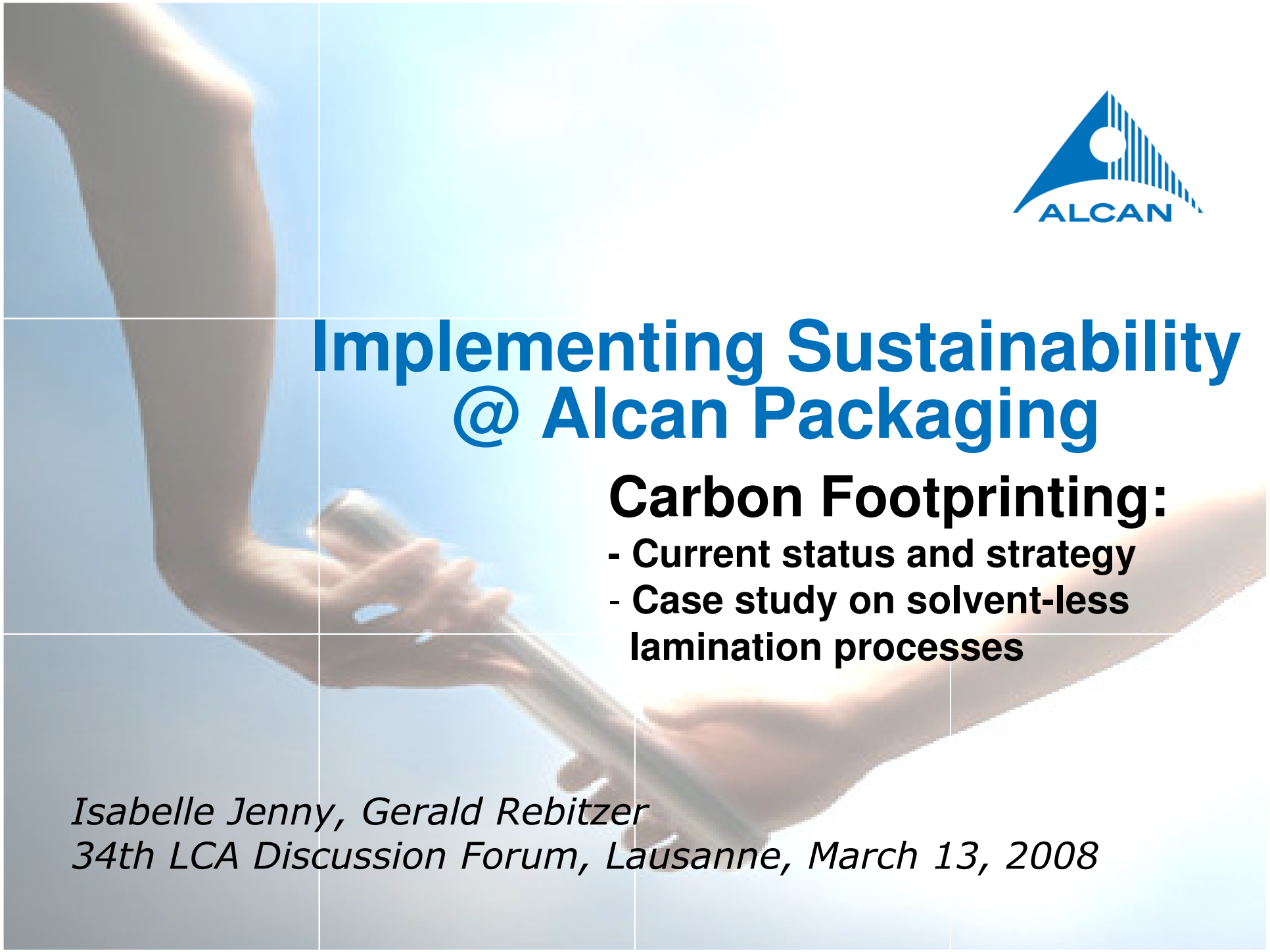


Implementing Sustainability @ Alcan Packaging

Carbon Footprinting:

- Current status and strategy
- Case study on solvent-less lamination processes

Isabelle Jenny, Gerald Rebitzer

34th LCA Discussion Forum, Lausanne, March 13, 2008

Carbon Footprinting at Alcan Packaging: Principles and Targets

- **Principles**
  - Complete sustainability assessment based on three dimensions (environment, social, economic) with **carbon footprint being only one indicator of the environmental dimension**
  - Addressing the **complete value chain (life cycle)** of packaging products, including use phase implications (e.g. different food spoilage rates)
  - **Carbon Footprint indicator = Climate Change indicator of LCA** according to ISO 14040 (i.e. nothing new)

- **Internal reduction targets**
  - **Managing the complete value chain**, where we have influence
  - **Specific goals in preparation**, based on ongoing analysis, range of 15-20% reduction within next 5-10 years anticipated

Carbon Footprinting at Alcan Packaging: Assessing, Improving, Monitoring

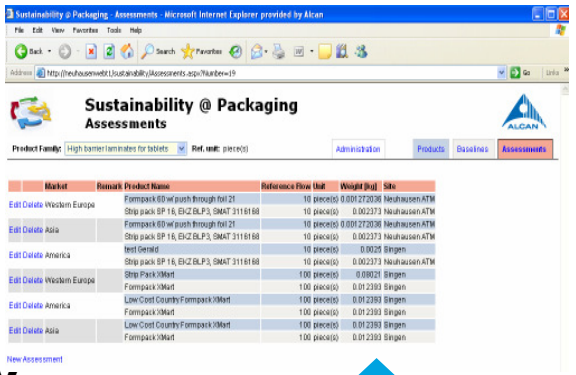
- **Complete sustainability assessments with ASSET™** (Alcan Sustainability Stewardship Evaluation Tool, patent pending), including Climate Change impacts as part of the LCA component for
  - Products (alternatives, product changes)
  - Processes (new conversion processes, changes)
- **Continuous improvement projects on individual site level** focusing on
  - energy efficiency
  - alternative energy sources
  - process improvements, etc,
- **Monitoring of greenhouse gas impacts of Alcan Packaging overall** (internal, Carbon Disclosure Project, etc)
    - Scope 1 and 2: internal reporting system for complete company
    - Scope 3 upstream (production of raw materials, ancillaries, fuels, transports, etc.): with ASSET™, based on procurement data
    - Scope 3 downstream (use of products, end of life) in development

ALCAN PACKAGING

Implementing ASSET™*

Think broadly about issues, opportunities, and impacts

Comprehensive sustainability assessment



Make connections, integrate sustainability into our businesses

Life Cycle Thinking

Support Businesses

Product Stewardship

Supply Chain coop.

Engage and partner w/ customers, suppliers, end consumers, …

*ASSET (Alcan Sustainability Stewardship Evaluation Tool) is a trademark of Alcan Inc. and/or its affiliates, patent pending

30 criteria intended to cover of all recognized aspects of product sustainability (evolving, but robust)

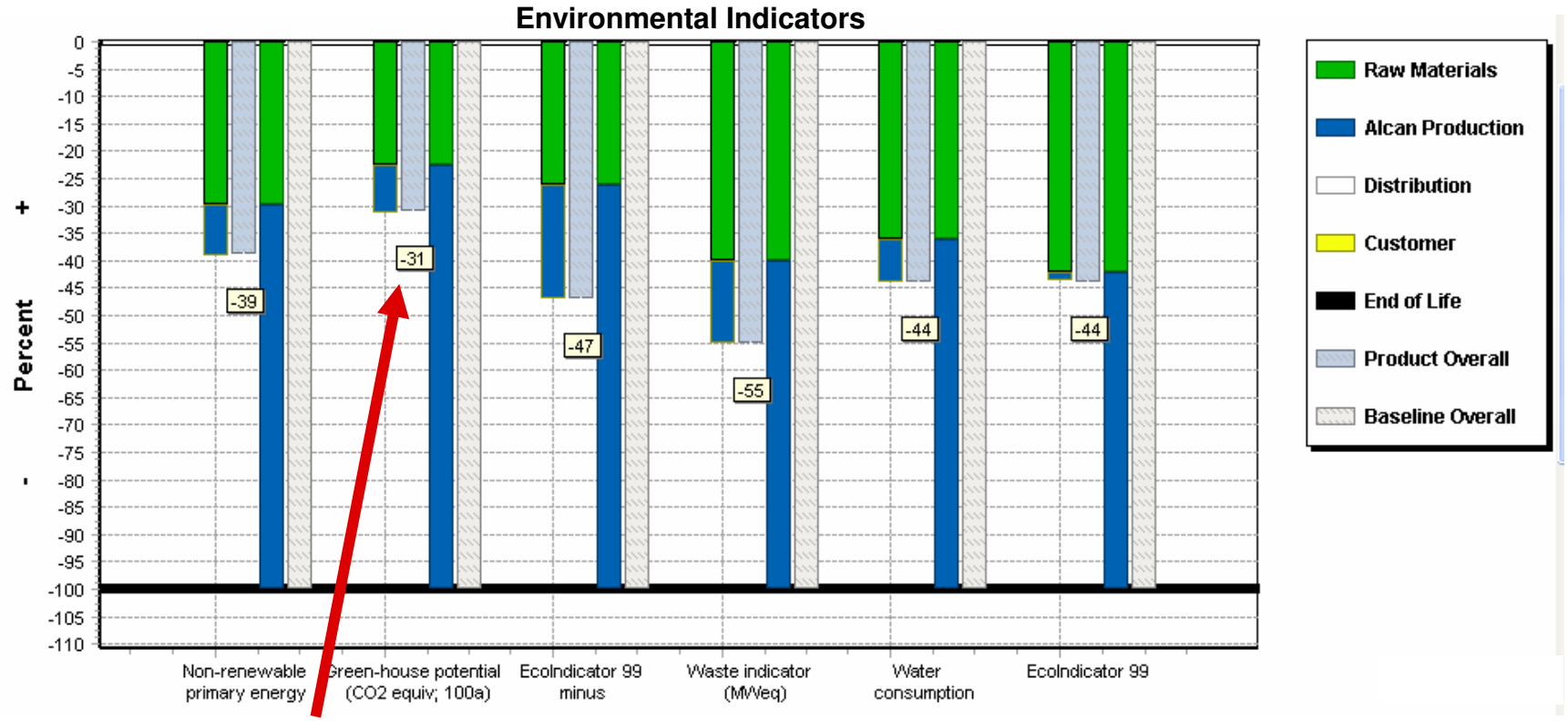
- **Environment → Example: Global Warming**
  - Assesses greenhouse gas emissions for complete life cycle
  - Integrated in the quantitative environmental life cycle assessment (according to ISO 14040)
- **Social → Example: Adherence to Social Rights**
  - Addresses e.g., issues of young workers, child labour, forced labour, freedom of association, discrimination, harsh discipline, excessive working hours (according to ILO, etc.)
  - Qualitatively assessed for the major industrial processes in life cycle
- **Economic → Example: Adherence to Existing/Future Regulations**
  - Positioning of the product in the light of existing and anticipated regulations
  - Qualitatively assessed related to (potential) regulatory issues for all parts of the life cycle

Case study: Overall benefits of process improvements

- Solvent-less vs. solvent-based packaging production and influence on climate change and other environmental impacts
- Technical feasibility assumed
- Assessment with ASSET™
- Basis for comparison
  - Baseline:
    Packaging produced via solvent-based process with VOC incineration (current standard)
  - New Option:
    Packaging produced via solvent-less process

Results (LCA component of ASSET™)

70% Reduction of greenhouse gas (GHG) emissions due to solvent-less process (in addition to other environmental benefits such as VOC reduction)



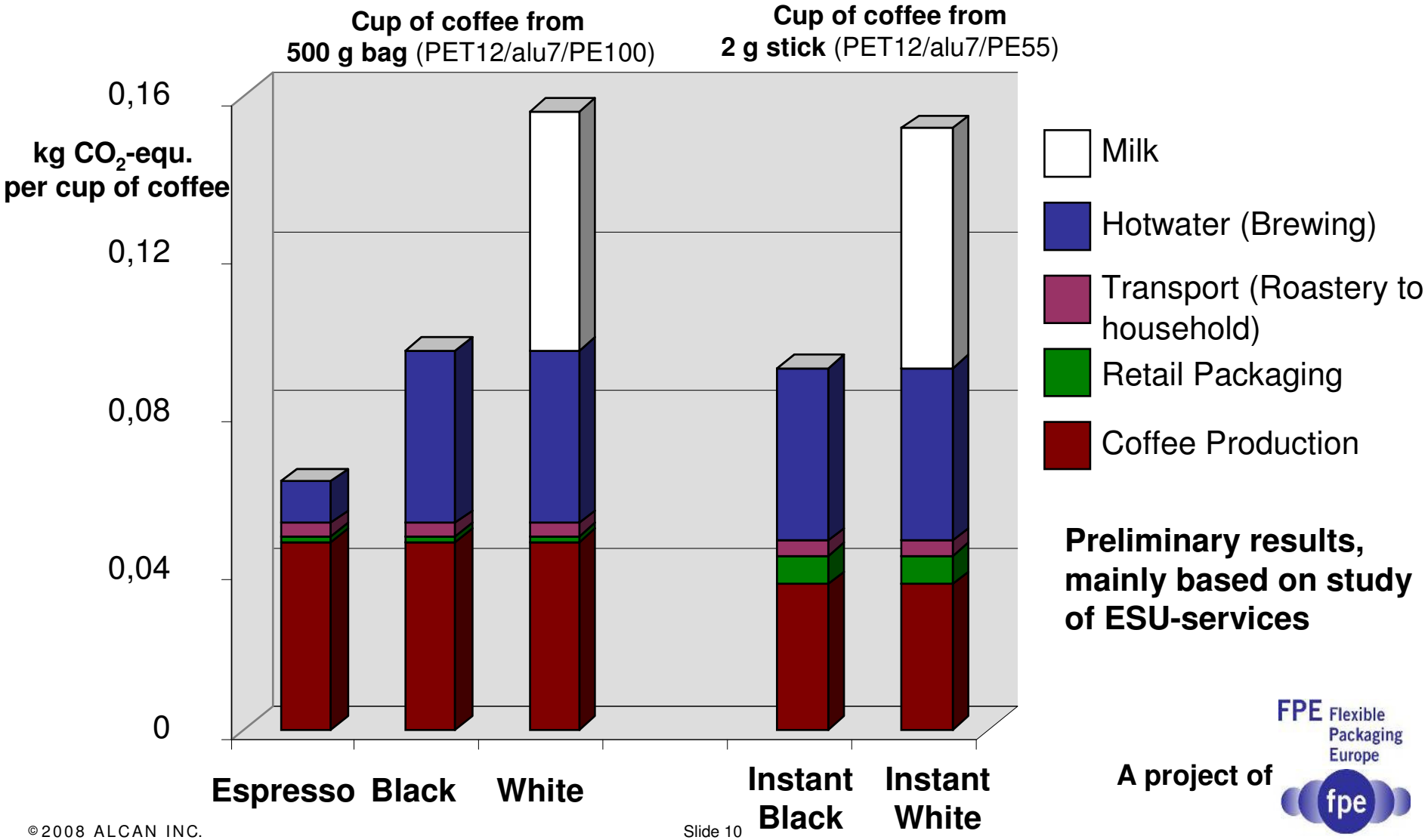
Solvent-less option causes only 30% of GHG emissions of baseline

Case Study re Solvent-less Processes: Conclusions

- **50-70% reduction of process related environmental impacts possible (70% carbon footprint reduction)**
- **Similar results achievable for solvent recovery**
- **Improvement potential for complete** production processes are in the order of magnitude of the scope 1 and 2 emissions of Alcan Packaging overall
- **Environmental improvement potentials (as well as health and safety improvements) are strong drivers in investment decisions**

Appendix

Coffee supply system – Carbon Footprint

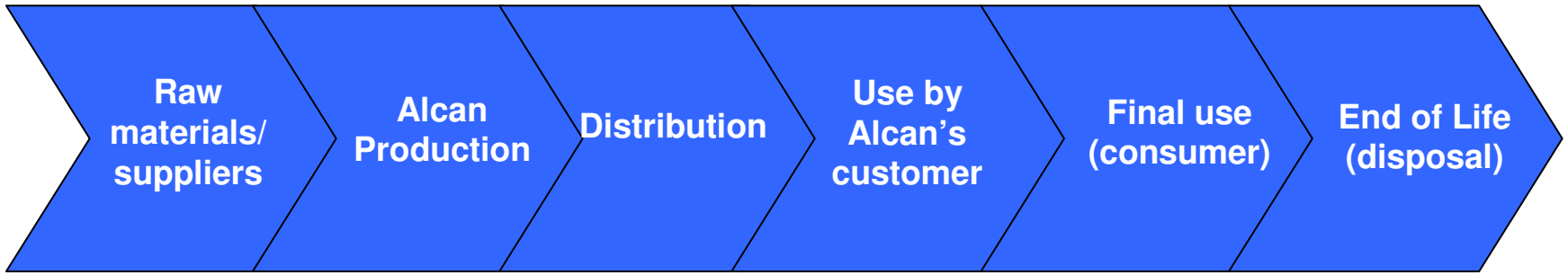


Preliminary results, mainly based on study of ESU-services

A project of FPE Flexible Packaging Europe

ASSET™: Multi criteria assessment

- **Criteria covering the 3 pillars of Sustainability:**
  - Environment
  - Social
  - Economic (long term)
- **Life Cycle Thinking**: Integrating supply chain and downstream activities (suppliers, customers, consumers)



Product Stewardship = Sustainability aspects + life cycle thinking

ASSET™: Holistic view of hot-spots and opportunities

Criterion	Dimension	Raw Material	Production	Distribution	Use at Customer	Final Use	End of Life	Overall
Quantitative Environmental Impact	E							++
Quality of environmental management system	E	~	~	~	~		~	0
Good international technical practices	E	~	~		~		~	0
Risks of severe environmental accidents	E	-	~		~		~	-0.25
Safety and Health impacts	S				~	~	~	0
Quality of safety and health management system	S				~		~	-0.4
Good international technical health and safety pra	S				~		~	0
Risks of severe safety or health accidents	S	~	~		~	~	~	0
Adherence to social rights	S	~	~	++	~		--	0
Quality of social rights management system	S	~	~	++	++		++	1.2
Social differentiation	S	~	~	~	~			0
Impact on surrounding communities	S	~	~		~		~	0
Adherence to existing or future regulations	$	~	~	~	~	~	~	0
Availability of raw materials	$	~						0
Assets needed	$		~		~		~	0
Operating costs	$		-	~	++		~	0.25
Market differentiation	$					+	+	1
Quality of quality management system	$	~	~					0
Technical quality factors	$	~	~		~			0
Threats or opportunities in public perception	$	--	~		~	~	--	-0.8
Governance, transparency, and accountability	$	~	~	~	~		~	0

opportunities

hot-spots

Identification of
hot spots (--), weaknesses (-), strengths (+), opportunities (++)