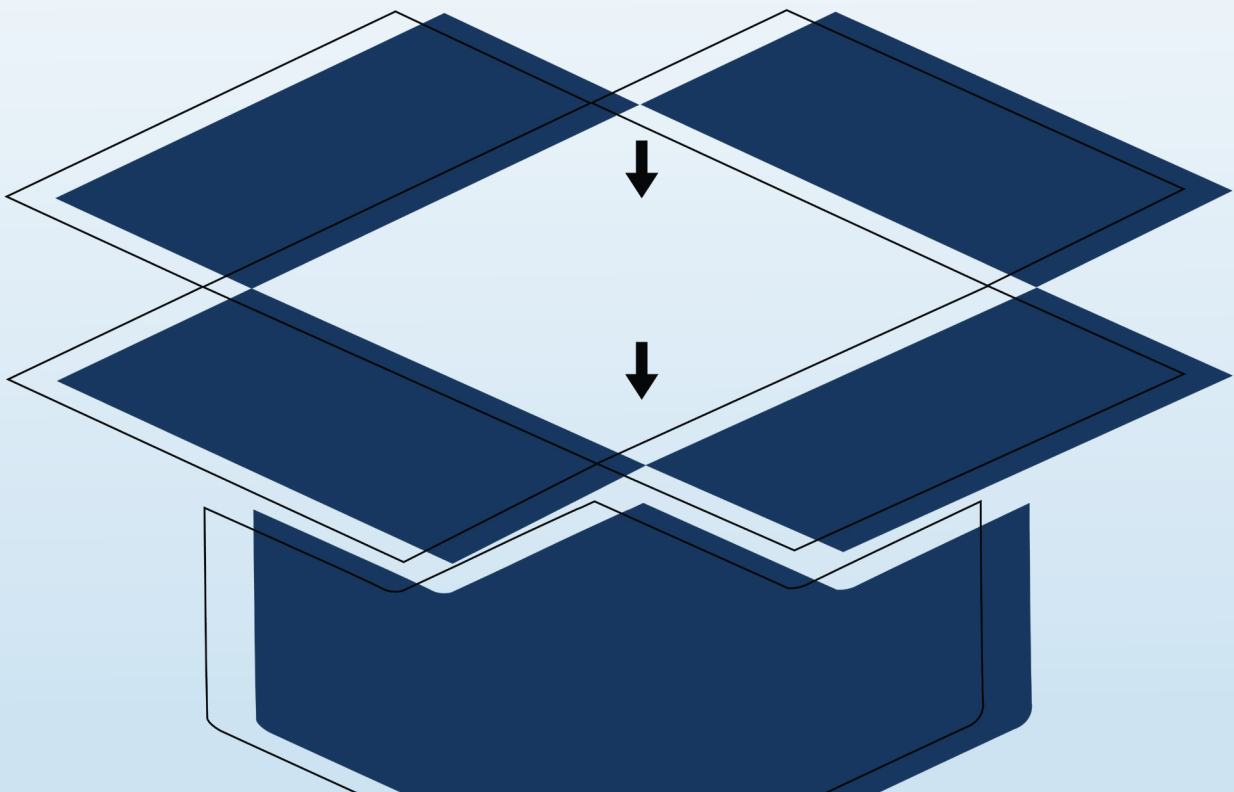


Sustainable packaging sourcing guidelines



Purpose

The scope of this note is to guide UNHCR staff and partners in identifying, sourcing and using sustainable packaging solutions. It defines and categorizes common packaging materials, highlighting common and problematic packaging materials options and possible alternatives for replacement. Recommendations are based on the waste hierarchy of prevention, minimization, reuse, recycle and recover, with the last resort being safe disposal.

Introduction

Sustainable packaging serves its function of protecting products from damage, keeping products safe during shipments, and preventing damage during storage, while minimizing environmental impact compared to traditional packaging. UNHCR is committed to reducing the carbon footprint of its goods and services, including packaging. The goal is to minimize plastic use and prevent packaging waste by designing solutions that meet operational needs while considering the end-of-life impact of the packaging we procure.

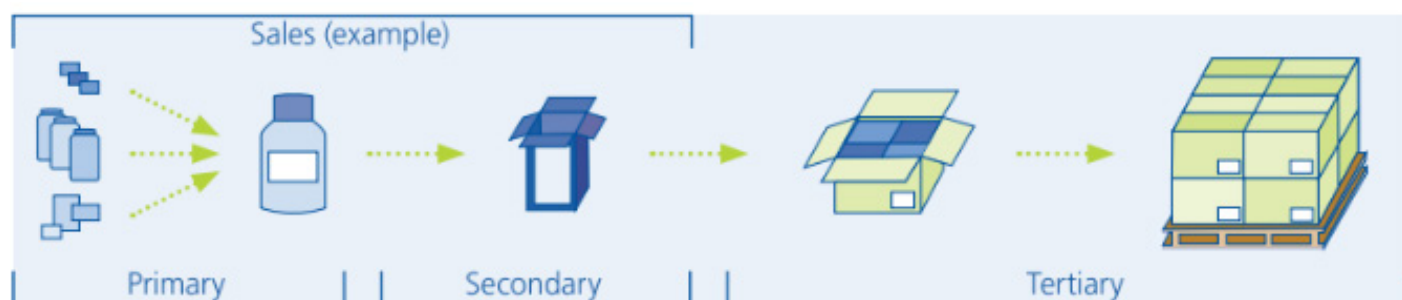
After presenting a classification of the packaging categories with definitions, examples and materials to avoid, the four key best practices or steps in order of applicability have been listed to guide operations in determining, evaluating, and making sustainable packaging choices, considering both purpose and end-of-life impact aiming to strike a balance between functionality and sustainability.

Classification

The following definitions of packaging categories, as standardized in ISO 21067-1:2016, aim to ensure global clarity and consistency in packaging terminology across industries. Below are also types of packaging commonly used in the humanitarian sector¹.

Category	Definition	Examples	Materials to Avoid
Primary Packaging	Packaging is designed to come into direct contact with the product, preserving, containing, and protecting it. Labeled with important information.	Bottles, cans, blister packs, food wrappers	<ul style="list-style-type: none"> - Plastic bags - Laminated cardboard - Bubble wrap - Biodegradable/compostable plastics² - Non-ecological inks - Any single-use plastic packaging
Secondary Packaging	Surrounds the primary packaging, groups multiple units for transportation, storage, and distribution, and provides additional protection. Removing it does not affect the product.	Cardboard boxes, void fillers, bubble wrap, crates	<ul style="list-style-type: none"> - Plastic bags - Plastic air pillows - Laminated cardboard³ - White or colored white cardboard⁴ - Bubble wrap - Biodegradable/compostable plastics² - Non-ecological inks
Tertiary Packaging	Used for bulk handling, storage, and transportation (e.g., crates, pallets, stretch wraps, straps).	Crates, pallets, cases, stretch wraps, straps, foil, adhesive tape	<ul style="list-style-type: none"> - Unnecessary or excess pallet wrapping material - Biodegradable/compostable plastic² - Single-use packaging/pallets

The figure below illustrates an example of the different types of packaging.



Source: Global Protocol on Packaging Sustainability 2.0 (GPPS 2.0)

¹ Packaging Baseline Assessment on Humanitarian Responses in 2021. Joint Initiative, May 2023

² While biodegradable/compostable plastics are not recommended options (due to the unclear rates of biodegradability), compostable Bioplastics might be considered as an alternative with reduced environmental footprint, due to their renewable origin.

³ Laminated labels are composed by different materials such as paper, plastic, adhesives that are difficult to separate for recycle or disposal. If compostable plastics end up in landfills (instead of composting facilities), they may not fully decompose and can contribute to pollution.

⁴ White cardboard that has been bleached contains chemicals, makes it difficult to recycle it and may contaminate soil when disposed of in landfill or burnt.

Best practices

Below are four key best practices — listed in order of applicability — to help guide operations in identifying, evaluating, and making sustainable packaging choices. These steps aim to balance functionality with sustainability, taking into account both the purpose and end-of-life impact of the packaging.

NOTE

It is important to ensure that packaging still meets essential requirements, like food safety, and protection against oxygen, moisture, light, or temperature, particularly for sensitive products. It also needs to be “fit for functional use” or “fit for intended use”, for example: Carton box must carry the load or weight of items etc.

Electrical / Electronic components must be protected from water damage; hence packaging may need a certain IP rating⁵ (e.g., IP67 or IP68).

Refer to **Annex 1** for categories of packaging and type of packaging material.

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1) Assess own packaging needs

Before determining what type of packaging to source, it is recommended to address the questions below to identify packaging needs based on the nature of the product and on past practices (standard packaging). This requires **lifecycle thinking**, considering how the packaging is produced, used, and will be disposed of at the end of its life with most minimum impact to the environment.

- **Materials:** What types of packaging materials are used on the product? What materials can be avoided (if not necessary and if excessive)? Are they recyclable, or reusable? Can they be avoided and replaced with more sustainable material?
- **Design (eco-conscious design):** How much material is being used? Can the design be optimized to reduce excess packaging without compromising product protection? Is it possible to have bulk packaging instead of individual packs?
- **Labelling and marking:** Are there labels on packaging with recycling instructions? Is it necessary to print labels and logos? Do you need to include/communicate instructions?
- **Recyclable or reusable:** Assess how easy it is for user/local community to recycle or reuse/repurpose the packaging. Are there any non-recyclable elements?

The [Procurement decision tree](#), as developed by the *Joint Initiative*, represents a useful guide for assessing and deciding on type of packaging.

⁵ An IP rating, or Ingress Protection rating, is a two-digit code that indicates the level of protection an enclosure provides against the intrusion of solid objects (like dust) and liquids (like water).

2) Conduct market assessment

Sustainable practices are in constant change, and it is essential to regularly consider what are the current practices in the market. Therefore, research and assessment of available materials and design should be based on your specific needs by conducting desk review or using market research tools (e.g. Request for Information). Some aspects to consider are:

- **Local regulatory framework**, standards, and requirements (for example countries like Kenya, USA, India have banned single-used plastic)
- **Solutions** based on technical specifications of the product (e.g. level of protection, shelf-life, risks, WH, handling local context where the items will be delivered)
- **Type of desired sustainable materials** (e.g. packaging made of recycled materials, using a percentage of recycled content, etc.) and availability on market (e.g. cost, supply capacity, etc.)
- **Sustainable packaging designs** (e.g. optimized packaging fitting product appropriately)
- **Manufacturing practices** (e.g. material sources, such as sustainable sources like certified deforestation, renewable energy consumption, fair labor practices)
- **End-of-life management** practices for packaging material waste (e.g., local availability of waste management facilities for treating plastic, paper, and mono-material packaging waste, or other logistics clusters and/or UN agencies' waste collection initiatives).



NOTE

Seek for diagrams, technical specifications, and evidence of certification or third-party quality assurance for packaging.

Any packaging solution needs to ensure that the products meet rigorous environmental and social standards. Refer to **Annex 3** for examples of a checklist with sustainable packaging considerations.

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3) Define sustainable packaging requirements

The level of requirement can go from basic to advanced, depending on a) the contract size and nature, b) the risks associated with the product, and c) where the items will be sourced (locally or internationally).

Consider including sustainable packaging requirements in the tendering evaluation criteria for requirements that are reflected under the technical specifications or company's qualifications.

Criteria could cover range of areas such as:

- **Avoid single-use plastic** and hazardous materials
- **Use durable packaging** products that are reusable, recyclable, or with recycled content, and made in compliance with quality, social, regulatory and environmental standards.
- **Ensure packaging design** for optimal efficiency in material usage and shipping, that can be reused or repurposed.
- **Minimize waste** (from excessive material & unrecyclable material), also avoiding excess labels.
- **Prefer manufacturing process with energy-efficient measures**, such as use of energy-saving equipment, energy management system, clean and renewable energy (RE).
- **Engage suppliers** that implement reverse logistic programs (take-back programs for returnable, reusable packaging waste, enabling appropriate recycle/disposal of waste).
- **Require evidence of sustainability claims or certifications.**
- **External labelling** on packaging with stickers is less preferred. Where possible, avoid placing stickers directly on shrink-wrap (plastic packaging material). Instead, insert labels inside the wrap—such as between the product and the shrink-wrap—to maintain recyclability.

NOTE

It is important to assess the cost to ensure balance between price, quality, and performance, without compromising product integrity. For high volume and regular requests, ask the supplier to report on the different types and volume of packaging waste expected to be generated with each order under contract reporting. Example of evaluation criteria can be found on [UNGM: Sustainable Packaging](#). (account login needed, followed by search for sustainable packaging)

Refer to **Annex 2** for packaging assessment for UNHCR's most procured goods categories.

Refer to **Annex 3** check list for sustainable packaging consideration needs assessment.

4) Consider the end-of-life management of the packaging material

Plan every waste management option that each packaging item will require at the end of its life, such as reuse, repurpose, repair, recycle etc. Refer to guidance from [WREC](#) showing the Waste Management and Recycling Infrastructure mapping.

- **Assess the size,** the space and volume of bins/containers and other necessary assets for properly storing and segregating packaging waste within the warehouse, the office or fleet workshop.
- **Identify if [local recycling companies](#)** for non-hazardous and hazardous material exist in the local markets, or when it's not available, identify and setup specific agreements with safe disposal's services.
- **Consider potential reverse logistics schemes** for packaging return. Packaging can be re-manufactured, refurbished or delivered to a designated waste collection and aggregation point within the logistics cluster for subsequent transport to recycling facilities. If such arrangements exist, consider their capacity, requirements (e.g., volume, waste type), and other factors, as these could be leveraged.
- **Consider potential of any existing internal reuse schemes** or arrangements to repurpose materials within UNHCR's facilities and projects. For example, cardboard can be reused in warehouses, storage points etc. or by other units, such as Admin, for storing items, files, tools, etc.

NOTE

Refer to **Annex 1** for definitions & classification of packaging material based on End of Life (EoL) considerations.
Refer to **Annex 3** check list for sustainable packaging consideration needs assessment.

REFERENCES:

- [Pallet Specifications](#), UNHCR
- [Procurement decision tree to reduce the environmental impact of packaging](#), Joint Initiative
- [Guidelines for packaging waste management](#), Joint Initiative
- [Essential guidance for waste management](#), WREC
- [Waste or material characterization guidance](#), WREC
- [Alternative packaging solutions](#), Climate Accelerator
- [Sustainable packaging coalition](#), SPC
- [Sustainable printing partnership](#), SGP

Annexes

1. **Annex 1** Packaging Classifications based on Material Source and End of Life treatment
2. **Annex 2** Example of Packaging assessment for five commonly purchased Item classes and their corresponding sustainable alternatives/solutions
3. **Annex 3** Checklist for Sourcing Sustainable Packaging

Annex 1

Packaging Classifications based on Material Source and End of Life treatment

When sourcing sustainable packaging, both the *source of materials used in packaging* and *future end-of-life treatment* need key consideration.

Whenever possible, packaging should be produced from renewable sources that replenish naturally, ensuring sustainability and reduction of environmental impact.

Type of packaging based on renewability of the source of material

Material Type	Material Origin	Definition	Examples of material use in packaging
Renewable /circular sources	Recycled material / content	Material from post-consumer or post-industrial recycled materials or waste.	Recycled paper Used in notebooks, tissues, and packaging Recycled plastic Recycled PET (rPET) used in water bottles, clothing, and food trays Metals Recycled aluminum in beverage cans, car parts, and construction materials Textiles & Apparel Recycled polyester (often from plastic bottles) used in textile packaging
	Sustainably sourced forests and plant-based materials	Materials typically made from renewed/ replenished resources with sustainable management (re-/ afforestation).	Forests/wood (for paper and wood-based packaging) Paper & Cardboard – Paper bags, cartons, pallets and boxes Plant-based materials Bamboo Packaging – Used for cosmetic containers, cutlery, and boxes
Non-Renewable sources	Mined minerals and fossil fuels	These materials are made from finite resources and do not naturally replenish at the rate they are consumed.	Plastics (Petroleum-Based PET, HDPE, PVC, etc.) Beverage bottles, food containers, and shrink wraps. Metals-Aluminum & Steel Beverage cans, foil wraps, and food containers (although recyclable, but not always accepted at local facilities due to processing capacity limits) Glass- Glass Bottles and Jars – Used for beverages, food storage, and cosmetics packaging

NOTE

The key factor for a packaging material to be truly “renewable” is whether it comes from a resource that can be replenished naturally over time, rather than depleting finite resources.

Sustainable packaging should be designed to minimize environmental impact. Each stage of the packaging life cycle (from raw material extraction to disposal) contributes to its overall carbon footprint; therefore, it is crucial to consider the end-of-life. This includes ensuring that materials are reusable and recyclable, and other alternatives that reduce waste and promote circularity.

Type of packaging based on end-of-life treatment

Packaging Material type	Definition	Examples*
Reusable	Packaging designed to be used several times for its original purpose. It is often made from durable materials.	Wooden pallets (Wood) Plastic bags (LDPE Plastic) Plates and cup containers (PS or EPS plastic) Bubble wrap (PS or EPS plastic) Woven bags (PP plastic) Tote bags (Textile) Bottle of water (PET plastic), glass Food can (aluminum) Corrugated cardboard Refer to the link for plastic abbreviations https://www.bpf.co.uk/plastipedia/abbreviations/Default.aspx
Recyclable⁶	Packaging that can be collected, processed, and remanufactured into new products through established recycling systems.	Plastic – PET (water bottles), HDPE (milk jugs), PP (yogurt containers). Aluminum – soda cans, food containers, foil Glass – bottles, jars Paper & Cardboard – newspapers, shipping boxes, paperboard packaging, corrugated cardboard inserts
Other alternatives, Compostable⁷ & Biodegradable	Materials that can break down into natural elements (carbon, water, biomass) within a composting environment, leaving no toxic residue.	PLA films, bamboo wrap

NOTE

Some packaging materials might consist of a mix of different types of materials (e.g. laminated cardboard typically consists of paperboard coated with plastic or foil) and more challenging to reuse/recycle.

WHAT TO DO: Where possible, avoid mixed-material packaging and opt for single-material alternatives that are easier to recycle. If mixed materials are necessary, try to choose types that can be easily separated or are accepted by local recycling facilities.⁸

AVOID: **Chemicals** such as solvents, paints, inks, glues that can be found in colored package and laminated cardboard box.



⁶ Not all kind of plastic can be recycled. Better chose highly recyclable types like PET, HDPE, and PP.

⁷ If compostable plastics end up in landfills (instead of composting facilities), they may not fully decompose and can contribute to pollution.




⁸ The key is that the materials are not fused together and can be manually separated without special tools or machinery.

Annex 2

Example of Packaging assessment for most procured items and their corresponding sustainable alternatives/solutions.

Item Class	Example of Products	Common Packaging Material	How to minimize/prevent/reuse	Sustainable materials/Solutions
 1. Electronic & home appliances Supplies	Laptops, mobile phones, chargers, batteries, televisions, cookers	Plastic casings, trays, wrappers, cable ties, protection bags Ziploc bag, Plastic clamshell	Prevent: Single-use plastic Unrecyclable plastic Minimize: Excessive wrapping of boxes Reuse: Carton boxes Recycle: when not preventable or reuseable	Kraft paper, Replacing unneeded plastics, Molded pulp, paper cable ties
		Virgin cardboard boxes		Recyclable cardboard, corrugated boxes
		Several layers of bubble wrap		Paper-based cushioning
		Foam inserts, polystyrene peanuts, air pellets		Biodegradable foam, air bags, recyclable and compostable bamboo cushions, paper fillers
		Glue, tape, or staples		Folded cardboard tabs (extended flaps or edges on a piece of cardboard that are folded and interlocked) as those in the Sony PlayStation5
		Printed guides, labels with instructions		QR codes with user guides, paper-based labels
 2. Textiles: Beddings, clothing items, bath wear, cleaning material, kitchenware	Bedsheets, blankets, mattresses, clothing, towels, bath robes, bags, kitchenette, clothes, shoes	Plastic storage bags, wraps, protectors made from: PVC (Polyvinyl Chloride), PE (Polyethylene)	Prevent: Avoid single-use non-woven bags Minimize: Choose reusable organic bags Reuse: organic fabric bags Recycle: Recycle when not reusable	Paper based packaging, Recycled PET (rPET) fabric Recycled Polythene Compostable bioplastics ⁹ , 100% recycled plastic
		Cardboard boxes		100% recyclable cardboard
		Organic fabric, non-woven bags (PP)		Organic cotton bags, repurposed fabric, deadstock fabric, hemp fabric
		PVC + non-woven material		Non-Woven Polypropylene (PP) without PVC

⁹ While biodegradable/compostable plastics are not recommended options (due to the unclear rates of biodegradability), compostable Bioplastics might be considered as an alternative with reduced environmental footprint, due to their renewable origin.

Item Class	Example of Products	Common Packaging Material	How to minimize/ prevent/reuse	Sustainable materials/ Solutions
 3. Office Stationery, Educational Supplies	Notebooks, pens, markers, paper, binders, books	Single-use plastics	Prevent: Avoid single-use non-woven bagplastics Minimize: excessive packaging like wrappings, emphasize bulk packaging Reuse: cardboards Recycle: when not reusable	Recycled paper, refillable pens, biodegradable packaging
		Cardboards		
		Blister packs, paper labels		
 4. Personal Care and Female Hygiene Supplies. Cleaning materials	Shampoos, lotions, razors, sanitary pads, bar soap, bathing soap, liquid soap, powder soap, scents, brushes	Plastic bottles, foils, pouches, wrappers, caps/ covers, seals	Prevent: Avoid single-use plastic packaging Minimize: Use thinner bottles, choose naked items like soap Reuse: Refill containers Recycle: Use recyclable mono-material packaging	Refillable containers/ plastic recycled plastic Thinner bottles, naked items like soap, recyclable mono-materials packaging
		Waxed or coated paper		Natural, compostable wax e.g. beeswax, soy wax, lightweight paper
		Aluminum tins or containers		Refillable aluminum packaging, Post-Consumer Recycled (PCR) Aluminum
		Glass bottles, and containers		Recycled glass
 5. Office & Household Furniture	Sofas and couches, beds, desks, dressers, tables	Shrink wrap or plastic film	Prevent: Avoid plastic film and shrink wrap Minimize: Use minima wrapping Reuse: paper-based and plastic wrapping Recycle: If reuse not possible, recycle	Paper-based or reusable wrapping Biodegradable or compostable films made from starch-based or PLA
		Heavy & light cardboard boxes, wooden crates		Recyclable cardboard, Corrugated boxes
		Foam padding or corner protectors, air pillows		Air made from recyclable plastics
		Manual/guides		QR codes with instructions

NOTE

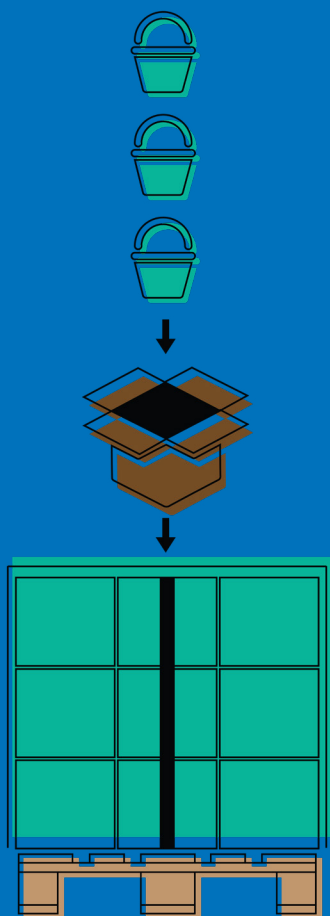
Additional categories below will be added gradually following comprehensive assessment.

- Construction materials
- Medical items
- Food items

Annex 3

Checklist for Sourcing Sustainable Packaging

Part A : NEEDS ASSESSMENT	
Elements	Questions to Ask/Action Items
1. Packaging Needs Assessment	Is the packaging necessary for protection, preservation, or communication?
	Does it contribute to safe delivery or storage?
	Can it be repurposed by recipients at the end of life?
	Can excessively packaging materials be reduced or eliminated (e.g., multiple layers, void fillers)?
2. Sustainable Material Selection	Can single-use plastics be avoided?
	Can it use lightweight, material-efficient alternatives?
	Does it contain recycled content, recyclable, biodegradable, or compostable materials?
	Does it contain mono-material packaging for easier recycling, such as paper-only or single-type plastics like PP or PE?
3. Packaging Size Optimization	Does the packaging fit the product precisely, minimizing voids and unnecessary material use?
Part B: SUPPLY & LOGISTICS	
4. End-of-Life Considerations	Can the packaging be reused, repurposed, recycled with available regional recycling infrastructure, or at the end of its life?
	Does packaging meet industry standards and ethical sourcing requirements (e.g., FSC certification for wood-based packaging).
	Are take-back schemes from suppliers available for recycling or Internal reuse schemes?
5. Transport & Storage Efficiency	Is the packaging optimized for maximum storage/ pallet and truck utilization?
6. Packaging Labeling	Have labels been minimized, non-ecological inks avoided (use water-based inks where possible) and paper-based materials used?
7. Tendering Criteria & Supplier Collaboration	Do tenders include packaging criteria based on operational needs and sourcing strategy to ensure that offers meet packaging requirements?
	Were suppliers proactively engaged to discuss innovations and improvements in sustainable packaging (like remove plastic from packaging over time, etc.)?



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July 2025