



Green Public Procurement Manual on Plastic Waste Prevention

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SUMMARY FOR POLICYMAKERS

With Green Public Procurement public authorities try to influence the market in a more desirable direction. This is done by setting up requirements, called criteria, for purchases made with public funds. Then by combining public expenditure to purchase the goods and services meeting the set criteria a more desirable direction is promoted. Common European criteria give a stronger signal to the market and increase benefits from Green Public Procurement.

The purpose of this manual is to exemplify possible contributions from Green Public Procurement to the goals of EU LIFE project Plastic ZERO – avoiding plastics as waste. The primary audience is public procurement officers and purchasers.

In the manual three environmental problems from post-consumer plastics waste management are targeted: CO₂ emissions from combustion, inefficient use of resources and the presence of harmful substances.

A Green Public Procurement approach has been developed to lower the impact of these environmental problems by increasing demand for recycled plastic, improved recyclability and a reduction in the use of harmful substances.

The manual contains **copy-and-paste criteria** for the following product groups:

- Packaging
- Furniture
- Office supply
- Office IT-equipment

To ensure legal compliance and availability the included criteria are primarily collections of European Commission criteria and Eco-label requirements. The criteria are complementary to regular public procurements of the relevant product groups and should be assessed accordingly.

The manual includes good examples from Europe for each product group.

Three easy rules of thumb:

- 1. Buy recycled plastics whenever possible!***
 - Help stimulate demand for recycling this resource.
- 2. Buy reusable, repairable and upgradeable products!***
 - Save money and enjoy the products longer.
- 3. Buy recyclable plastics whenever possible!***
 - Help provide a steady supply to recyclers.

1 INTRODUCTION

The purpose of this manual is to exemplify possible contributions from Green Public Procurement to the goals of EU LIFE project Plastic ZERO – avoiding plastics as waste. The primary audience is public procurement officers and purchasers.

Plastic ZERO – Public Private Cooperations for avoiding plastics as waste – is an EU LIFE funded project that targets two environmental problems from post-consumer plastics:

- Post-consumer plastics generate **CO₂ emissions** from its fossil fuel origin when combusted in waste-to-energy processes.
- Post-consumer plastics at EU level suffer from suboptimal waste management practices, indicating an **inefficient use of natural resources**.

To reduce the size of these environmental problems Plastic ZERO has set out three main goals as operational for the project:

- Promote recycling of plastic polymers as a substitute for virgin plastic
- Identify main challenges and barriers for reducing plastic waste in mixed waste and residual waste streams, and thereby stimulate prevention and recycling of plastic waste
- Divert plastic from the residual waste going to incineration (creating a carbon neutral energy source) and landfill.

During the course of Plastic ZERO it was decided that the environmental problem concerning certain additives in plastics was to be included in the project in general and to this manual in particular. **Harmful substances** are substances or mixtures classified as hazardous in Article 57 of [Regulation \(EC\) No 1907/2006](#) concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency and in [Regulation \(EC\) No 1272/2008](#) on classification, labelling and packaging of substances and mixtures.

“Green Public Procurement Manual on Plastic Waste Prevention” is a Plastic ZERO deliverable.

2 BACKGROUND

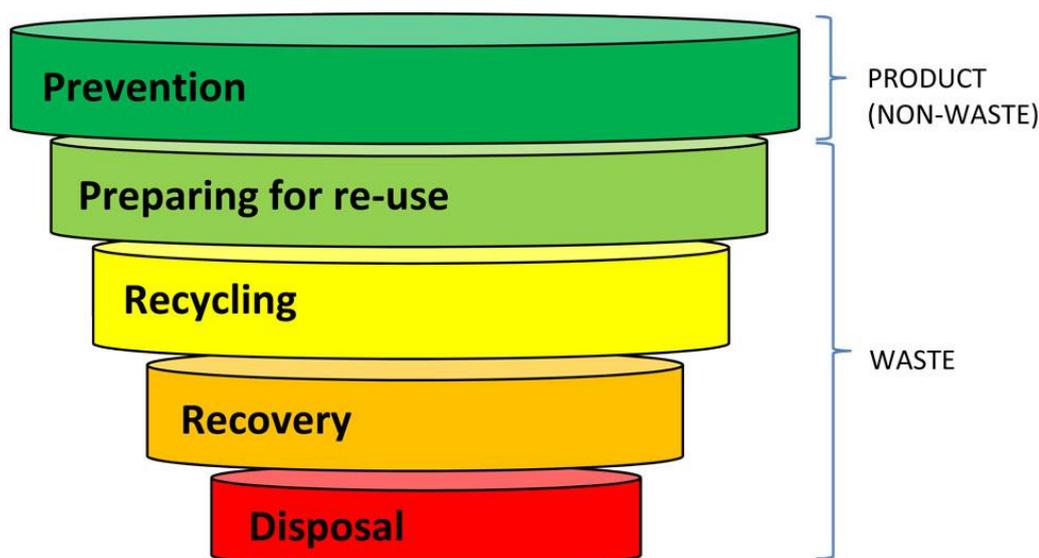
With Green Public Procurement public authorities try to influence the market in a more desirable direction. This is done by setting up requirements, called criteria, for purchases made with public funds. Then by combining public expenditure to purchase the goods and services meeting the set criteria a more desirable direction is promoted. Common European criteria give a stronger signal to the market and increase benefits from Green Public Procurement.

Green Public Procurement (GPP) is a voluntary instrument that can be used to include environmental considerations in public procurements ([COM \(2008\) 400](#)). Currently 22 out of 28 EU Member States have national action plans to implement GPP internally ([EC, 2013a](#)).

To get the most out of GPP it is crucial to unite environmental considerations in common, transparent, justifiable and verifiable GPP criteria.

The common frame used in this manual to produce such a united and transparent GPP approach to post-consumer plastics is the EU’s waste hierarchy ([Directive 2008/98/EC](#)).

FIGURE 1: THE WASTE HIERARCHY (Directive 2008/98/EC)



The waste hierarchy provides guidance on what is desirable for waste management in five hierarchical levels. The manual has adopted the waste hierarchy as its structural base for both priority and criteria setting.

2.1 PREVENTION OF PLASTICS AS A WASTE AND PREPARING FOR RE-USE

The best way to directly save natural resources and money is to not purchase the good or service in the first place! Another great way is sticking to reusable, repairable and upgradeable products.

Prevention and preparing for re-use are both at the top of the waste hierarchy and should be considered first: Do we need this? Can we reuse, repair or upgrade it?

A whole range of measures promoting prevention and reusability can be taken before a purchase. Below are a few simple rules of thumb.

EXAMPLES OF PURCHASING LESS AND REUSING MORE (Modified from ICLEI 2007)

No need the purchase in the first place!

Use reusable tableware instead of disposable plastic ones and save plastic waste.

Lease, don't buy!

Lease office furniture, supplies or IT-equipment instead of buying them. This will reduce your purchasing, maintenance and ultimately disposal needs.

Use resources more efficiently!

Ask for deliveries to be made in bulk and with reusable packaging.

Do more with less!

Reduce wasteful overconsumption by sticking to the designed functions, dosages and amounts of your products.

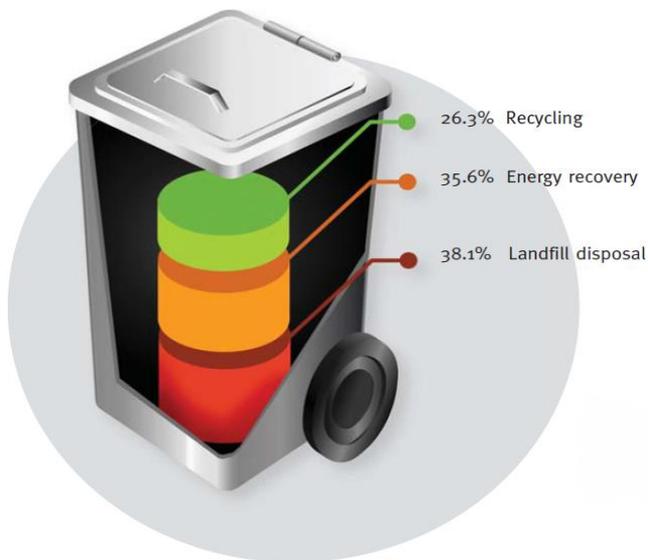
2.2 RECYCLING, RECOVERY AND DISPOSAL OF POST-CONSUMER PLASTICS

Adopting Green Public Procurement criteria for plastics when purchasing products and goods can reduce plastic waste as the criteria remove recycling obstacles.

It is before consumer plastics become post-consumer plastics that this manual's GPP criteria can be used to remove obstacles for recycling.

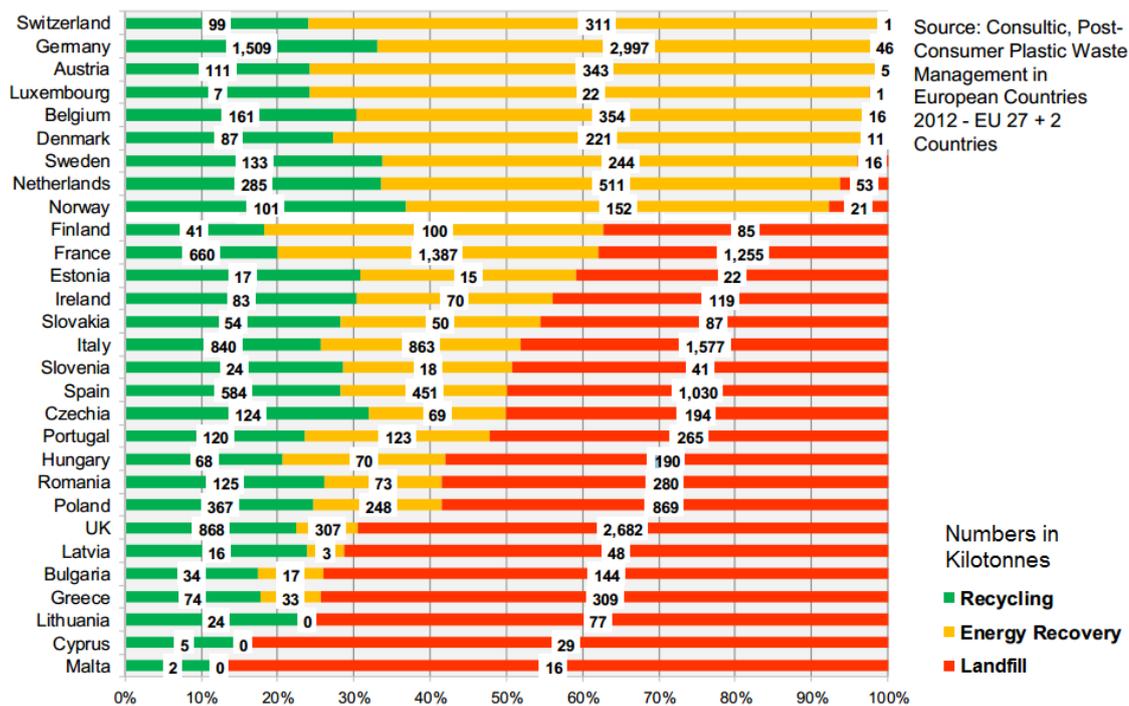
Having an understanding of where post-consumer plastics end up in waste management today is a helpful insight. To that end how does recycling hold up against recovery and disposal?

FIGURE 2. DISTRIBUTION OF RECYCLING, ENERGY RECOVERY AND LANDFILL DISPOSAL OF POST-CONSUMER PLASTICS IN 2012 FOR EUROPE (PlasticsEurope, 2013).



At EU level, about a quarter of post-consumer plastics are being recycled, a third recovered in waste-to-energy processes and the rest landfilled. The distribution in figure 2 is a snapshot of the overall situation. However, meaningful differences become apparent if the distribution is broken down per Member State.

FIGURE 3. DISTRIBUTION OF RECYCLING, ENERGY RECOVERY AND LANDFILL DISPOSAL OF POST-CONSUMER PLASTICS IN 2012 FOR EUROPE (Consultic, 2013)



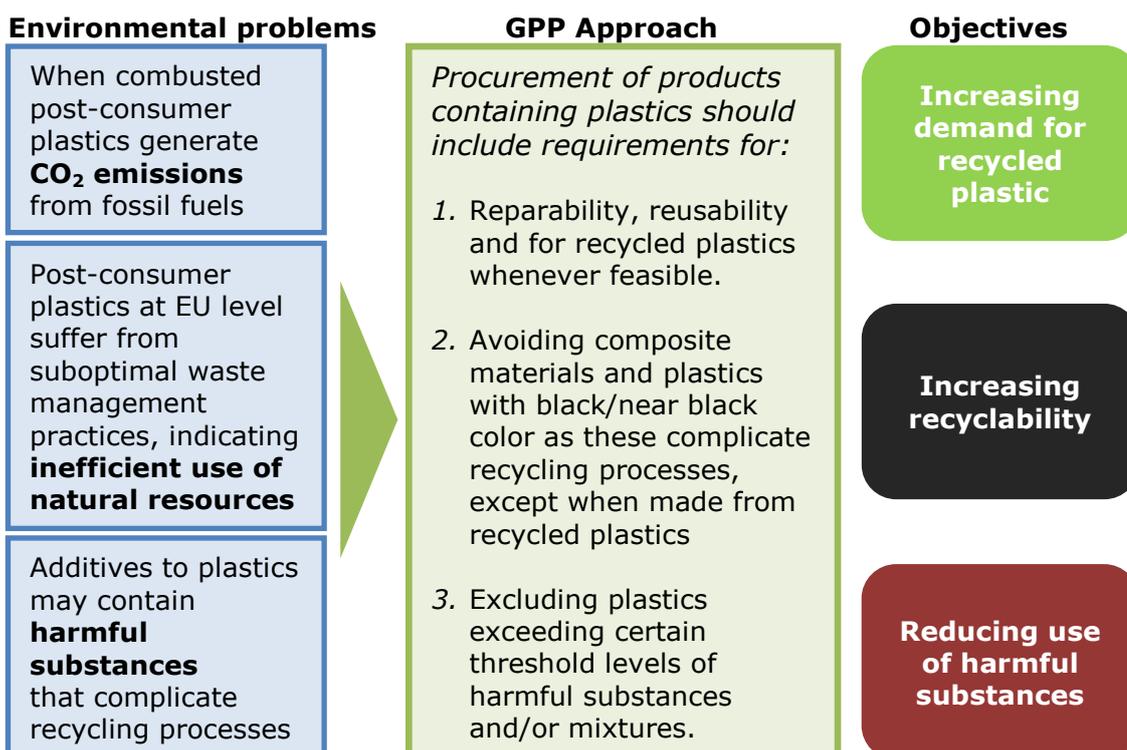
The GPP criteria in this manual are generic in order for them to be applicable regardless of country specific preconditions.

3 ENVIRONMENTAL PROBLEMS AND GPP APPROACH

In this manual three environmental problems from post-consumer plastics waste management are targeted: CO₂ emissions from combustion, inefficient use of resources and the presence of harmful substances.

A Green Public Procurement approach has been developed to lower these impacts by increasing demand for recycled plastic, improved recyclability and a reduction in the use of harmful substances.

FIGURE 4. GPP APPROACH TO ADDRESS ENVIRONMENTAL PROBLEMS FROM POST-CONSUMER PLASTICS



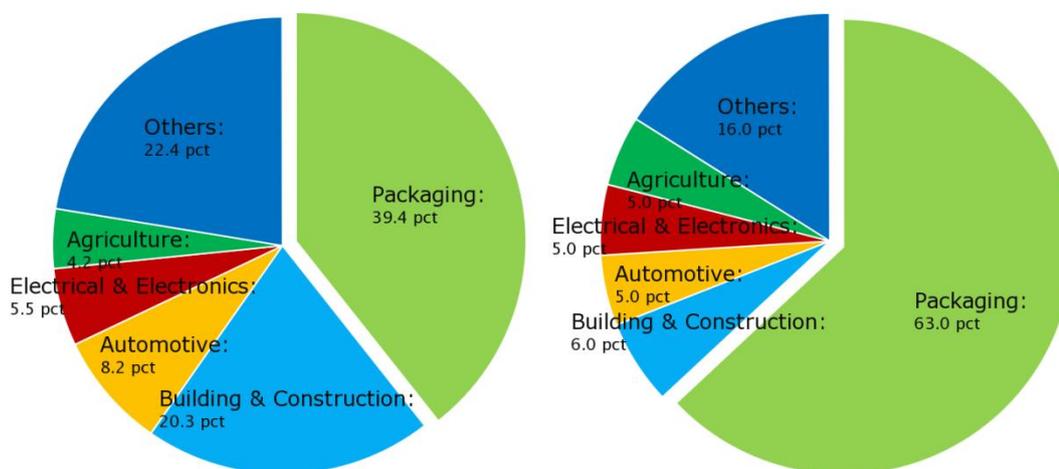
The GPP approach proposes specific requirements to be considered in the procurement process of products containing plastics. The requirements are means intended to promote the objectives of increasing demand for recycled plastic, improved recyclability and for a reduction in the use of harmful substances.

In this manual these requirements are further detailed in **copy-and-paste criteria** for the following product groups:

- *Packaging*
- *Furniture*
- *Office supply*
- *Office IT-equipment*

These product groups are selected for three reasons: they correspond well with market segment demand for plastics, they are particularly relevant for post-consumer plastics waste and they are assumed to be representative of common purchases subjected to public procurement within the EU.

FIGURE 5. EU PLASTICS DEMAND (2012) BY MARKET SEGMENT (LEFT) AND EU POST-CONSUMER PLASTICS WASTE (2011) BY MARKET SEGMENT (PlasticsEurope, 2013; PasticsRecyclersEurope, 2012).



Packaging dominates both plastics demand and post-consumer plastics waste. *Furniture, Office supply* and *Office IT-equipment* are located in the segments "Others" and "Electrical & Electronics".

3.1 ON CRITERIA ORIGIN, LEGALITY AND ECONOMICS

To ensure legal compliance and availability the included criteria are primarily collections of European Commission criteria and Eco-label requirements. The criteria are complementary to regular public procurements of the relevant product groups and should be assessed accordingly.

The chosen criteria all originate from three sources: GPP criteria from the European Commission, Type 1 eco-labels such as the "EU ECOLABEL" and/or the "Nordic Ecolabelling" certification schemes and finally from experiences gained in the EU LIFE project Plastic ZERO.

This is to ensure the criteria do in fact correspond to products or requirements on products that indeed are present on the market and should, in principle, be available to all EU Member States. Criteria from Plastic ZERO are in *italics* as the same qualifications cannot be made with certainty. The technical supporting documents are referenced at the end of the manual.

The criteria are complementary to regular public procurements of the relevant product groups. As such compliance with the legal principles of transparency, proportionality, mutual recognition, equal treatment and non-discrimination needs to be assessed in the individual case. However, legal concerns for public procurement primarily focus on *how* the process is conducted and not as much on *what* is purchased ([2004/18/EC](#)). Relatedly, no assessment of the relative impact of the manual's criteria on price has been made. Although, it is plausible that by insisting on, for example, reparability this may end up saving some money.

3.2 GOOD EXAMPLES

The manual includes good examples from Europe for each product group.

Good examples are included and come from north, central and southern Europe: Sweden, Denmark, Belgium and Spain. The examples illustrate the complementary nature of GPP criteria to regular public procurement and provide a context for how it is done in practice. Plastics are not the sole concern in any of the examples.

4 PLASTIC WASTE PREVENTIVE CRITERIA

This section presents criteria for Packaging, Furniture, Office supply and Office IT-equipment. Product groups are introduced by good examples followed by criteria.

4.1 GPP CRITERIA FOR PACKAGING

GOOD EXAMPLE OF GPP AND PACKAGING

Procurement of cleaning products and services with reduced packaging

Several public authorities in the EU have included criteria for packaging in their tenders.

Procurement objectives

In 2011, the municipality of Lolland, Denmark, framed their procurement of cleaning services on operational needs (Danish Environmental Protection Agency, 2013). The tender included objectives of improved working environment, improved resource efficiency, hygiene, good quality and low costs.

Results

Cleaning agents were reduced by 30-50%, 85MWh/year of electricity and 1425 m³/year of water were saved. Reductions in sick leave and by optimizing staff procedures an estimated EUR 174 218 in working hours could be saved. This optimization is expected to reduce packaging as a consequence of the more efficient use of cleaning agents.

Environmental impacts

It is estimated that the winning bid reduce the use of up to 90% chemicals, 85% water and lower by 70% CO₂ emissions compared to conventional services.

Lessons learned

Substantial amounts of resources and costs can be saved by carefully considering operational needs in procurements.

Subject matter		
Packaging is part of many goods and services. The criteria are divided into two parts: (i) Primary product packaging (ii) Transport packaging		
CRITERIA FOR PRIMARY PACKAGING		
Specification	Verification	Objective
Where plastic bags or sheets are used for the final packaging, they shall be made of at least 75% recycled material or they shall be biodegradable or compostable, in agreement with the definitions provided by the EN 13432 (EC, 2012). <i>Secondary biodegradable bags and sheets are preferred to non-biodegradables in countries with landfill of plastics (Khoo et al, 2010)</i>	Products holding a relevant Type 1 eco-label fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.	Increasing demand for recycled plastic
Non-reusable packaging components weighing more than 25 grams shall be possible to separate into single material types without the use of tools. Reusable packaging exempted (2009/894/EC; Nordic Ecolabelling, 2013a)		
<i>Plastic parts must not be of black or near black colour, except when made from recycled plastics (Plastic Zero, 2014).</i>	<i>The bidder shall provide completed and signed declaration of compliance with the criterion.</i>	Increasing recyclability

<p><i>Packaging shall be in mono material. If not possible: packaging shall be in materials compatible for recycling with common reprocessing technology (PET, PE, PP and PS polymer types). Closures, caps, sealing, labels and sleeves shall be in same material or in material compatible to recycle with the main polymer. Adhesives shall be reduced to a minimum, and be water soluble at 60°-80° C. Packaging shall be without print. Criteria where colour and/or print are needed: colours and prints shall be limited to caps, labels and sleeves. (Recoup, 2013 and Plastic Zero, 2014).</i></p>		
<p>Plastic packaging (including caps, lids and pumps and labels) containing PVC or plastic based on other types of chlorinated materials must not be used (Nordic Ecolabelling, 2013b).</p>	<p>Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.</p>	<p>Reducing use of harmful substances</p>
<p>Only phthalates that at the time of application have been risk assessed and have not been hazard classified or categorized in accordance with Article 57 of Regulation (EC) No 1907/2006 as well as Regulation (EC) No 1272/2008 may be used in the plastic packaging.</p>		
<p>CRITERIA FOR TRANSPORT PACKAGING</p>		
<p>Specification</p>	<p>Verification</p>	<p>Objective</p>
<p>Products shall be supplied in secondary and/or transport packaging with more than 45% recycled content (EC, 2008a).</p>	<p>The bidder must provide a signed declaration indicating which of these criteria it is able to meet. The contracting authority will verify compliance during the contract period, and appropriate penalties will be applied for non-compliance.</p>	<p>Increasing demand for recycled plastic</p>
<p>Products must not be supplied in individual portions (single-unit packages)(EC, 2008a).</p>		
<p>It must be possible to recycle or reuse the materials in the packaging and transport protection (Nordic Ecolabelling, 2013a).</p>	<p>The producer must submit a description of the packaging and transport protection and how it will be handled.</p>	<p>Increasing recyclability</p>
<p>Packaging/wrapping must not contain chlorinated plastic (Nordic Ecolabelling, 2013c).</p>	<p>Bidders must provide appropriate documentation.</p>	<p>Reducing use of harmful substances</p>
<p>Construction: Transport and recycling of building materials: The contractor should set a minimum and a target level for the use of reusable containers to transport the necessary building materials to, on and from the construction site. Suppliers of building materials must set a minimum and a target level for packaging waste (to be achieved for instance through a system of take back, recycle and reuse of packaging that comes with the building materials) (EC, 2008b).</p>	<p>Proof of compliance can be provided by an Environmental Management System (EMS) such as EMAS or other evidence of equivalent environmental management measures.</p>	<p>Increasing recyclability</p>

4.2 GPP CRITERIA FOR FURNITURE

GOOD EXAMPLE OF GPP AND FURNITURE

Procurement of eco-designed office furniture by Basque Government

In 2006 the Basque Environmental Management Authority (Ihobe), Spain, applied GPP to furniture (Ihobe, n.d.)

Procurement objectives

Purchase eco-design furniture meeting the quality demands in a range of eco-labels and ISO standards.

Criteria used

The criteria focused on production, use of recycled materials and recyclability at the end-of-life.

- 1) *Technical and environmental quality of the materials*
Plastic components: products containing previously recycled plastic will be preferred and plastic pieces should be marked according to ISO 11469 (or equivalent) above a certain weight; substances based on lead, cadmium, mercury or its compounds should not be added to plastic materials.
Metal parts: must be easily dismantled at the end of the products' life cycle in order to be recycled; inclusion of recycled (second fusion) metals will be preferred.
Upholstery: preference for products with Type 1 ecolabel or equivalent.
 Foam: Preference will be given to fulfilment of CertiPUR criteria or equivalent.
- 2) *Technical quality of the product*
 Focus on having standardised assembly connections of pieces, modularity and ergonomics (for chairs).
- 3) *Environmental quality of the products*
 Requirements on longevity (minimum guarantee of at least three years); maintenance – for example, cleaning of products should be possible without the use of organic solvents; and products shall be recyclable and re-usable.

Results

Four bidders fulfilled all requirements. Bids addressing life cycle assessments and environmental product declarations were given additional points. The winning bid obtained the highest environmental score and was the least expensive bid. The tender has inspired similar procurements by the Basque Water Authority and the City of Bilbao.

Environmental impacts

By focusing on production, use of recycled materials and recyclability at the end-of-life (eco-design), Ihobe stimulated demand for this type of initiatives.

Lessons learned

Including eco-design requirements in procurements is possible. Consulting with experts and having knowledge of the market situation were critical. Future possibilities to steer the production processes of private companies to improve usage of recycled materials (steel, aluminium and plastics) and sustainable timber have been identified.

Subject matter

Purchase of furniture produced with low environmental impacts throughout the lifecycle with focus on plastic components (EC 2008c). These criteria can apply to indoor furniture for business purposes, e.g. offices, schools and domestic purposes. It includes all free-standing or built-in furniture units used for storing, hanging, lying, sitting, working and eating. For outdoor furniture the criteria cover benches, tables and chairs.

Specifications	Verification	Objective

<p>Stated percentage of weight made from recycled plastics in the final piece of furniture (EC 2008c).</p> <p>Furniture with more than 10% by weight plastic: The plastic materials used in furniture and fitments must consist of at least 50% by weight recycled materials.</p> <p>Recycled plastic of polypropylene (PP), polyethylene(PE) and polyethylene terephthalate (PET) shall consist of post-consumer materials. Other plastic can also consist of recycled production off-cuts from outside suppliers. Recycled plastic is defined as post-consumer recycled material or recycled production off-cuts from outside suppliers. Recycled plastic must not contain halogenated flame retardants. Nevertheless, impurities are permitted in quantities of up to 100 ppm (Nordic Ecolabelling, 2013d).</p>	<p>Bidders must provide appropriate documentation where the recycled content percentage by weight is stated.</p>	<p>Increasing demand for recycled plastic</p>
<p>All plastic parts \geq 50g must not contain additions of other materials that may hinder their recycling (EC 2008c)</p>	<p>Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.</p>	<p>Increasing recyclability</p>
<p>A minimum of 90% of all production waste from the production of padding materials must be recycled (Nordic Ecolabelling, 2013d).</p>		
<p>The office furniture shall be easily separable into individual material types (Danish Environmental Protection Agency, 2009). A qualified person, working alone, must be able to disassemble the product (Nordic Ecolabelling, 2013g).</p>		
<p><i>Plastic parts must not be of black or near black colour, except when made from recycled plastics (Plastic Zero, 2014).</i></p>	<p>Bidders must provide appropriate documentation.</p>	<p>Reducing use of harmful substances</p>
<p>Parts made of PVC shall not be used (Nordic Ecolabelling, 2013d).</p>	<p>Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.</p>	
<p>The blowing agents of polyurethane foams (PUR-foams) must not be HFC or methylene chloride (EC 2008c)</p>		
<p>Products used for surface coating shall: Not contain hazardous substances that are classified according to Directive 999/5/EC as carcinogenic, harmful to the reproductive system, mutagenic, toxic, allergenic when inhaled or harmful to the environment, cause heritable genetic damage, danger of serious damage to health by prolonged exposure, possible risks of irreversible effects.</p> <p>For phthalates:</p> <ul style="list-style-type: none"> • Not contain aziridine • Not contain Chromium (VI) compounds • Not contain more than 5% by weight of volatile organic compounds (VOCs) (EC 2008c). 		

4.3 GPP CRITERIA FOR OFFICE SUPPLY

GOOD EXAMPLE OF GPP AND OFFICE SUPPLY

Procurement of office supply by The City of Ghent

In 2013 the City of Ghent, Belgium, applied GPP to Office supplies ([EC 2013b](#)).

Procurement objectives

For office supplies: achieve greater environmental and economic returns on purchases, especially by clustering orders to reduce CO₂ emissions from transports.

Criteria used

The City of Ghent composed their criteria from national, transnational and EU criteria (also the approach used in this manual).

Technical specifications

- Remanufactured toners and cartridges (from original once used cartridges).
- Exclusion of polyvinyl chloride (PVC), for example, from self-adhesives and transparent folders. For such products it was required that these be produced from polypropylene (PP).
- Preference given to reusable or refillable products.
- Water based inks for markers, for example.

Results

With the introduction of the City of Ghent's new public procurement framework contracts other entities such as the fire brigade, police service, the public social welfare center can now use these contracts which provide benefits such as lower price and better environmental returns.

Environmental impacts

The City of Ghent expects reduced CO₂ emissions from transports of purchases due to less frequent deliveries.

Lessons learned

Two bids were received and they matched the set requirements for the products to at least 90%. One of the key objectives of the public procurement contracts was to achieve CO₂ neutral supplies. However, results from the market research analysis showed that CO₂ neutral transport is currently not economically justified and that a requirement on CO₂ neutral transport would have had a disproportionate influence on the price of the products.

Subject matter		
Purchase of Office supply with low environmental impacts throughout the lifecycle with a particular focus on plastic parts.		
Specifications	Verification	Objective
For imaging equipment : List the plastic materials used. At least one part > 25 g must contain re-used plastic part or post-consumer and pre-consumer re-cycled plastic (Nordic Ecolabelling, 2013e).	Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.	Increasing demand for recycled plastic
For imaging equipment : Plastic parts heavier than 25 g must be composed of one polymer or compatible polymers. Plastic parts heavier than 25 g may contain metallic inlays provided that these can easily be separated without the use of special tools. 90% by weight of plastics and metals in the enclosure and chassis must be technically suitable for material recovery (Nordic	Disassembly instructions and a declaration from the manufacturer of the product showing that the requirements are met or products holding relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply.	Increasing recyclability

Ecolabelling, 2013e).		
For imaging equipment : Single plastic casing parts > 25 g must be made of a homopolymer or copolymer. Polymer blends (polymer alloy) are permitted. Combined plastic casing parts > 25 g must be made of four or fewer types of mutually separable polymers or polymer blends (Nordic Ecolabelling, 2013e).	Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.	
<i>Plastic parts must not be of black or near black colour, except when made from recycled plastics (Plastic Zero, 2014).</i>	Bidders must provide appropriate documentation.	Reducing use of harmful substances
For writing instruments : The raw material must not contain chlorine-based plastic. Additives must not contain antimony, arsenic, barium, cadmium, mercury, selenium, lead and/or hexavalent chrome. This requirement does not concern impurities from primary production. Impurities are defined as residual products from primary production that can be found in the plastic in concentrations < 0.01%. Substances that are added intentionally to a raw material are not considered impurities irrespective of their concentration (Nordic Ecolabelling, 2013f).	Declaration from the plastic manufacturer that the requirement is fulfilled and a product data sheet or products holding relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply.	

4.4 GPP CRITERIA FOR IT- OFFICE EQUIPMENT

GOOD EXAMPLE OF GPP AND OFFICE IT-EQUIPMENT

Procurement of office IT-equipment by Stockholm County Council

In 2010, Stockholm County Council, Sweden, applied GPP to Office IT-equipment ([EC 2014](#)).

Procurement objectives

For new computers: achieve low energy consumption, increase use of post-consumer plastics and eliminate lead, mercury and halogenated flame retardants.

Criteria used

Stockholm County Council used their own criteria which are similar to the common EU criteria for Office IT-equipment (also largely used in this manual).

1) Technical specifications

- All equipment must meet the latest Energy Star standards for energy performance
- Computers are free of lead, mercury, PVC and halogenated flame retardants, and comply with the RoHS Directive, 2002/95/EC.
- Computers must have a 20% better Typical Electricity Consumption (TEC) than the Energy Star criteria and contain at least 10% recycled plastics
- All monitors must comply with the latest environmental and usability criteria under the TCO Development certification scheme (TCO Displays 5) or equivalent

2) Selection criteria

Bidders were required to demonstrate their technical capacity to meet the requirements of regulations SFS 2005:209 and SFS 2008:834 on producer responsibility for batteries and packaging.

3) Award criteria

The contract was awarded on the basis of the "Most Economically Advantageous Tender"(MEAT). Costs were calculated based on the Total Cost of Ownership, including purchase price and energy costs over three years.

Results

Stockholm County Council will save significant sums in the coming years, due to improved energy efficiency and reduced equipment costs.

Environmental impacts

Stockholm County Council owns about 40,000 computers and renews them on a rolling basis. By the end of 2014, the County Council expects to have reduced hazardous substances by 8000 tonnes and carbon dioxide emissions by 2000 tonnes.

Lessons learned

Few suppliers could meet the requirement for post-consumer plastics and only one could remove PVC from internal and external cables. However, the winning bid met all requirements. Stockholm County Council sees it as likely that other suppliers will take steps to meet the sustainability requirements indicated in the tender and will therefore employ the same procedure again.

Subject matter

Purchase of Office IT-equipment (PCs, laptops, monitors, projectors headsets and mobile/smartphones) with low environmental impacts throughout the lifecycle with focus on plastic components.

Specifications	Verification	Objective
Recycled content and recyclability (for PCs, notebooks and monitors): the external plastic case of the system unit, monitor and keyboard has a post-consumer recycled content of not less than 10% by mass (EC, 2012).	Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. A declaration by the manufacturer stating the percentage post-consumer recycled content.	Increasing demand for recycled plastic

<p>Information requirements: Advice on how used products and their packaging are recycled or disposed of in an environmentally acceptable way (take back systems, deposit system, handling and recycling as well as scrapping) by the manufacturer or a third party. Information shall also be provided on where users can dispose of used products (Nordic Ecolabelling, 2013g) and/or the product manufacturer must publicly provide information on product take back for example in user guide documentation, embedded in the user interface of the device or on the internet (EC, 2010)</p>	<p>Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.</p>	<p>Increasing recyclability</p>	
<p>On ease of disassembly and ease of recycling plastic parts:</p> <ul style="list-style-type: none"> • Computers and displays must be designed in such a way that disassembly is possible: A qualified person, working alone, must be able to disassemble the product (Nordic Ecolabelling, 2013g). Connections shall be easy to find, accessible with commonly available tools, and as standardised as possible (EC, 2012). • It must be possible to separate the substances, preparations and components listed in ANNEX VII of the WEEE Directive (2012/19/EU) (Nordic Ecolabelling, 2013g). • Plastic parts shall be of one polymer or compatible polymers, except for the cover, which shall consist of no more than two types of polymer, which are separable (EC, 2012). • If labels are required they shall be easily removable or integrated. This does not apply to safety labels according to CENELEC safety standard EN 60850 §1.7.2. (Nordic Ecolabelling, 2013g) <p>90% by weight of plastics and metals in the enclosure and chassis must be technically suitable for material recovery (Nordic Ecolabelling, 2013g).</p>			<p><i>Plastic parts must not be of black or near black colour, except when made from recycled plastics (Plastic Zero, 2014).</i></p>
<p>Plastic parts heavier than 25g shall not contain flame retardant substances or preparations that are assigned any of the following risk phrases as defined in Council Directive No. 1272/2008: May cause cancer, may cause heritable genetic damage, may impair fertility, may cause harm to the unborn child (EC, 2012).</p> <p><i>In addition for mobile/smartphones:</i> The carrier material of printed circuit boards must not contain substances or preparations that are classified according to Directive 1999/45/EC and 67/548/CEE or Regulation (EC) No 1272/2008 as follows: limited evidence of a carcinogenic effect, danger of serious damage to health by prolonged exposure, very toxic to aquatic organisms/may cause long-term adverse effects in the aquatic environment. Beryllium oxide (BeO) must not be used in electronic components (EC, 2010)</p>	<p>The enclosure and chassis must not contain chlorine-based plastics (Nordic Ecolabelling, 2013g) or plastic parts shall not contain a chlorine content greater than 50 % by weight (EC, 2012).</p>	<p>Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.</p>	

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