



**TOR VERGATA**  
UNIVERSITÀ DEGLI STUDI DI ROMA

Sustainable Procurement and Supply Chain Management

# GREEN PUBLIC PROCUREMENT: AN INTRODUCTION

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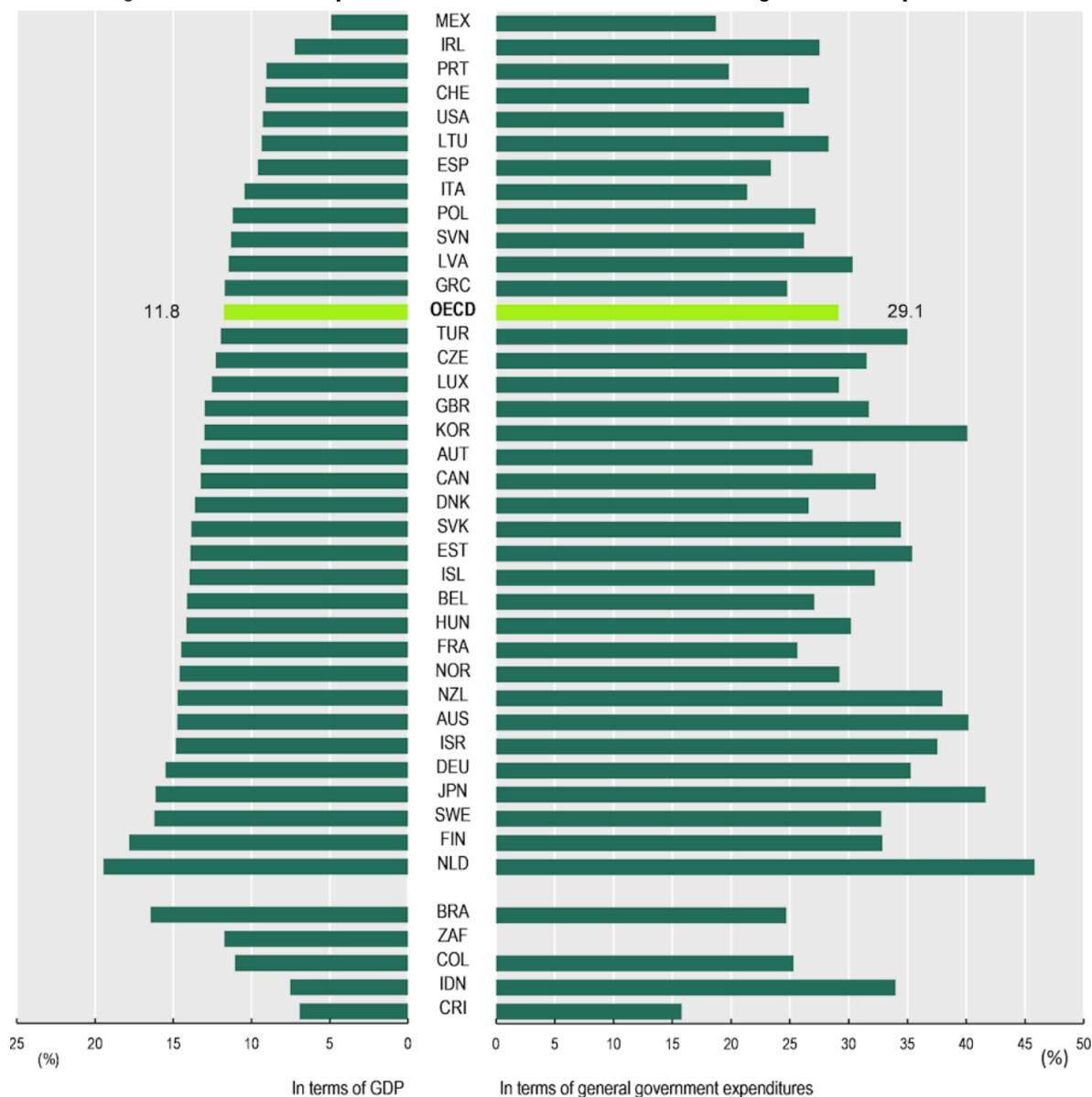
# CONTENTS

- Public procurement and Green public procurement
- GPP: Legislation and organization
- GPP: Tools for operation
- GPP: Approaches for operation
- Case Study: Procuring sustainable computers, printers, and related services (Tuscany, Italy)

# PUBLIC PROCUREMENT

- Public procurement refers to the acquisition by the government and related entities of works, goods, and services from the open market, placing their demands alongside those of the private sector.
  - Governmental institutions
  - Public Funds: Non-profitable
  - Procurement
    - Works: constructions, maintenance of roads/buildings,
    - Goods: items such as paper, pen, computer, medical devices,
    - Services: the delivery of functions, such as catering, IT support,,,

Figure 1.1. Government procurement as a share of GDP and of total government expenditure



## HOW LARGE IS PUBLIC PROCUREMENT?

- Around 12% of GDP globally is spent on public procurement (World Bank, 2021).

Source: OECD, 2021

# PUBLIC PROCUREMENT

## AS A TOOL FOR IMPLEMENTING SECONDARY TARGETS

- Public procurement is a powerful market force.
- Public procurement is used increasingly as an important strategic policy instrument to achieve many public policy goals, not only to purchase products or services.
  - Social aspects: promote an open market, gender equality
  - Innovation policy: \* If 1 % of public procurements were 'innovative' then 200 M€/year more funding for innovations \* Challenge: What is innovative public procurement? No clear definition exists.
- Achieve environment objectives:  
**Green Public Procurement (supply chain, usage, disposal)**

# WHAT IS GREEN PUBLIC PROCUREMENT (GPP)?

European Commission, 2008: “A process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured.”

\* Similar definitions can be found in relation to OECD and APEC countries ([Gimenez-Pujol and Castano, 2013](#); [Bouwer et al., 2006](#); [Li and Geiser, 2005](#)).

- The central idea existing emphasized in GPP definitions is that of a demand-oriented policy tool to achieve desirable environmental outputs and to promote green services and products by using public procurement.
- Green procurement
- Sustainable procurement
- Circular public procurement



# EXAMPLES OF GPP



Organic foods at school

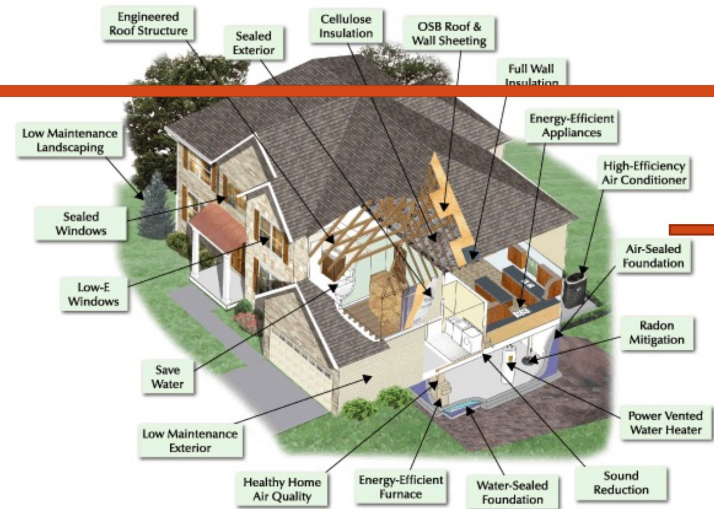


Electricity from renewable sources

Energy Saving



energy-efficiency lights



Energy efficiency building



ecological and recycled paper for printing



low carbon emission vehicles

Climate change/  
CO<sub>2</sub> emission

Pollution reduction

# LEGISLATION GPP

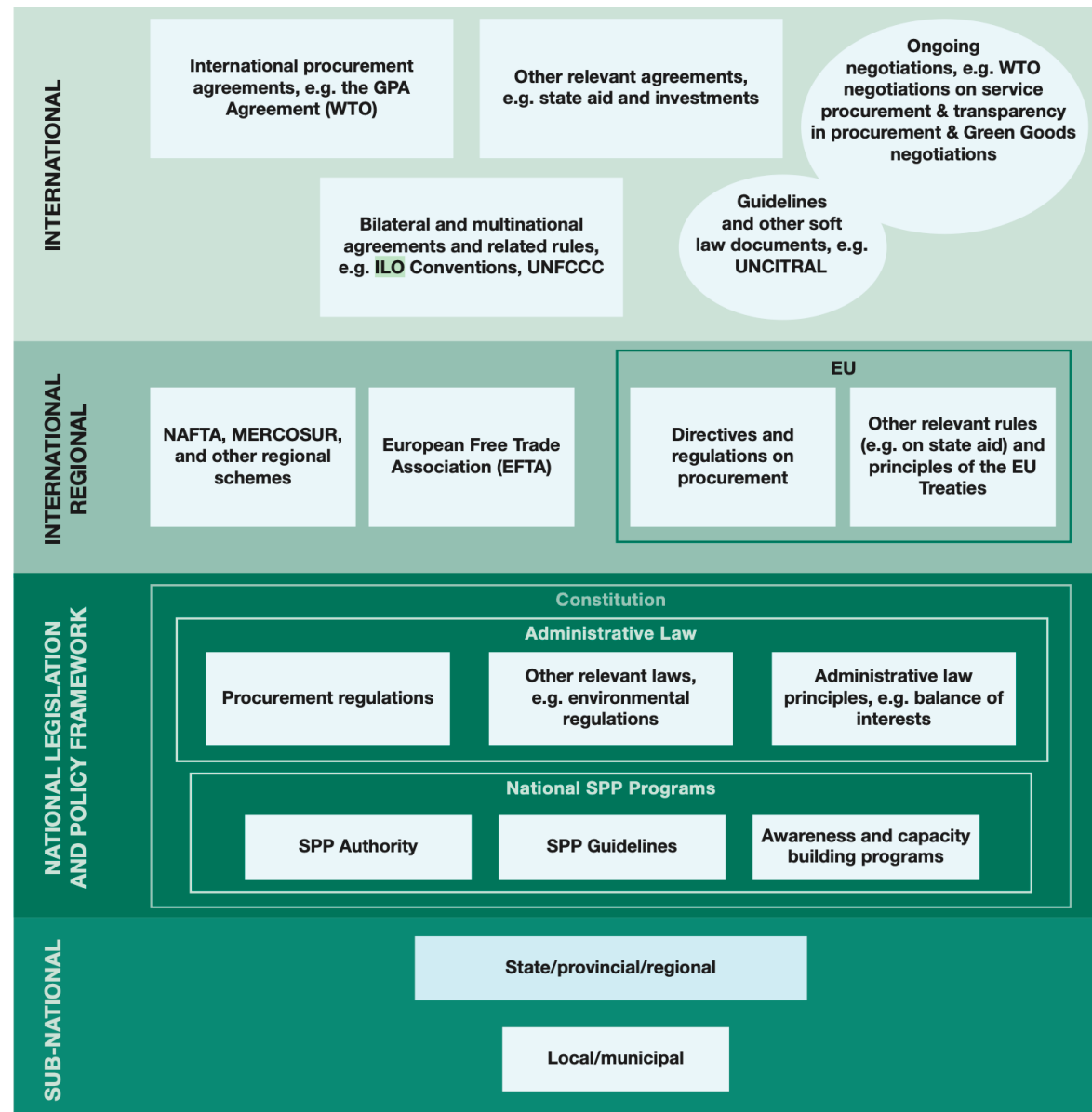


Figure 9: The international, regional and national legal frameworks for SPP/GPP

Source: UNEP 2013



GPP Institutional Arrangements Countries with ....	% of countries with GPP institutional arrangements							Total
	ECA	EAP	LAC	MNA	AFRE	AFRW	SAR	
A GPP strategy or action plan, or addressing GPP in its national public procurement strategy	73	40	31	21	19	14	0	34
Provision for green public procurement practices in their procurement law.	70	55	45	26	19	32	63	44
Some mandatory green procurement practices.	27	15	24	0	5	5	0	13
Standardized environmental criteria for some procurement categories	40	20	28	0	10	5	0	18
Specific GPP strategies for any of these sectors: energy; agriculture; water; transport.	43	10	28	5	5	9	0	18
Systematical collection of information on green public procurement activities.	33	5	3	0	0	0	0	8
Reporting on the implementation of green public procurement activities.	23	5	3	0	0	0	0	6
At least one of the above institutional arrangements.	90	55	52	36	29	36	63	53
<b>Number of countries reviewed</b>	<b>30</b>	<b>20</b>	<b>29</b>	<b>19</b>	<b>21</b>	<b>22</b>	<b>8</b>	<b>149</b>

Source: World Bank, 2021



21 Based on survey of World Bank country procurement specialists in 2021. ECA Europe and Central Asia. EAP East Asia and Pacific. LAC Latin America and the Caribbean. MNA Middle East and North Africa. AFRE East Africa. AFRW West Africa. SAR South Asia.

# PUBLIC PROCUREMENT LAW IN EU

**Public procurement law prescribes in a formal way how to go about government contracts.**

**The law framework based upon the body of international, European, national law, directives and jurisprudence.**

- The legal basis of public procurement:  
Directives 2004/17/EC and 2004/18/EC / were replaced in 2014
- The 2014 Procurement Directives enable public authorities to **take environmental considerations into account**.
- GPP is a voluntary instrument. However, more and more countries are commencing to include mandatory environmental requirements in procurement tendering.
- Sector-specific EU legislation creates mandatory obligations for the procurement of certain goods and services, for example by setting minimum energy-efficiency standards which must be applied.

# GREEN PUBLIC PROCUREMENT LEGAL FRAMEWORK

- GPP has been endorsed in many EU policies and strategies. All these policies and strategies together create a framework that encourages GPP.



# HOW CAN PUBLIC AUTHORITIES TAKE ENVIRONMENTAL CONSIDERATIONS INTO ACCOUNT?

## ■ INSTRUMENTS FOR OPERATION

Green criteria

Ecolabels and environmental management standards

Life-cycle approach

## ■ APPROACHES



## INSTRUMENTS: GREEN CRITERIA

- The basic concept of GPP relies on **integrating environmental criteria for public products and services procurement**.
- Public authorities need to have access to clear and verifiable criteria that allow them to incorporate environmental considerations into their tendering while complying with the requirements of the Procurement Directives and other sources of procurement law.

# INSTRUMENTS: GREEN CRITERIA

- Since 2008, more than 20 **common GPP criteria** covering various product and service groups (based on a life-cycle approach and scientific evidence).
- The criteria are designed to be inserted directly into tender documents and include information on verification methods. (scientific information and data/ new technology/ market and legislation changes/ engagement of stakeholders)
- For each sector, the EU Commission proposed two types of criteria:
  - 1) The core criteria: Easy to apply for GPP/Focus on the key environmental performance/Minimize the administrative costs and additional verification effort.
  - 2) The comprehensive criteria: Suitable for contracting authorities that put the environmental or innovation goals as a priority/Consider more aspects or higher levels of environmental performance/Require additional verification effort and might slightly increase the cost compared to other products with the same functionality.



# Green Public Procurement Criteria and Requirements

[https://ec.europa.eu/environment/gpp/eu\\_gpp\\_criteria\\_en.htm](https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm)

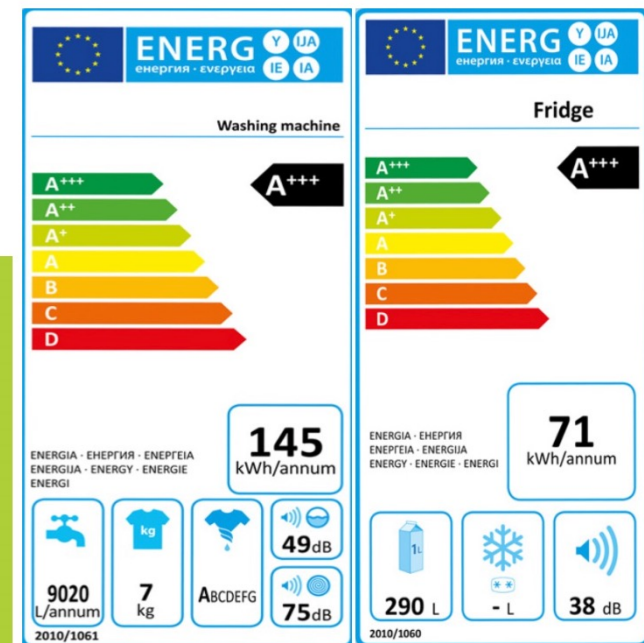
## EU GPP Criteria for food, catering services and vending machines

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# INSTRUMENTS: ENVIRONMENTAL LABELS

- Environmental labels can also be very **useful sources of GPP criteria**.
- Environmental Labels could help the authorities identify suitable products or services.  
(technical specifications/award criteria/in verifying compliance)



# INSTRUMENTS: ENVIRONMENTAL LABELS

**Multi-criteria labels:** the most commonly used

- Multi-criteria labels are based on scientific information about the environmental impact of a product or service throughout its life cycle
- Different sets of criteria are established for each product or service group covered.
- Examples: EU Ecolabel

**Single issue labels**

Based on one or more pass/ fail criteria linked to a specific issue. If a product meets those criteria, then it may display the label, Example: EU Organic label.

**Sector-specific labels**

- Sector-specific labels include forestry certification schemes operated by organizations.

**Graded product labels**

- These grade products or services according to their environmental performance on the issue in question, Example : EU Energy Label.

# INSTRUMENTS: ENVIRONMENTAL MANAGEMENT SYSTEMS/STANDARDS

Environmental management systems are organization-related tools, aimed at improving the overall environmental performance of the committing organization. Provide a structured and third-party-certified way to manage environmental performance

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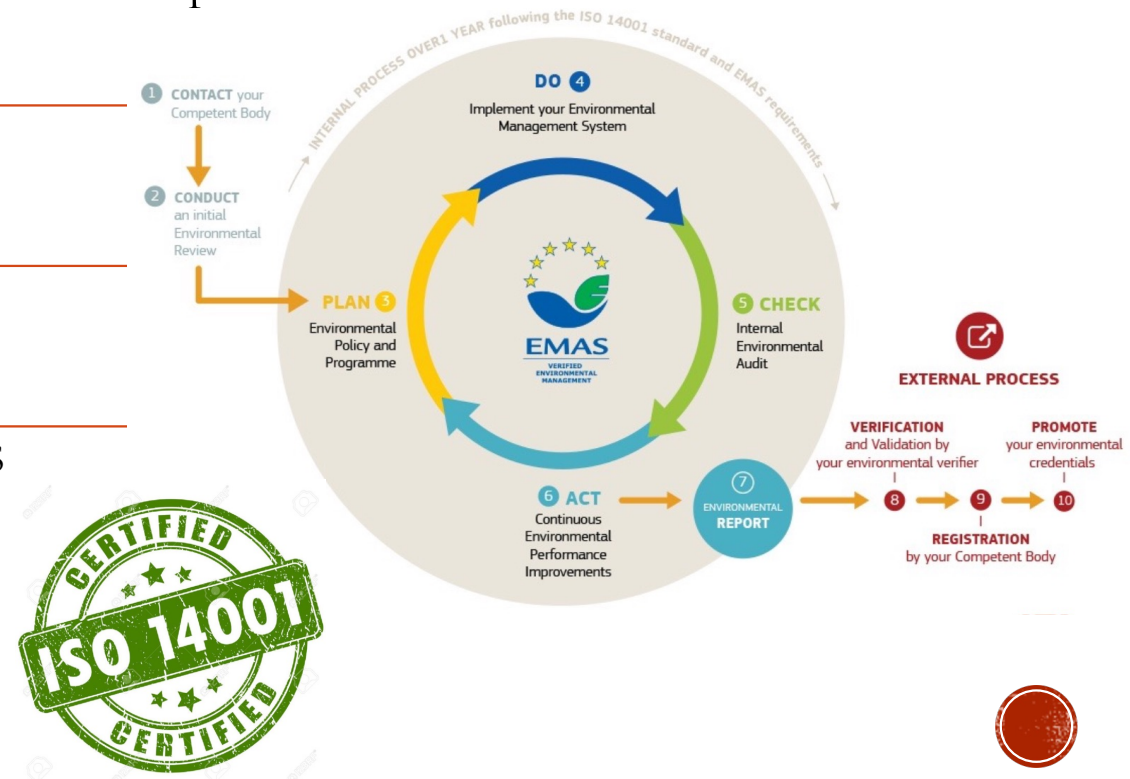
Eco-management and audit scheme (EMAS), or

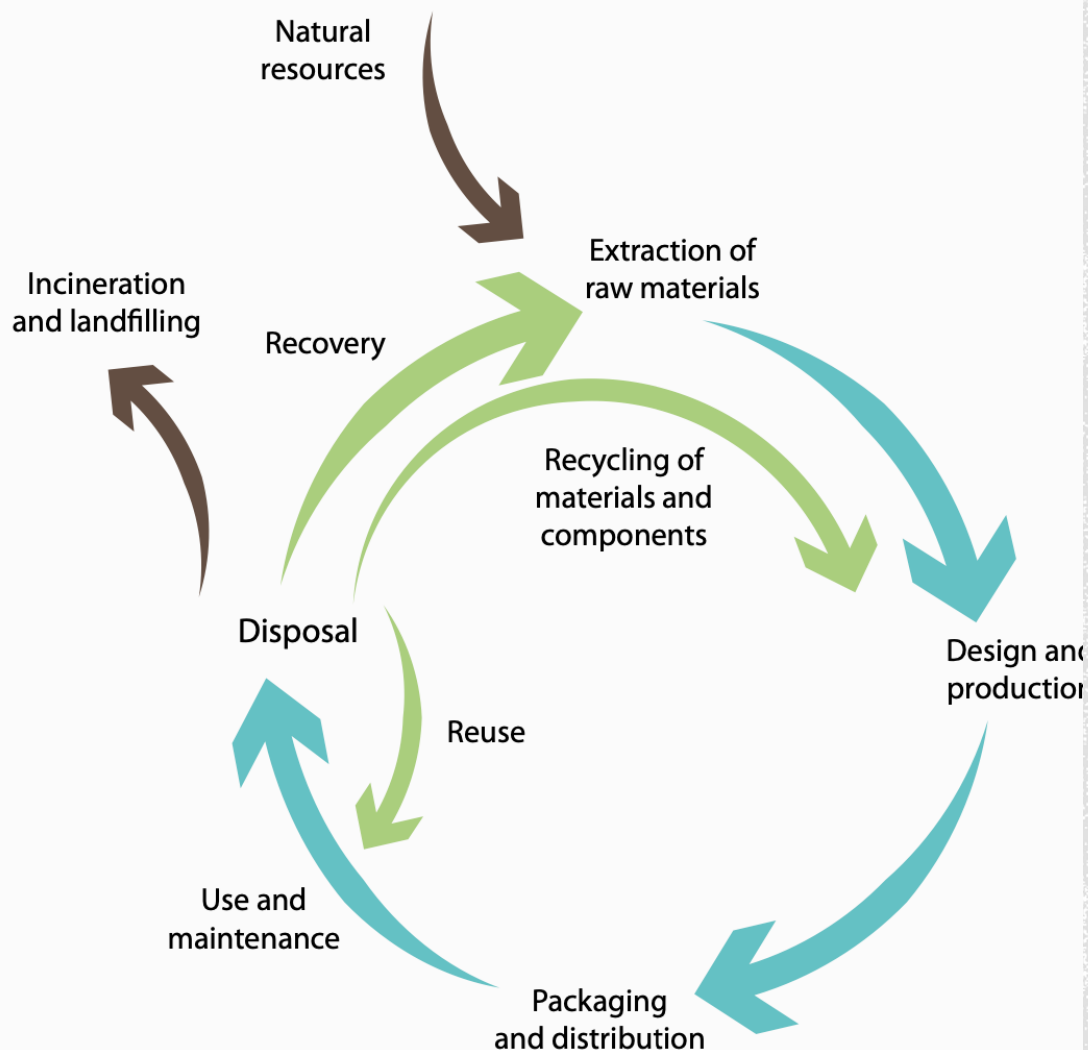
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European/international standards on environmental management systems (EN/ ISO 14001).

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The actual elements of technical capacity covered by an EMS should be relevant to the subject matter of the contract.





## INSTRUMENTS: LIFE-CYCLE ANALYSIS (LCA)

- The concepts of life-cycle analysis (LCA) are at the heart of GPP.

Life Cycle Assessments provide the best framework for assessing the potential environmental impacts of products currently available.

- Life-cycle assessment (LCA) allows for cradle-to-grave analysis of the environmental impacts of products.

Carrying out an LCA for an individual contract implies considerable extra effort.

- The use of LCA: The **EU GPP criteria** set rely upon life-cycle assessment (LCA) data where it is available; **Labels built on the LCA; Life-cycle costing (LCC).**

Source: A typical product life cycle diagram, Life Cycle Initiati

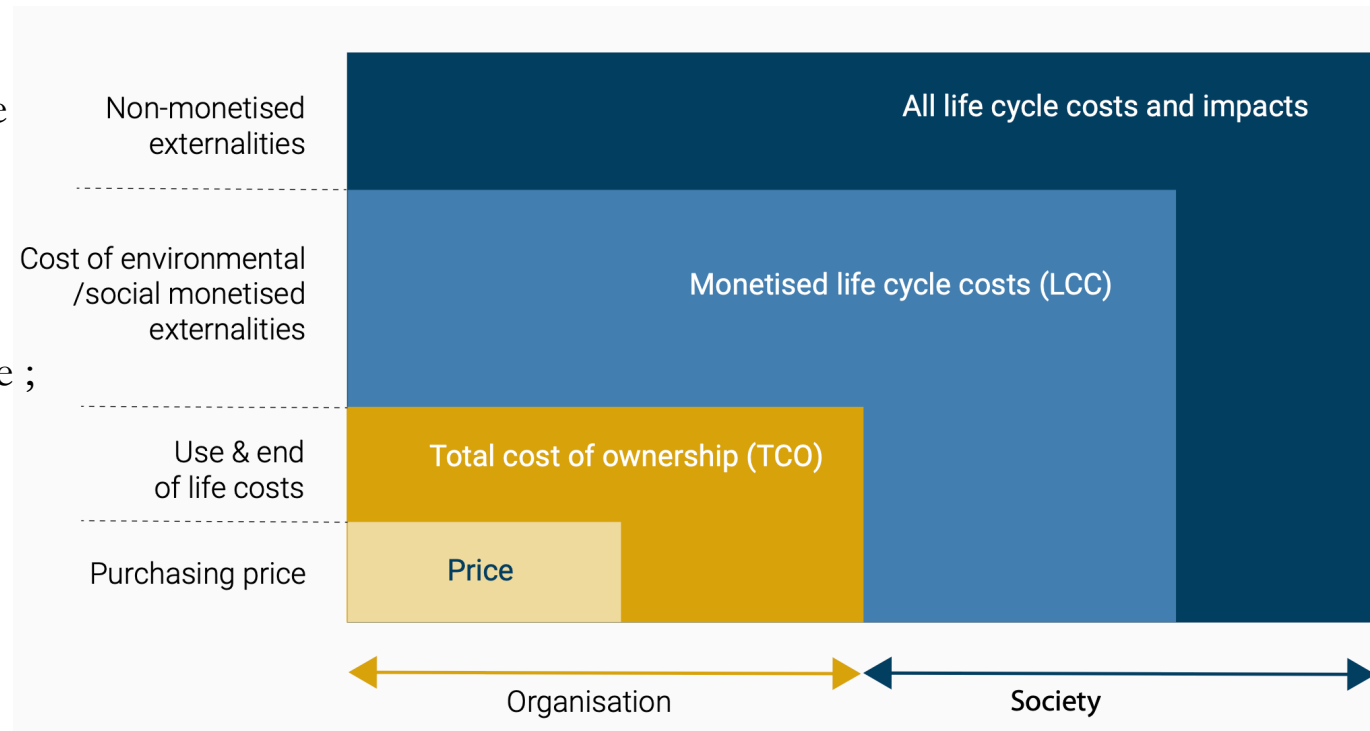


# INSTRUMENT: LIFE-CYCLE COSTING (LCC)

**Life-cycle costing (LCC)** : considering all the costs that will be incurred during the lifetime of the product, work, or service.

How to conduct a life cycle cost estimate

- Purchase price and all associated costs (delivery, installation, insurance, etc.) ;
- Operating costs, including energy, fuel and water use, spares, and maintenance ;
- End-of-life costs, such as decommissioning or disposal;
- It may also include the cost of externalities (such as greenhouse gas emissions).



*life-cycle costs, source: Source: UN Environment, ISO 20400.*



# INSTRUMENT: LIFE-CYCLE COSTING (LCC)

- At the award stage of a procurement procedure, the cost of a tender is usually one of the most influential factors.
- An increasing number of public authorities in Europe are using LCC to evaluate tenders.
- When a common method for calculating LCC has been made mandatory under EU law, public authorities must apply that method: Road transport vehicles under the Clean Vehicles Directive.

## LCC tools

- The European Commission's calculator for LCC for vehicle procurement:
- The European Commission's common method for LCC in construction
- A tool for assessing both LCC and CO2 emissions in procurement developed within the SMART-SPP project
- An LCC tool produced by the Swedish Environmental Management Council (SEMCo)
- An LCC tool developed within the BUYSMART project

(GPP handbook, 2016)

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# **OPERATIONAL APPROACHES**

**Tendering Process**

**procurement procedures**

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# EUROPEAN PROCUREMENT PROCEDURES

• <b>Open procedure</b>	Every market party can apply	Most commonly used
• <b>Restricted procedure</b>	Focused on pre-selection	Sometimes used
• <b>Competitive dialogue</b>	Used in complex project, investigate which solution best fits the functional specifications	Rarely used
• <b>Negotiated procedure with/without contract notice</b>	Announcement on forehand: negotiation about execution and cost, with or without a preselection	Sometimes used
• <b>Design contest</b>	A jury grants the project to one party, the procedure has to be clear and genuine	Sometimes used

*\* Choice of procedure is important because it determines who will be able to compete for the contract and how the public authorities apply certain criteria*

*Different procedures apply environmental criteria or considerations at different stages  
The choice of procedure depends on the subject matter and the information gathered during the pre-procurement stage.*

# CHOOSING THE PROCUREMENT PROCEDURE

**Open procedure**, any operator may submit a tender. All tenderers who meet the pass/fail conditions specified will be eligible to have the tender assessed.

Public authorities thus have access to the maximum choice of potential environmentally friendly solutions – but cannot select who you invite to tender based on their environmental technical capacity.

**Restricted procedure** and environmental technical capacity can be assessed in a prior stage. A minimum number of five must be invited to tender, provided suitable candidates are sufficient. The staged procedure can contribute to determining the appropriate level of environmental performance to aim for in specifications, award criteria, and contract performance clauses.

**The competitive procedure with negotiation and competitive dialogue** procedures can be used by public authorities for purchases that require an element of adaptation of existing solutions; design or innovation; or in certain other circumstances.

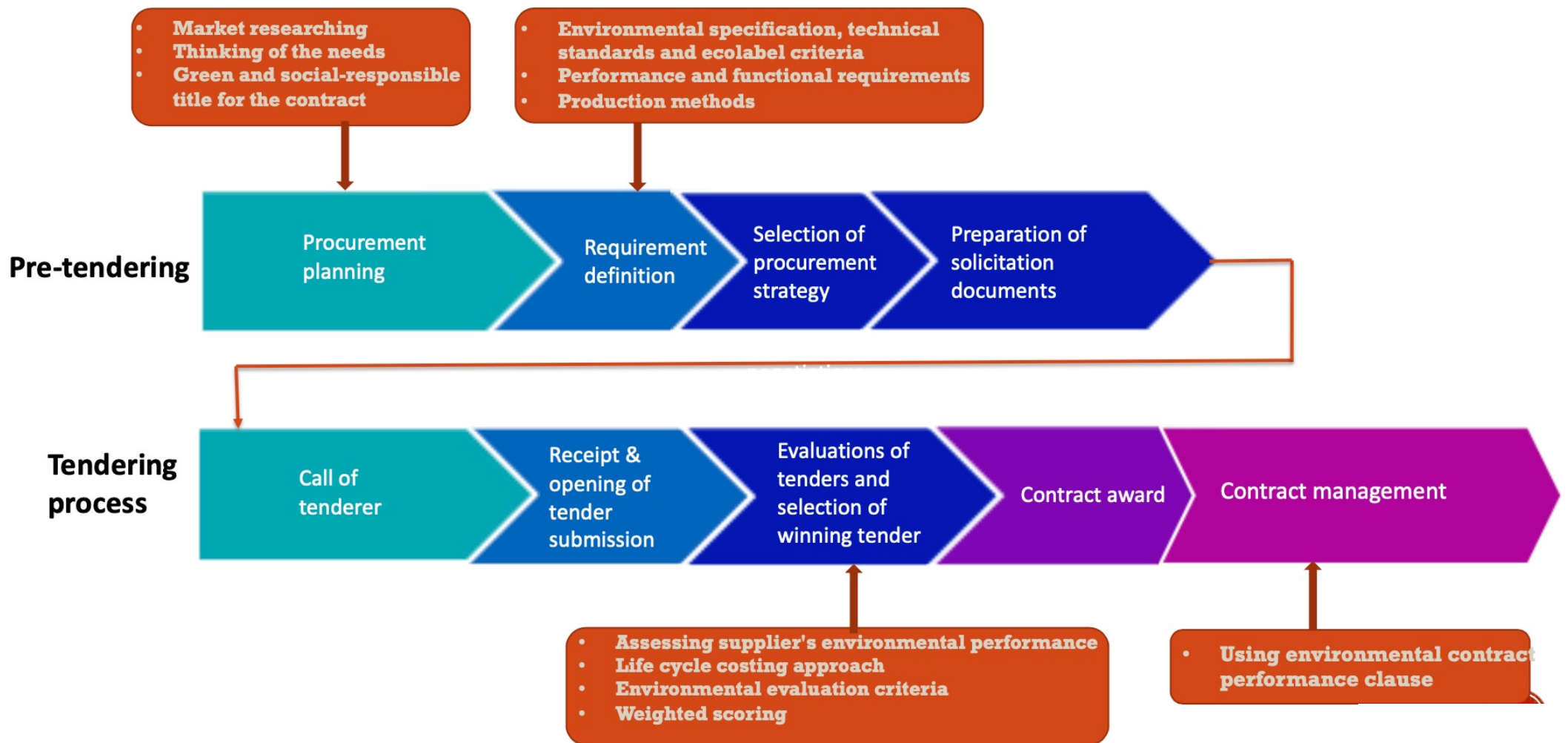
(Handbook GPP, 2006)

# CHOOSING THE PROCUREMENT PROCEDURE

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(Handbook GPP, 2006)





# THE PREPARATORY STAGE: MARKET RESEARCH

- Market research (desk-based data collection, etc.; preliminary market consultation with suppliers: contact the chamber of commerce, promotion, and trade bodies)

Engaging the suppliers at an early stage: the market trend and potential:

- products developed and unknown publicly;
- availability of products and services;
- the possibility to comply with the environmental requirements.

Informing the market about the tender also gives the suppliers enough time to prepare for the requirements in the tender.

- To determine procurement strategy: the type of tenders (open or restricted, international or national) and decide the environmental criteria inclusion.

## THE PREPARATORY STAGE: RETHINKING THE NEEDS

- A thorough analysis of needs defines the greenness of contracts.
- Different **potential environmental impacts** in the individual contracts, Identifying the main environmental impacts: *Environmental performance levels, materials, and production methods.*
- *Use of LCA: Specifications can relate to any stage of the life cycle, e.g. raw material extraction, processing, packaging, delivery, use phase, or disposal.*

# THE PREPARATORY STAGE :

## CHOOSING A GREEN TITLE FOR THE CONTRACT

- Makes tenderers easily and quickly identify **the environmental performance of the product or service** that is considered within the contract.
- Examples of this:

*Provision of energy-efficient public lighting in Co. Kerry (Kerry County Council, Ireland)*

*Internal finishing works, using environmentally friendly construction materials and products (University of Malta)*

*Service contract for energy savings in 12 schools (Catalan Ministry of Education, Spain)*

*Supply of ecological and recycled paper (SCR Piemonte, Italy)*

# ENVIRONMENTAL TECHNICAL SPECIFICATIONS

- The environmental demands included are **compulsory**.
- Meeting the technical specifications is **a prerequisite** (minimum compliance criteria) for being considered.
- The technical specifications may concern specifying materials, characteristics of the products and services; performance or functional elements of the subject matter of the contract; specific production processes or methods.
- Formulated by reference to International, European, and/or national standards may also refer to criteria defined in environmental labels.

# USING GPP CRITERIA AND LABELS IN REQUIREMENT DEFINITION

- The EU **GPP criteria** are designed to be inserted directly into tender documents and include information on verification methods.
- **Labels** can be used in two different ways in the context of technical specifications
  - Technical specifications in order to define the characteristics of the goods or services
  - The label is one means of proof of compliance with the technical specifications
- Verifying compliance with technical specifications

## SELECTING AND EXCLUDING TENDERERS (TWO-PHASE PRINCIPLE: EXCLUSION AND SELECTION )

- Selection criteria focus on **the supplier's ability to perform the contract**.
- Contracting authorities consider specific/past experience and competence related to environmental aspects which are relevant to the subject matter of the contract.
- request evidence of the supply-chain management measures that candidates are able to apply (The 2014 directives).
- Demonstrate their technical competence in applying the environmental requirements. *Environmental management systems such as EMAS or ISO 14001 can serve as a (non-exclusive) means of proof for that technical capacity.*



## (1) EXCLUSION CRITERIA

This phase is to **verify the qualification** of candidates. The most relevant criteria:

- Exclusion of suppliers on the ground of non-compliance with environmental laws;
- Have other defects in their environmental performance;
- Grave professional misconduct renders integrity questionable.

## (2) SELECTION CRITERIA

Selection criteria **assess the suitability** of the suppliers to carry out a contract.

- The EU directives provide an exhaustive list of the criteria that can be applied to select operators

## (2) SELECTION CRITERIA

### The most relevant criteria:

- Human and technical resources
- Experience and references
- Educational and professional qualifications of staff (if not evaluated as an award criterion)
- Environmental management systems and schemes (e.g. EMAS, ISO 14001): demonstrate a company's ability to meet GPP criteria
- Supply chain management/tracking systems
- Samples of products
- Conformity assessment certificates

## (2) SELECTION CRITERIA

### SUPPLY CHAIN MANAGEMENT MEASURES

- Under many circumstances, environmental impacts arise along the supply chain, rather than the final products.

*Example: A construction contractor may work with many smaller companies each of whom will need to implement sustainable practices on a works project.*

- The contract authorities can request the following information at this stage:
  - an indication of the proportion of the contract which the economic operator intends possibly to subcontract; and
  - an indication of the supply chain management and tracking systems that the economic operator will be able to apply when performing the contract.

# AWARDING A CONTRACT – GENERAL RULES

At the award stage, the contracting authority evaluates the quality of the tenders and compares costs.

- Price
- Most economically advantageous tender (MEAT)

Award criteria shall be linked to the subject matter in any respect and at any stage of their life cycle, including factors involved in:

- (a) the specific process of production, provision, or trading of those works, supplies, or services;
- (b) or a specific process for another stage of their life cycle

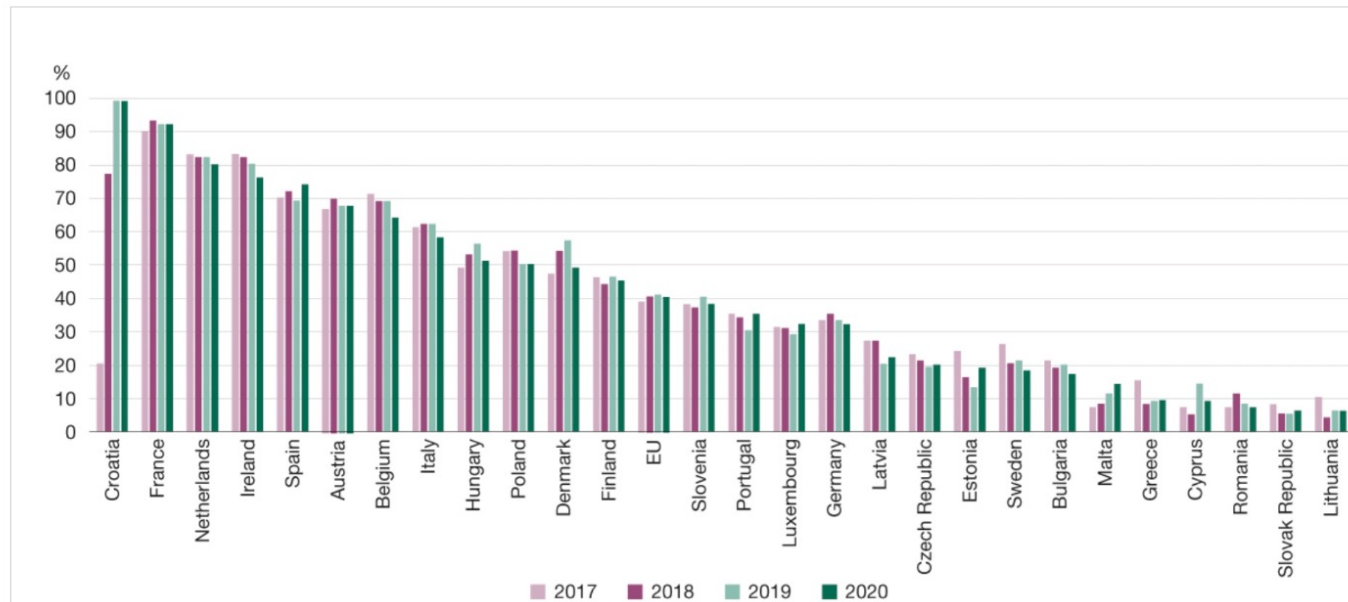
The difference between technical specifications and award criteria is:

- The technical specification is on a pass/fail basis
- Award criteria are weighted and scored so that tenders offering better environmental performance can be given more marks.

# AWARDING A CONTRACT – MEAT

- Most economically advantageous tender (MEAT)
- MEAT is to be assessed on the basis of
  - 1) cost, using a cost-effectiveness approach such as life-cycle costing, or
  - 2) the best price-quality ratio (BPQR).

Proportion of procedures awarded using the most economically advantageous tender principle, 2017-2020



Source: European Single Market Scoreboard (European Commission, 2022a) based on Tenders Electronic Daily data.

## Most economically advantageous tender (MEAT)

There are three laser jet printers on offer, all of which provide the same technical output in terms of pages per minute:

Printer A: Cost of EUR 500, cost of toner EUR 175, life of toner 8 000 pages

Printer B: Cost of EUR 600, cost of toner EUR 190, life of toner 10 000 pages

Printer C: Cost of EUR 800, cost of toner EUR 50, life of toner 8 000 pages

Printer A is the lowest price, but does it offer value-for-money?

That depends on use.

For an office sending out occasional letters and preparing occasional reports with an output in terms of pages that is relatively low, the difference in toner prices and longevity is mostly irrelevant. On the assumption that the office produces about 10 000 pages every six months, the real cost of the printers over a 24-month period is:

Printer A:  $\text{EUR } 500 + \text{EUR } 875 (5 \times \text{EUR } 175) = \text{EUR } 1\,375$

Printer B:  $\text{EUR } 600 + \text{EUR } 760 (4 \times \text{EUR } 90) = \text{EUR } 1\,360$

Printer C:  $\text{EUR } 750 + \text{EUR } 700 (5 \times \text{EUR } 140) = \text{EUR } 1\,450$

Printer B probably offers the best value-for-money.

However, assume that the office in question is responsible for generating weekly reports of activities and has an output of closer to 30 000 pages every six months.

The real cost of the same printers for that 24-month period would be:

A:  $\text{EUR } 500 + \text{EUR } 2\,625 (15 \times \text{EUR } 175) = \text{EUR } 3\,125$

B:  $\text{EUR } 600 + \text{EUR } 2\,280 (12 \times \text{EUR } 90) = \text{EUR } 2\,880$

C:  $\text{EUR } 750 + \text{EUR } 2\,100 (15 \times \text{EUR } 140) = \text{EUR } 2\,850$

For this office, Printer C, with the highest initial cost, is beginning to look like the best value-for-money.

If these printers are in use for many years and if the offices purchase several printers, then the savings to be made from buying the more expensive printers become significant.

# APPLYING ENVIRONMENTAL AWARD CRITERIA

Methods can be used to identify the most economically advantageous tender to include environmental considerations:

1. Set a **minimum level of performance** in the technical specifications, and then **allocate extra points** for even better performance at the award stage.
2. Weighting and scoring approaches
3. Environmental labels: Environmental labels can be useful to distinguish products and services which will save energy and water or which are produced in a more sustainable way.
4. Using environmental management systems
5. Life cycle cost

# APPLYING ENVIRONMENTAL AWARD CRITERIA

## WEIGHTING AND SCORING APPROACHES

- The weight given to each award criterion determines the influence it has in the final evaluation. (quality/price/technical merit/ aesthetic and functional characteristics/ environmental characteristics/ running cost/ cost-effectiveness/ after-sales service and technical assistance delivery date and delivery period or period of completion )
- The weighting of environmental award criteria may reflect the extent to which environmental aspects are already addressed in the specifications. If there are strong environmental requirements in the specifications, they may be given a lower weight in award criteria and vice versa.
- There is no set maximum for the weight to be assigned to environmental criteria. It is crucial to determine an appropriate weighting.



# CONTRACT PERFORMANCE CLAUSES

- At the performance stage, environmental consideration can be included through the use of contract clauses.
  - Goods contract** – packaging and duty on the supplier to recycle/reuse it; type of vehicle used for delivery
  - Service contract** – staff training in environmental aspects of contract; monitoring and reporting environmental impacts; applying an EMS
  - Works contract** – management of waste, energy, and water on the construction site; third-party certification for buildings or civil engineering works
- Inspect the fulfillment and follow-up of the environmental requirements in contracts and of the factors affecting environmental performance.
- However, the application of the requirements encountered difficulties in transferring environmental information to key actors due to deficient information

## PROCURING SUSTAINABLE COMPUTERS, PRINTERS, AND RELATED SERVICES (Tuscany, Italy)

### Background

- Region Tuscany is the central purchasing body of the region. ARPAT, the Regional Agency for Environmental Protection of Tuscany, is a member of the Italian national network for environmental protection (SNPA). The Agency is responsible for environmental protection in the region and participates in the National Committee for the Italian GPP National Action Plan (NAP GPP).
- In November 2019, Region Tuscany sought ARPAT's support for integrating environmental criteria in their upcoming ICT tender. The procurement was for the supply of computers, printers and associated services for the integrated management of workstations in the offices of Region Tuscany and in the offices of local authorities in the region.
- This sustainable procurement practice is the result of the fruitful collaboration between ARPAT and Region Tuscany.

# BEST PRACTICES

## Procurement objectives

ARPAT conducted a preliminary study on environmental and social criteria that could be applied to the ICT tender.

- In 2020 (and still currently) there were no Italian national mandatory Minimum Environmental Criteria (MECs)<sup>1</sup> available for the category of computers (new criteria are being defined).
- The Italian government has developed mandatory Minimum Environmental Criteria for printers ([Ministerial Decree 17.10.2019](#)) that have been applied to this tender.

For computers and monitors, ARPAT and Region Tuscany decided to adapt the draft EU GPP criteria for Computers, Monitors and Smartphones of November 2019.

Following the National Action Plan (NAP) for Green Public Procurement (GPP) in Italy, Italy has (since 2009) been developing and advocating for the implementation of Minimum Environmental Criteria (MECs, also referred to as CAMs in Italian) in public procurement for several procurement categories. The Criteria, which are mandatory since 2017, were introduced to achieve the objectives set out in the NAP and to promote sustainable production and consumption, and circular economy models.

# BEST PRACTICES

## Criteria used

- **Subject matter of the contract:**

Supply of goods and services for the integrated management of workstations in the Region; supply of professional technical software.

The tender was divided into three lots:

- Lot 1 and 2 were for the supply of personal computers, printers and additional devices, with reduced environmental and social impact along the supply chain, for respectively, Region Tuscany, its agencies and dependent entities (Lot 1), and for the bodies of the Tuscan Health Service and local authorities in the Region (Lot 2).
- Lot 3 was for the supply of a professional technical software and related maintenance services (one-year maintenance for both the software licenses already owned by the contracting authority, and new software licenses).

# BEST PRACTICES

## Technical specifications:

**For the computers**, refer to the adapted draft EU criteria for computers, monitors, and smartphones.

- Minimum energy performance of computers and laptops: the calculated typical energy consumption (ETEC) for each computer and notebook must be less than or equal to the maximum value (ETEC\_MAX) of the Energy Star® Program requirements (version 7.1) for Computers (EU GPP criteria, Technical Specification (TS) 18);
- Minimum energy performance of monitors: the calculated typical energy consumption (ETEC) for each monitor must be less than or equal to the maximum value (ETEC\_MAX) of the Energy Star® Program requirements (version 7.1) for Displays.
- Lifespan extension: Provision of an extended service agreement with reference to the EU GPP criteria' TS1 explanatory note on service level requirements (for: access to the manufacturer's warranty, pick-up and return, management of failures, battery coverage, battery replacement policy, provision of failure statistics, Incident management/problem management/ preventive maintenance); » A 5-year warranty from the manufacturer (longer than the EU GPP criteria, TS6); » Functionality for secure data deletion (EU GPP criteria, TS5); » Rechargeable battery endurance (for mobile equipment): battery life longer than 300 cycles with State of Health  $\geq 60\%$ ; (reflecting the threshold indicated in the draft version of the EU GPP criteria of November 2019 – this was increased to  $\geq 80\%$  in the final core criteria and  $\geq 90\%$  in the comprehensive criteria); » Information on battery state of health (EU GPP criteria, TS8) and provision of a battery protection software (reference to EU GPP criteria, TS9) » Standardised port (EU GPP criteria, TS14) » Backward compatibility of adapters (EU GPP criteria, TS17).
- Recyclability: mandatory marking of plastic casings, enclosures, and bezels (EU GPP criteria, TS22).

# BEST PRACTICES

## Technical specifications:

**For printers**, the 2019 Italian mandatory Minimum Environment Criteria were applied. The following criteria were included in the tender:

- Energy consumption: minimum energy efficiency must meet (or be below) the levels set by the EU GPP criteria for imaging equipment, TS1;
- Capability to use 100% recycled paper (compliant with the equipment's technical specifications and with the International Standard EN 12281);
- Duplex imaging capability (with speed higher than 19 ppm for color equipment and higher than 24 ppm for black and white equipment), print preview mode, and N-up printing feature must be guaranteed;
- Noise emissions: The weighted sound power level must be measured according to the International Standard ISO 7779, must be declared in compliance with the International Standard ISO 9296 (LWAd) and must not be greater than 75 dB;
- Limited hazardous substances and heavy metals in toners and inks, according to the Italian MECs for cartridges (Ministerial Decree 7.11.2019).

### **For personal printers and those for small groups of employees:**

- Limits of emissions of pollutants in a confined environment;
- Capability to use remanufactured inkjet and toner cartridges;
- Provisions for designing the equipment to facilitate disassembly, recycling of materials and reparability;
- Requirement to supply at least 30% remanufactured cartridges (compliant with the MECs for cartridges).

# BEST PRACTICES

## Award criteria:

- Tenders were evaluated using a point-based system. For Lots 1 and 2 the tenders were awarded on the basis of the best price-quality ratio (technical offers could get up to 70 points while financial offers a maximum of 30), whereas the Lot 3 tenders were evaluated on the basis of the lowest price.
- **Green criteria**
  - • Energy consumption of computers (EU GPP criteria, AC 5) and monitors 27": a maximum of 1 point was awarded if the energy performance is higher than the minimum provided in the technical specifications, as follows:
    - » over 80% lower: 1 point
    - » 60-79% lower: 0.8 points
    - » 40-59% lower: 0.6 points » 20-39% lower: 0.4 points
    - » 10-19% lower: 0.2 points
  - this award criterion differs from the EU GPP criteria for monitors (AC6) as the [EU Energy label for electronic displays](#) was not yet available at the time of the tender (July 2020).
  - • Laptop battery lifetime extension (EU GPP criteria, AC1): 1 additional point was awarded if the battery endurance was greater than 500 cycles (with  $\geq 80\%$  capacity retention of the initial rated capacity), proportionally to the additional number of cycles ensured.

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## ■ Contract performance clauses:

### Social responsibility criteria

- Minerals from Conflict-Affected or High-Risk Areas (CAHRAs)
- Supply chain transparency
- Supplier code of conductThe successful bidder must submit a copy of the supplier's "code of conduct" as a means for verification.

GPP & SPP



## Results

- Region Tuscany launched the open call for tenders in July 2020.

Three tenders were received for Lot 1, four tenders for Lot 2 and one for Lot 3. In Lot 1 the awarded tenderer scored 95.4 points out of 100, while in Lot 2 the group of economic operators that won scored 95.55 points out of 100. All tenderers met the technical specifications.

The three contracts were awarded in January 2021 (Lot 1), June 2021 (Lot 2) and February 2022 (Lot 3) and entered into force in February 2021 (Lot 3), June 2021 (Lot 1), and March 2022 (Lot 2).

The total value of the three contracts is € 40,600 000 (VAT excluded) over five years. More in particular, the value of Lot 1 is € 20,800 000, the value of Lot 2 is € 15,000 000, and the value of Lot 3 is € 4,800 000.

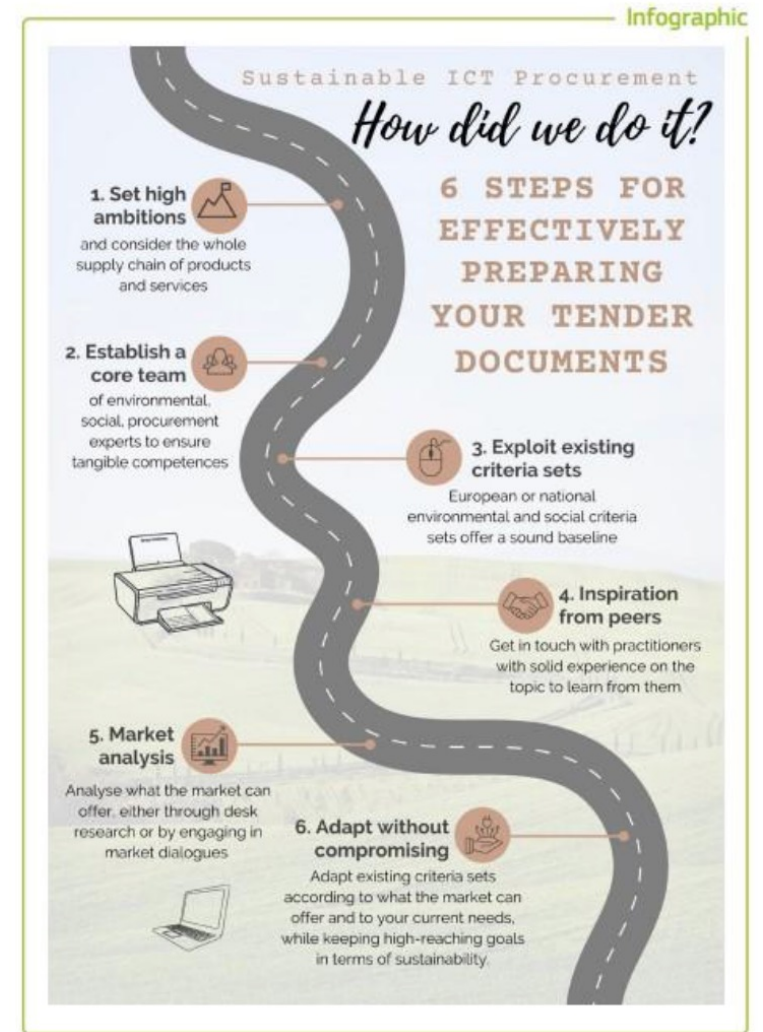
## Environmental impacts

- According to the Technical Report for the EU Green Public Procurement (GPP) Criteria for Computer, Monitors, Tablets and Smartphones, the manufacturing and use phases of computers and notebooks have significant life cycle environmental impacts, with production being the greater contributor to greenhouse gases (GHG) emissions. The production of printed circuit boards (PCBs) and integrated circuits (ICs) also have a significant impact. Therefore, it is crucial to extend the lifetime of ICT equipment as much as possible. For instance, secondary applications of laptops can result in a 40% reduction in GHG emissions.
- Additionally, the obligation to include the Italian MECs technical specifications for printers in tenders ensures that the national procurement policy achieves its environmental, natural resource use, and sustainable production and consumption objectives. Besides enhancing environmental quality, applying the MECs also helps the public sector to rationalise its consumption, reduce expenditure where possible, and guarantee high quality product standards.

# BEST PRACTICES

## Lessons learned

- The close collaboration between the Region Tuscany (the contracting authority) and ARPAT was the key to success. It is necessary to combine social, environmental and technological expertise with procurement skills.
- At the time of the tender preparation, the ICT market was not fully ready to meet the ambitious EU GPP criteria (as drafted in November 2019). Thus, Region Tuscany adapted those criteria to foster firms' participation in the process and did not incorporate some EU GPP criteria into the tender documents.
- When the public procurers verified and evaluated the tenders, they had no issues with applying the GPP criteria, including the 5-year equipment warranty criterion (which is longer than the 2-year warranty outlined in the EU's GPP criteria). They also had no issues with applying the social responsibility criteria, which will be verified when the contract is executed. To date, Region Tuscany noticed that the market's offer has improved and all the EU criteria are successfully met by the most advanced firms. As the final EU GPP Criteria were published two years later (in 2021), we can note that they followed the market developments. Moreover, the JRC draft documents are very useful sources for developing environmental criteria if the final criteria are not yet available.
- Getting inspiration from existing good practices from other public procurers (in this case, Region Stockholm's practice) or projects in Europe is extremely beneficial.





## Reading list

- Sönnichsen, S. D., & Clement, J. (2020). Review of green and sustainable public procurement: Towards circular public procurement. *Journal of cleaner production*, 245, 118901.
- Cheng, W., Appolloni, A., D'Amato, A., & Zhu, Q. (2018). Green Public Procurement, missing concepts and future trends—A critical review. *Journal of Cleaner Production*, 176, 770-784.
- Lundberg, S., Marklund, P. O., & Strömbäck, E. (2016). Is environmental policy by public procurement effective?. *Public Finance Review*, 44(4), 478-499.
- OECD, Key Public Procurement Publications, <https://www.sigmaweb.org/publications/key-public-procurement-publications.htm>