VALAHIA UNIVERSITY OF TÂRGOVIŞTE

SYSTEMS FOR MEASURING THE ENVIRONMENTAL IMPACT OF PACKAGING

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CONTENT

Sometimes packaging is so important that it cost more than the product itself in order to lure the consumers to buy it.

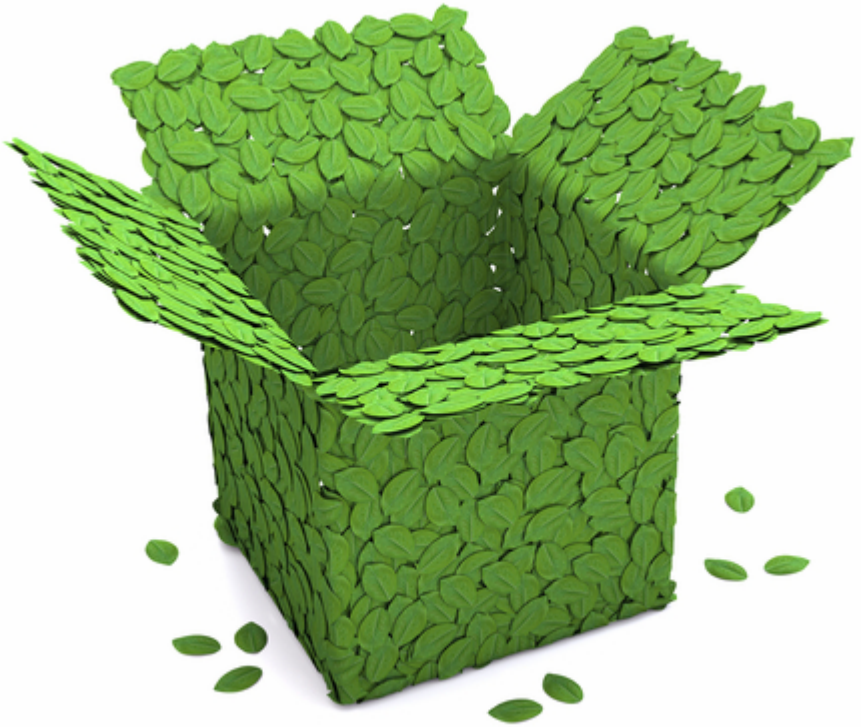
BUT

It is important to take into account their post-use effects on the environment.

SUSTAINABLE PACKAGING COALITION

Following SPC activities a system of indicators took shape, this system refers packages that are trying to standardize durability by determining what are the effects of these packages on the environment.

These indicators serve as a basis for Global Packaging Project (GPP).

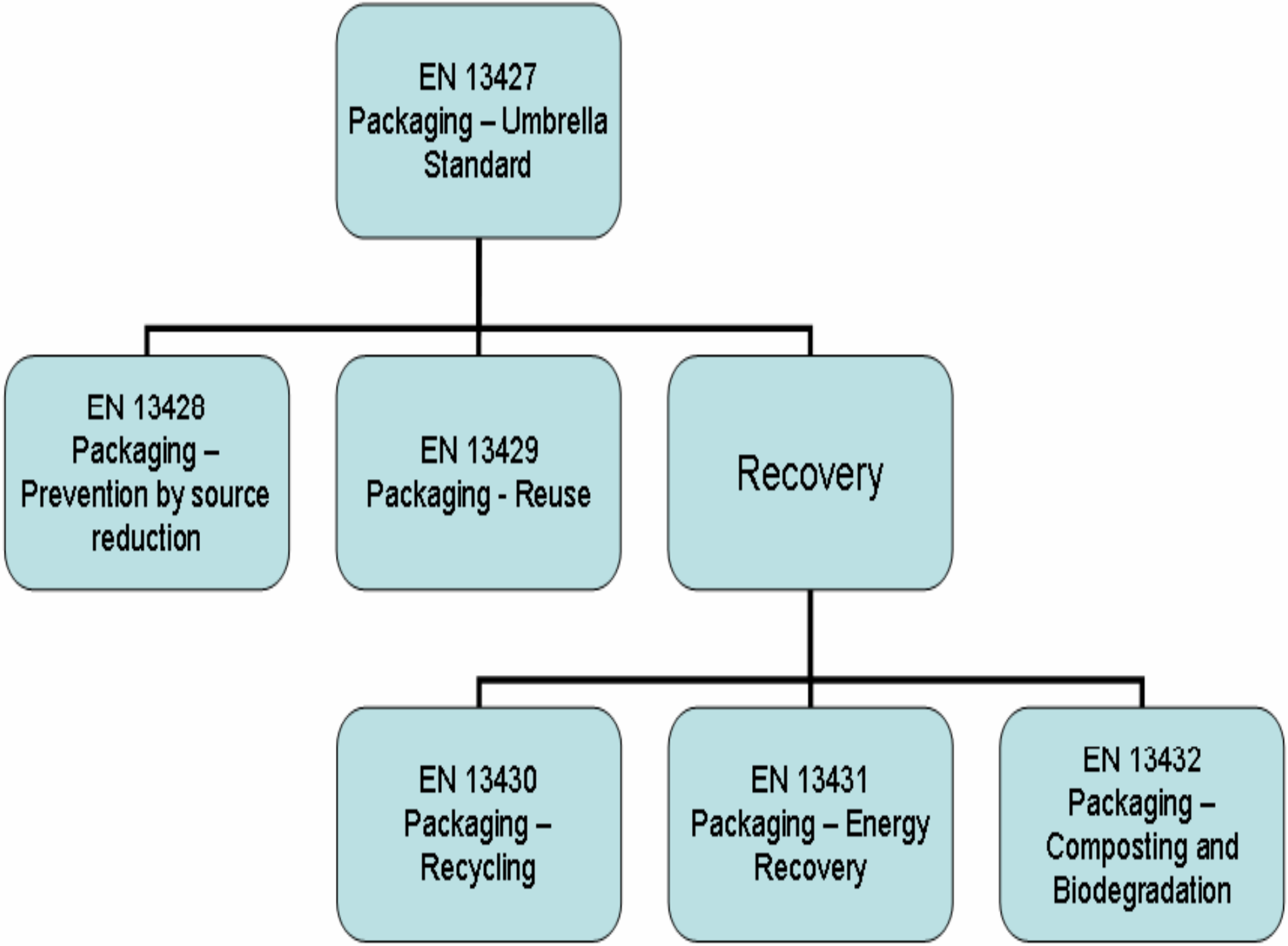


ENVIROMENTAL GPP INDICATORS

Environmental			
Packaging weight	Total material input	Packaging weight reduction	Packaging to product weight ratio
Material waste	Virgin material content	Recycled content	Renewable content
Chain of custody	Toxicants concentration	Water used from stressed resources	EMS use
Energy audits	Packaging recycling rate	Selling unit cube efficiency	Transport packaging cube efficiency
Packaging composting rate	Packaging reuse rate	Packaging energy recovery rate	Packaging landfill rate

International Organization for Standardization

Several of the environmental attributes are based on ISO standards and European Standards (EN 13427 – 13432) linked to the European Packaging and Packaging Waste Directive which are currently serving as a base for work within ISO on standards for packaging and the environment.


EN 13427
Packaging – Umbrella Standard
EN 13428
Packaging – Prevention by source reduction
EN 13429
Packaging - Reuse
Recovery
EN 13430
Packaging – Recycling
EN 13431
Packaging – Energy Recovery
EN 13432
Packaging – Composting and Biodegradation

FOR EXAMPLE:
RECYCLED CONTENT

Definition:

The ratio of recycled material to total material used in packaging constituents, packaging components, or packaging systems.

FOR EXAMPLE:
RECYCLED CONTENT

Metric:

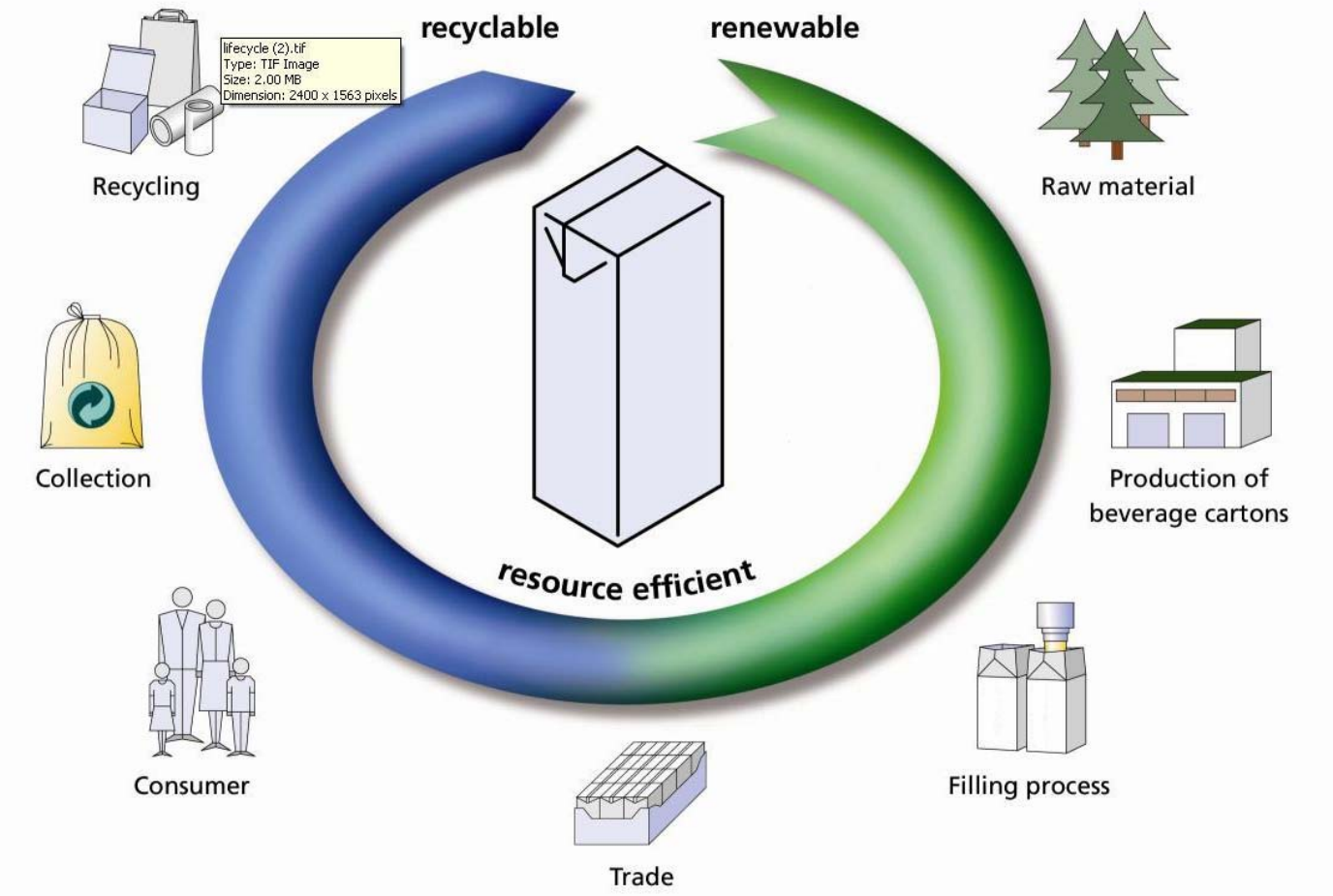
Percent recycled material of total quantity of material used per packaging constituent, packaging component or packaging system. Pre-consumer and post-consumer recycled content shall be specified separately.

What to Measure:

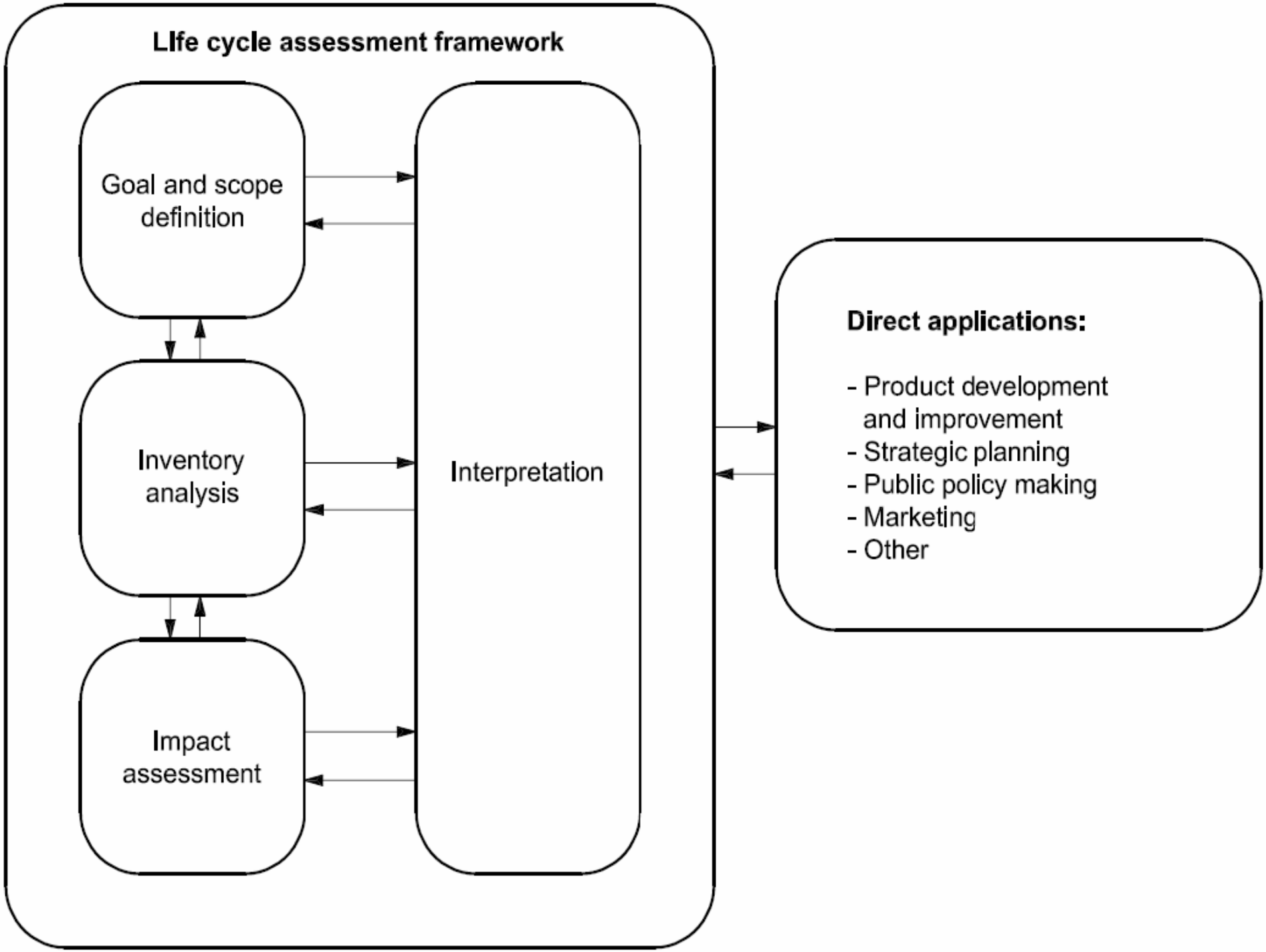
Measure post consumer recycled material and pre-consumer (recycled material which cannot be used in the process generating the material) as per ISO 14021.

LIFE CYCLE GPP INDICATORS

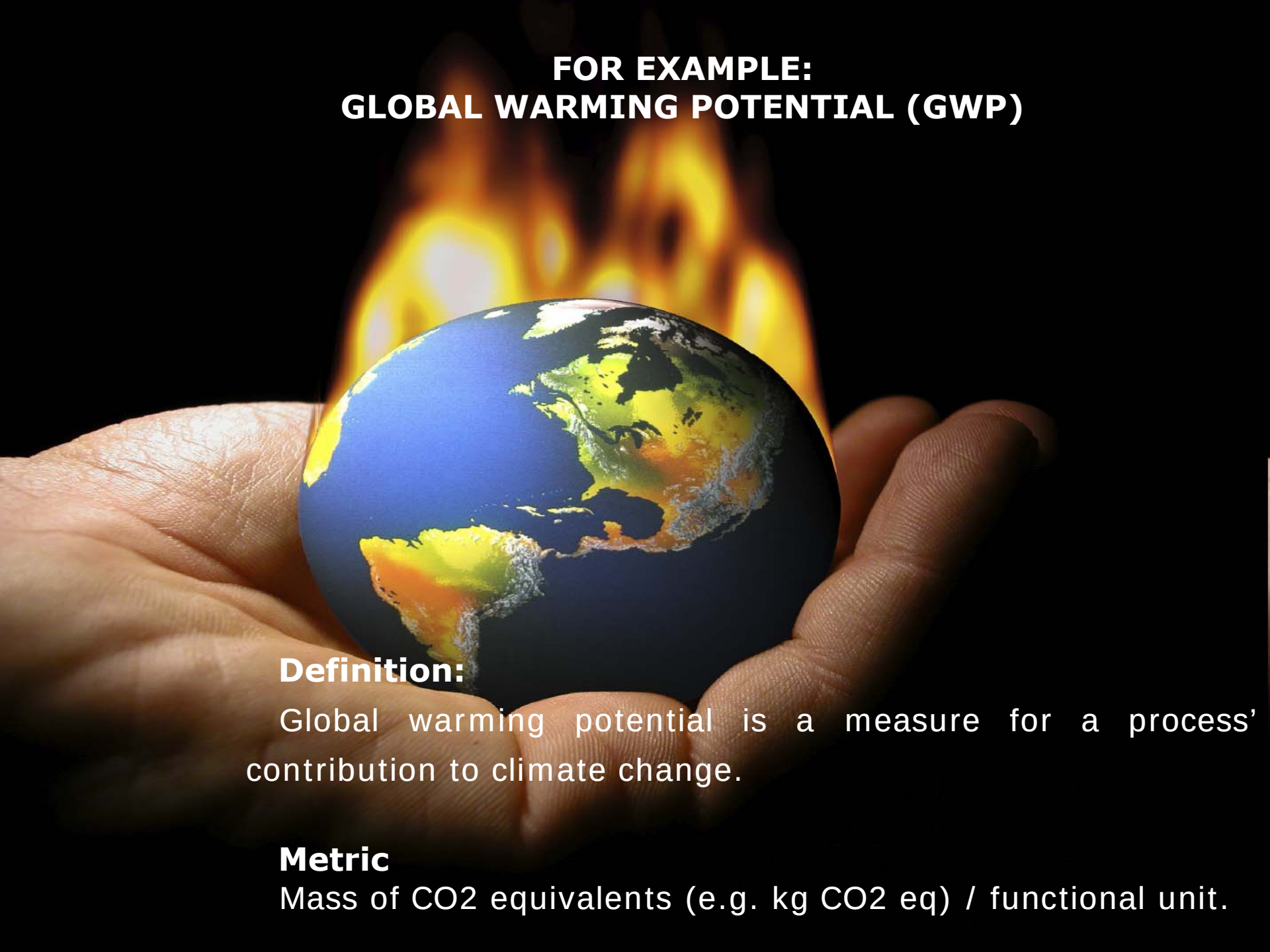
Life Cycle Indicators			
Cumulative energy demand	Cumulative energy demand renewable	Water consumption	Land occupation
Climate change	Ozone depletion	Toxicity (cancer)	Toxicity (non cancer)
Particulate emissions	Ionizing radiation (human)	Photochemical ozone creation potential	Acidification potential
Eutrophication potential	Freshwater ecotoxicity potential	Resource depletion	



The LCA (Life Cycle Assessment) methodology and principles were standardized in recent years through the ISO 14040/44:2006 norm series, which ensures LCA studies of high quality and transparency.


LIfe cycle assessment framework
Goal and scope definition
Inventory analysis
Impact assessment
Interpretation
Direct applications:
- Product development and improvement
- Strategic planning
- Public policy making
- Marketing
- Other

FOR EXAMPLE:
GLOBAL WARMING POTENTIAL (GWP)



Definition:

Global warming potential is a measure for a process' contribution to climate change.

Metric

Mass of CO_2 equivalents (e.g. kg CO_2 eq) / functional unit.

FOR EXAMPLE:
GLOBAL WARMING POTENTIAL (GWP)

What to Measure:

Guidance on carbon footprinting is provided by PAS 2050 (BSI), and ISO 14’067 (when available).

ECONOMIC AND SOCIAL GPP INDICATORS

Economic			
Total cost of packaging	Packaged product wastage	Life cycle embodied energy protection	Packaging service value
Social			
Product safety	Packaged product shelf life	End-of-life communications	Community investment
Child labour	Forced or compulsory labour	Freedom of association and/or collective	Discrimination
Excessive working hours	Remuneration	Occupational health	Safety performance
Responsible work place practices			

KEY PRINCIPLES FOR IMPROVING SUSTAINABILITY

1. Packaging makes a valuable contribution to economic, environmental and social sustainability through protecting products, preventing waste, enabling efficient business conduct.

2. The fundamental role of packaging is to deliver the product to the consumer in perfect condition.

3. Attempts to reduce packaging impacts should only be pursued if they maintain or reduce the impacts of the packed product.

4. Because of its role in protecting the product packaging can only be properly evaluated as part of a complete product life cycle.

5. Optimal performance is achieved when product and packaging are designed together from conception.

6. Packaging design also needs to factor in the post-consumption disposal opportunities available in the local market.

7. There is no such thing as a fundamentally good or bad packaging material: all materials have properties that may present advantages or disadvantages depending on the context within which they are used.

CONCLUSION

To positively contribute to the sustainability of a product, packaging should increasingly be:

- designed holistically with the product in order to optimise overall environmental performance.

- manufactured using clean production technologies.

- efficiently recoverable after use.

- sourced, manufactured, transported and recycled using renewable energy.

CONCLUSION

The packaging will need to:

- meet consumer choice and expectations.
- be beneficial, safe and healthy for individuals and communities throughout its life cycle.
- meet market criteria for performance and cost.

THANK YOU FOR YOUR ATTENTION!