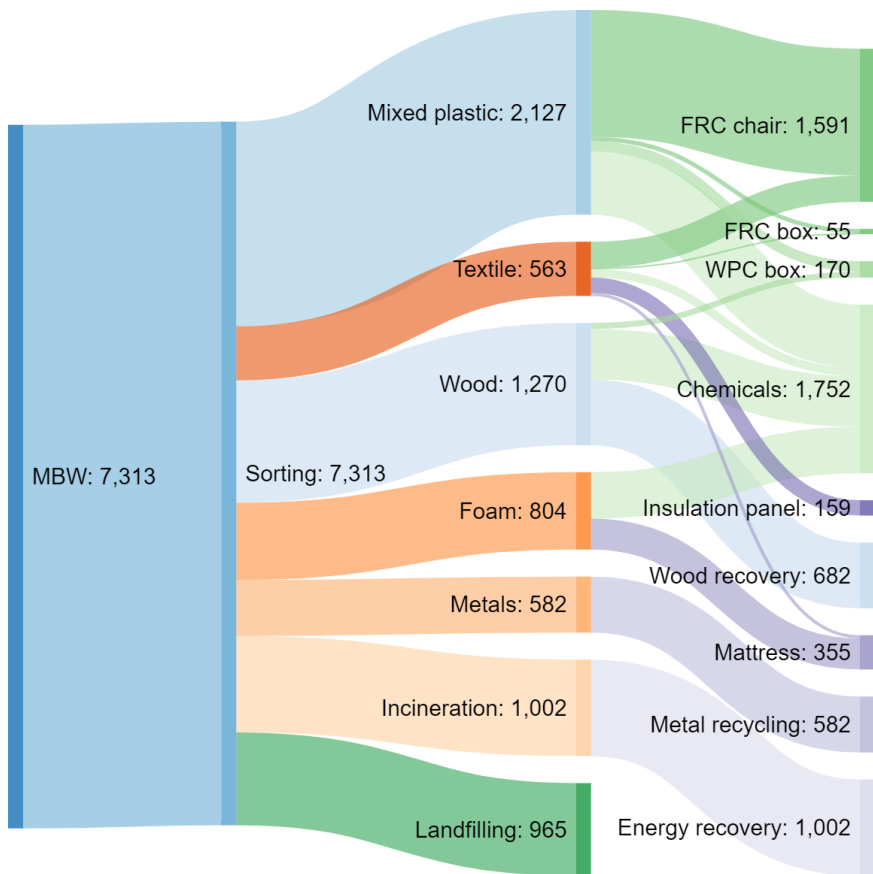
Metals: 237

Recycling: 1 156

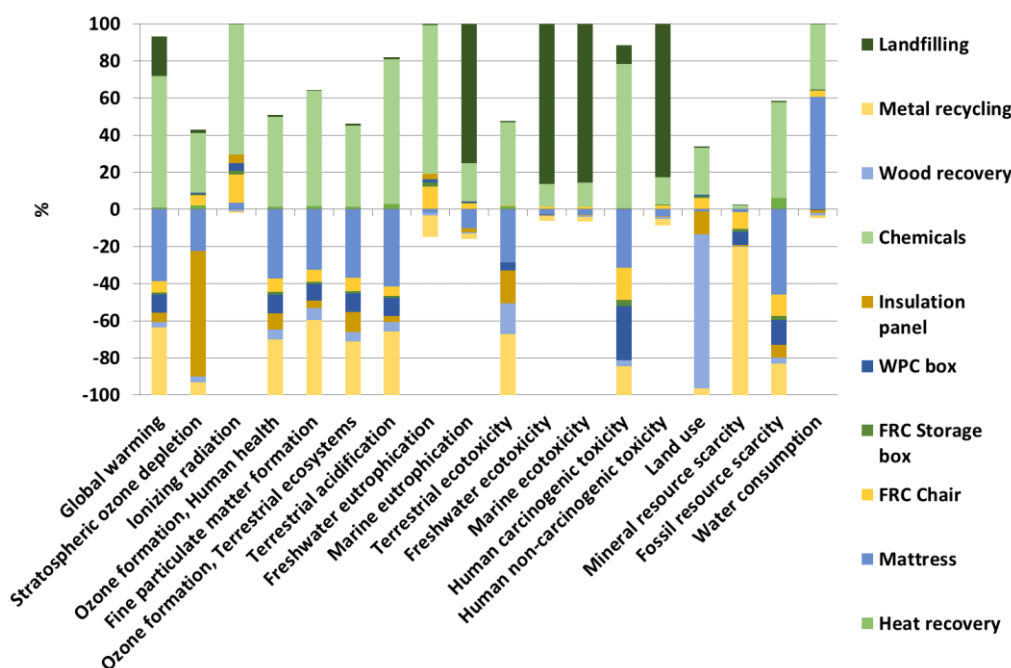
Starting
situation –
waste flows



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Improved situation - waste flows and LCA results for VALENCIA region

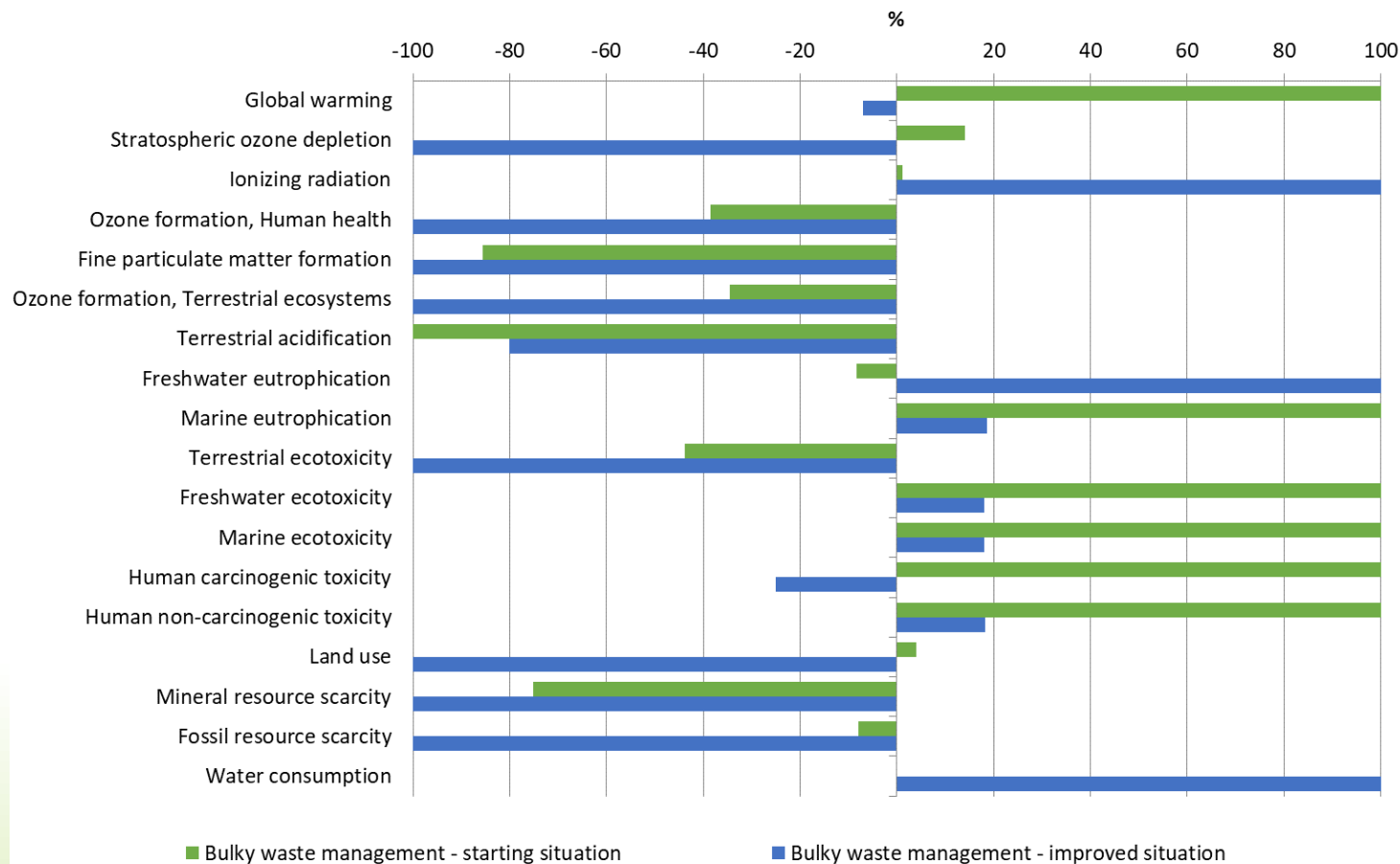




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**Comparison
between
improved and
starting
situation -
VALENCIA
region**





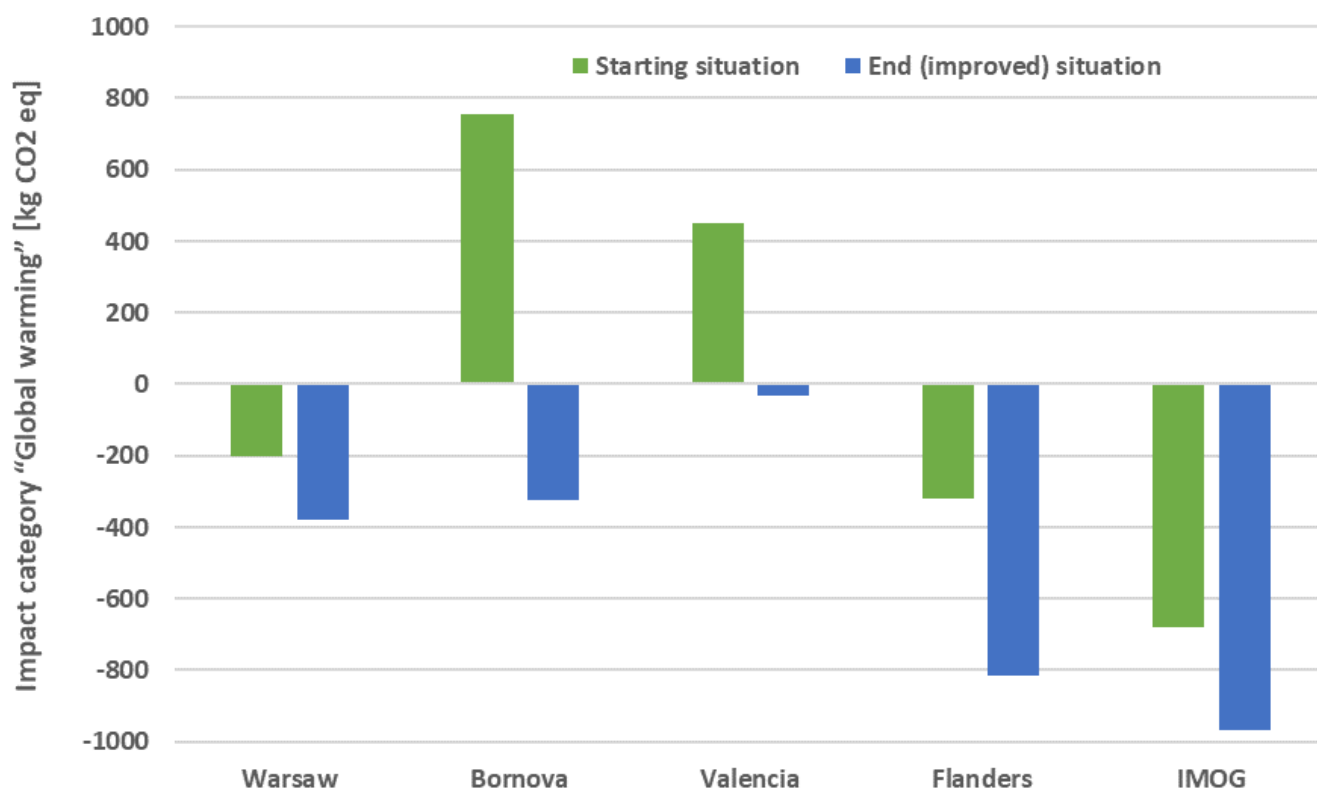
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Comparison of starting and improved situation for the category „Global Warming” for all project regions

The change in impact depends on the bulky waste composition and initial waste management strategies

Composition studies necessary for the assessment of environmental gains and replication potential in other regions





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ECOLABEL SELECTION AND ETV RECOMMENDATIONS

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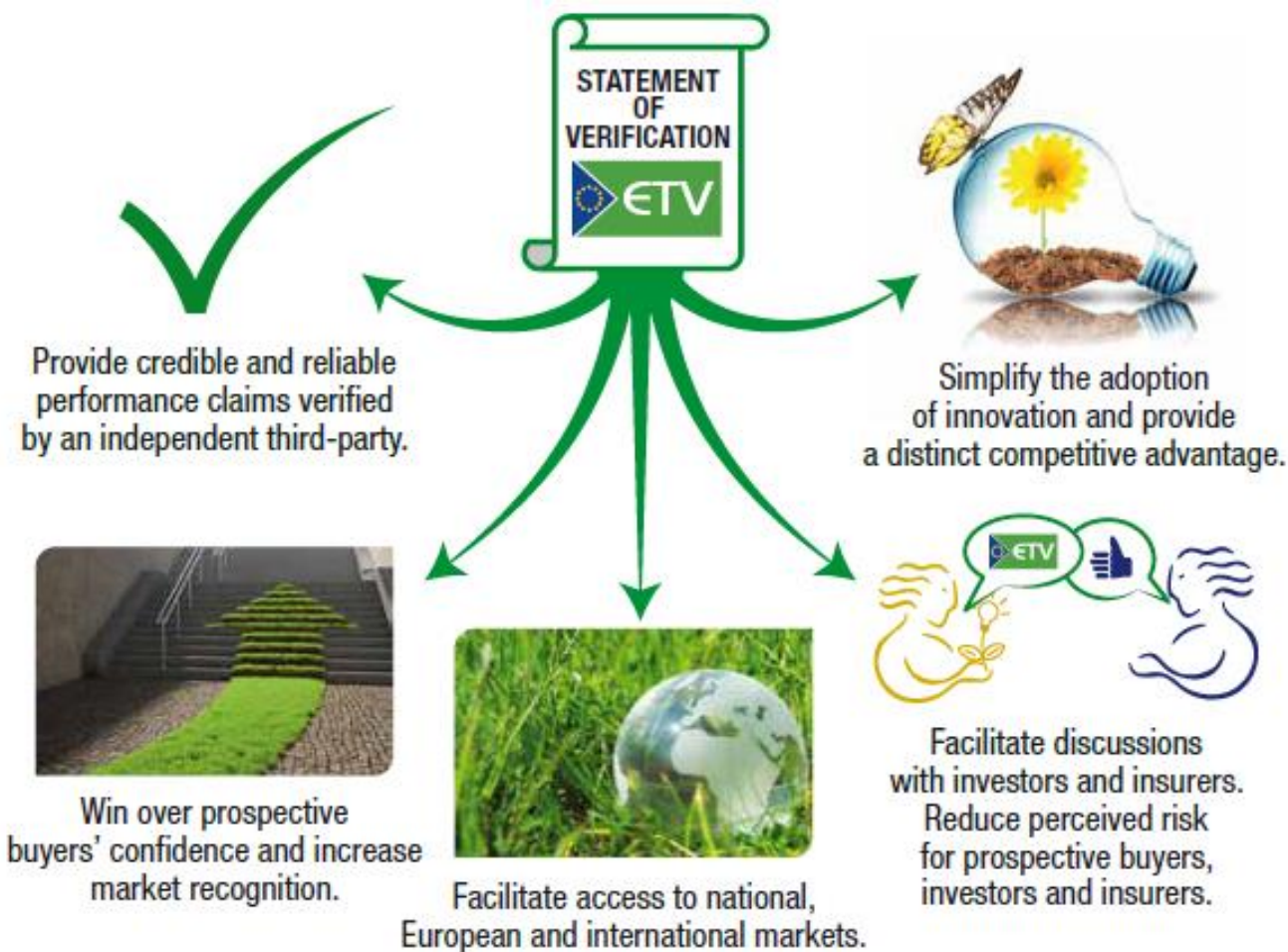
Ecolabels for demonstrators

Demonstrators	Answer of the survey	Selection
Top foam layer	EUROSPUMA	Oeko-tex 100
Mattress	DELAX	Oeko-tex 100
Adhesives	RESCOLL	EPD
Needle-Felts	PROCOTEX /CENTEXBEL	DIN
Fibre reinforced composites	VANHEEDE	DIN
	CENTEXBEL	QA-CER
	IYTE	QA-CER
Wood based composites	VANHEEDE	DIN
Methylal	BPP	No one*
Insulation panel made of textile fibers	PROCOTEX	Blue Angel
Insulation panel made of PUR foam	RAMPF	No answer





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Selected process

Chemical
degradation of PU
by acidolysis
(RAMPF)

Quickscan
confirmed the
eligibility of the
technology

Description of the
different steps of
the verification and
recommendations
were given



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SOCIAL ANALYSIS

Evaluation of the **social perception about the implemented measures and technologies** (i.e. electronic cards, mobile app, customer portal, reuse shops) and **the opinion about the willingness to use the products from recycled materials** by means of public questionnaires

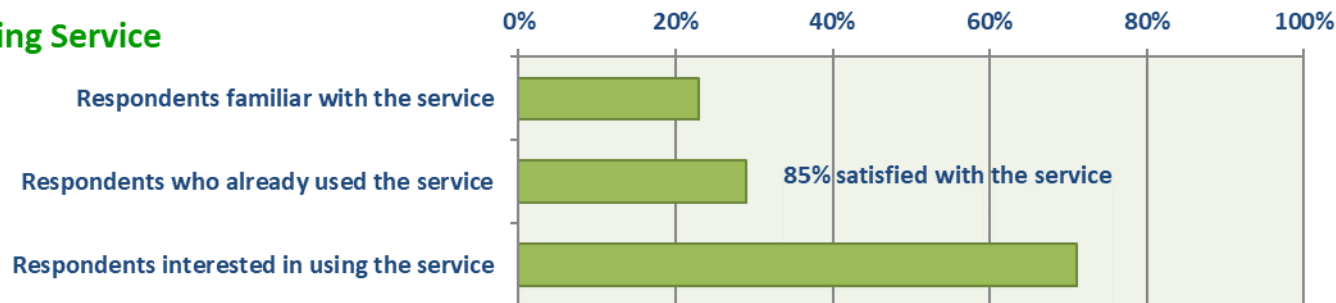
Region	No of questionnaires
Belgium (IMOG region)	219
Poland (Warsaw)	301
Spain (Valencia province)	276
Turkey (Bornova district of Izmir)	121



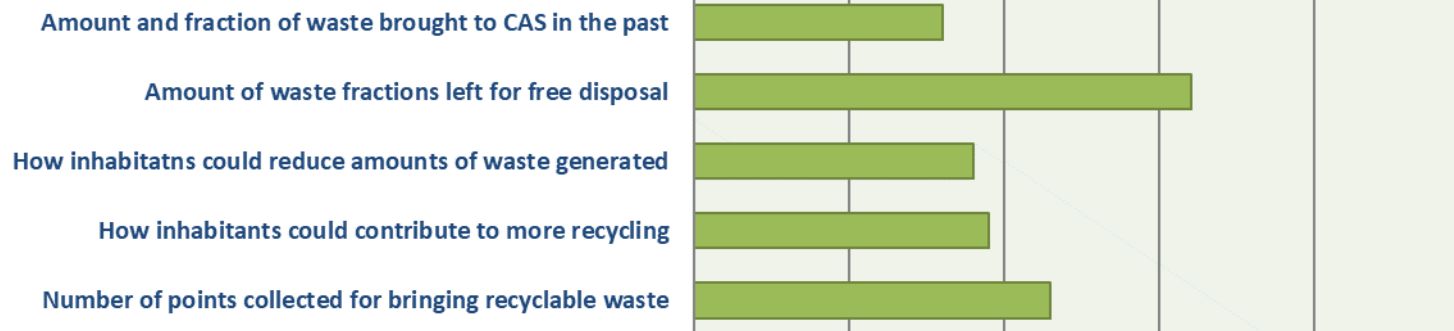
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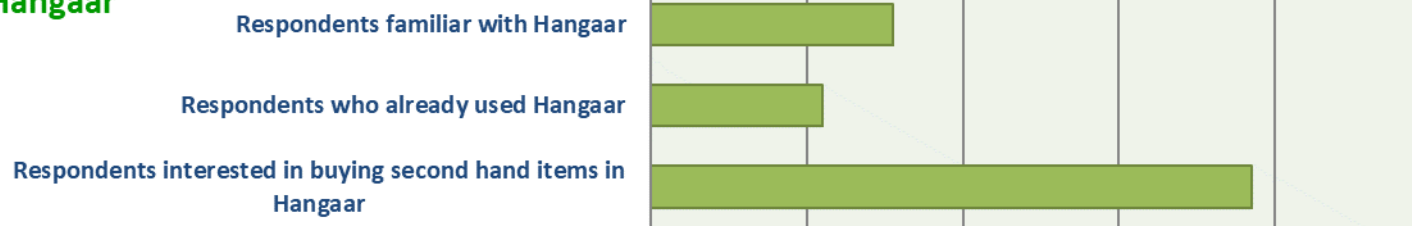
Dismantling Service



Customer Portal



Hangaar





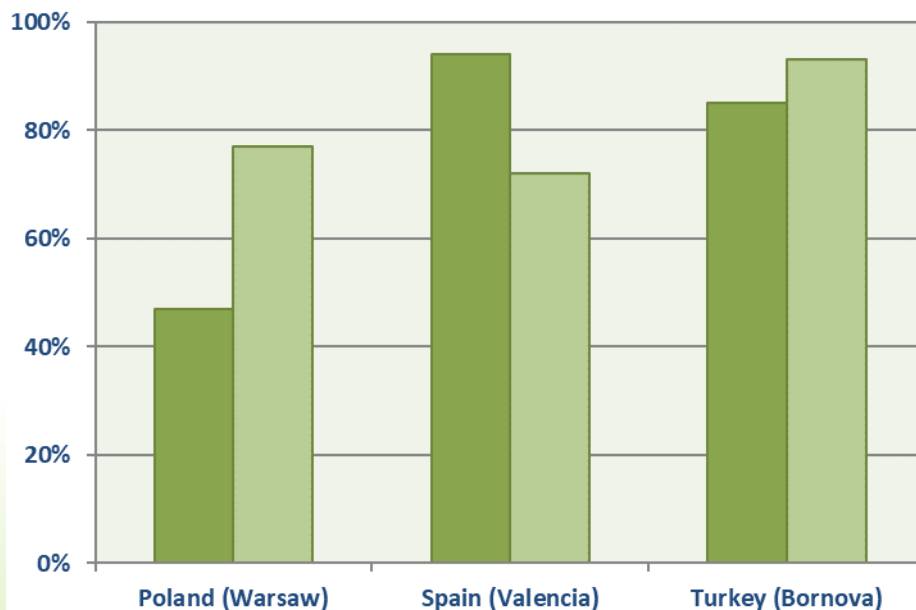
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Electronic cards & Mobile app

■ Respondents approving of electronic entry cards to CAS

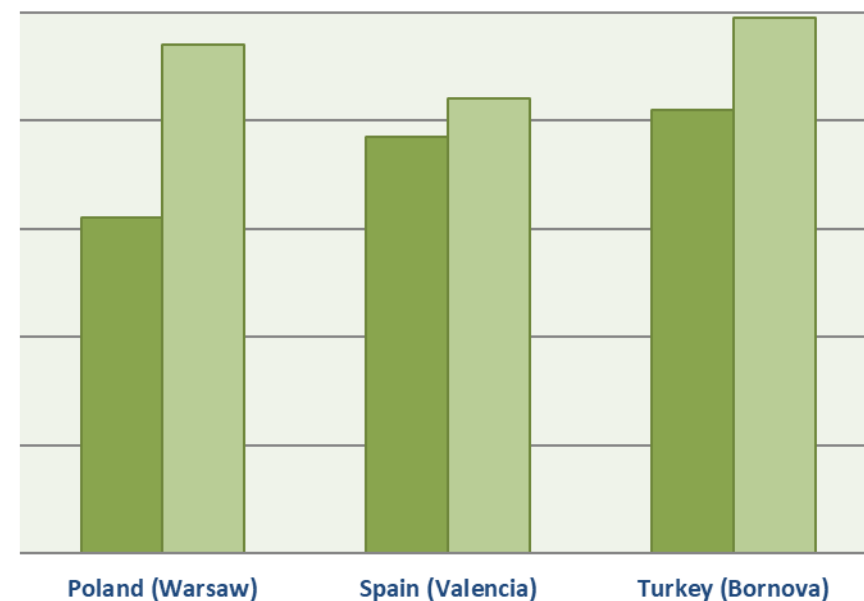
■ Respondents approving of adding bulky waste function to the existing mobile application



Reuse shops

■ Respondents who would use reuse shops

■ Respondents interested in delivering spare items to reuse shops

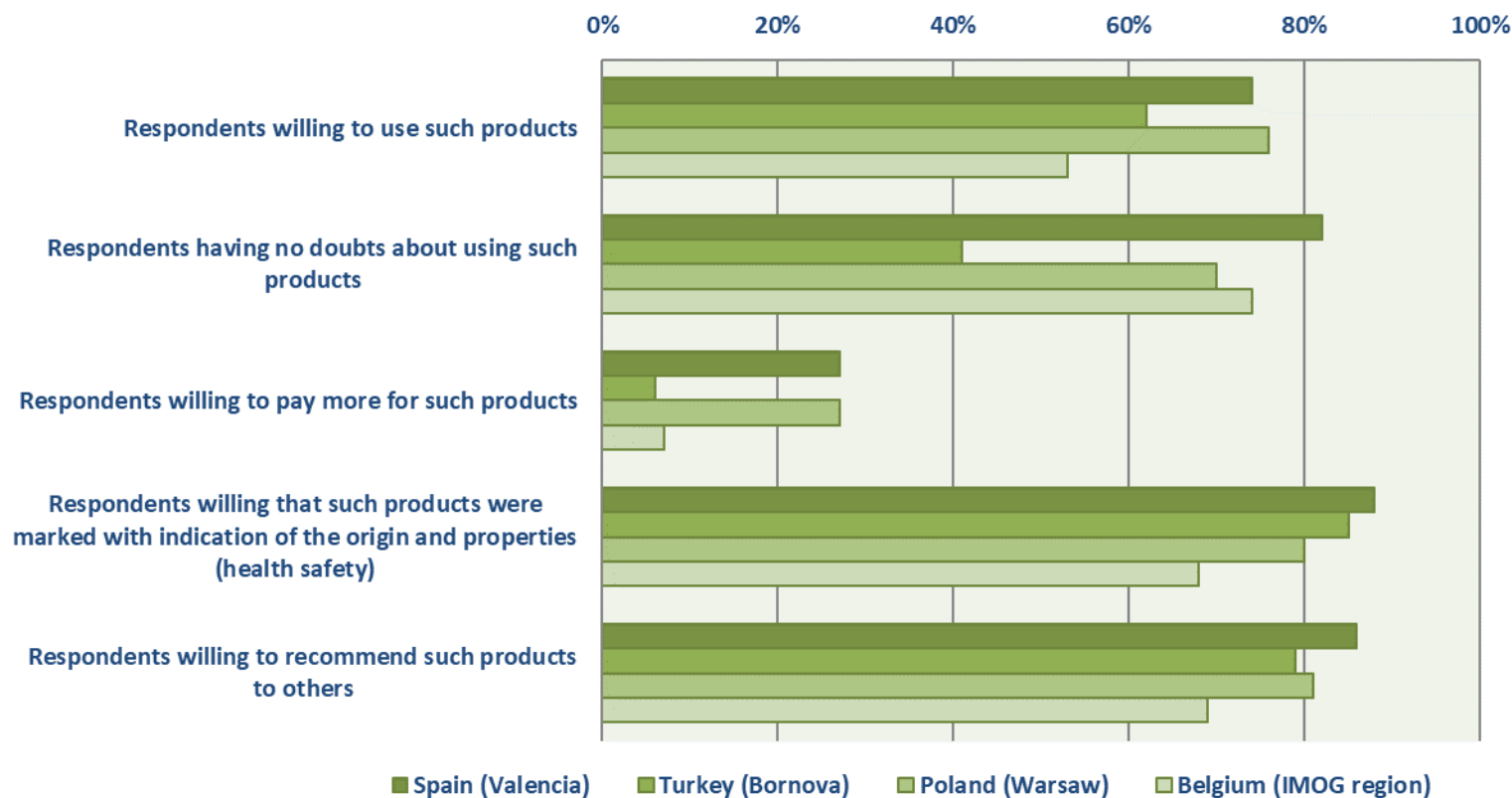




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Opinion on products from recycled materials

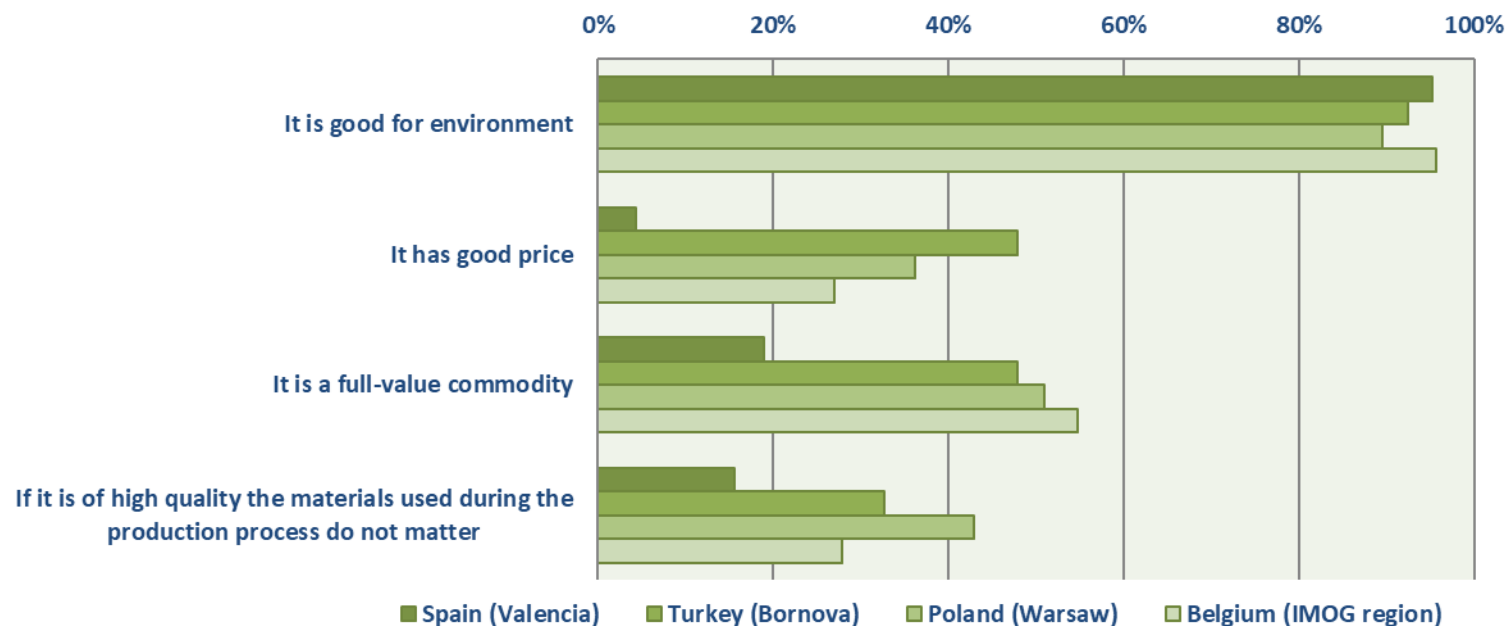




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Reasons for using products made from recycled materials





THANK YOU FOR YOUR
ATTENTION