Chapter 9
The State of the Art of Green Public Procurement in Europe: Documental Analysis of European Practices

Irene Litardi, Gloria Fiorani, and Daniele Alimonti

Abstract The aim of this chapter is to study what is the state of art of the Green Public Procurement in the light of the newest tendencies promoted by the United Nation in the Agenda 2030. The objective is mapping the principal practices and their environmental impact. After an introduction on the topic, we define a theoretical framework regarding the Green Public Procurement. Using a qualitative research methodology such as documental analysis, we review and evaluate electronic documents collected by the European Commission on its website. This list includes the most prominent Green Public Procurement practices, divided in 129 PDF documents (update in August 2016) and separated for each sector. The authors draw a map of the initiative put in place by European public administrations and provide a critical reading of the cases examined based on pertinent theories and models, in particular, the Triple Bottom Line approach. and 29 PDF documents (update in August 2016) and separated for each sector. The researchers present a map of public administrations initiatives and their critical reading on the basis of the main theories and models considered, in particular, the Triple Bottom Line approach.

Keywords Green public procurement · European Union · Public Administration · Agenda 2030 · Documental analysis · Sustainable development goals

9.1 Introduction

This chapter departs from a broader study (Litardi et al. 2019) regarding the use of Green Public Procurement (GPP) in the European Union and it aims to highlight the connection between this type of tender process and sustainable development in the

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S. Brunelli, E. Di Carlo (eds.), *Accountability, Ethics and Sustainability of Organizations*, Accounting, Finance, Sustainability, Governance & Fraud: Theory and Application, https://doi.org/10.1007/978-3-030-31193-3_9

light of the newest tendencies set by the United Nations. Through the analysis of a pool of best practices implemented by a wide range of European Member States, this study discusses under which conditions the GPP can enable governments to reach the Sustainable Development Goals as set in the Agenda 2030.

The conceptual framework from which this work takes its roots sees GPP as potential leverage to orient public purchasing and the markets towards greater sustainability (Li and Geiser 2005). In 2014, public procurement represented 16% of the GDP, three percentage points lower than the earlier figures (European Commission 2014a, b, c). The OECD estimates in approximately 12% of the GDP the size of public procurement, confirming how crucial public purchasing is for Member States, in particular, as a driving force for the economy and as a support to the governments when pointing their policies towards economic, social, and environmental objectives. Following this fashion, public authorities can boost research in more efficient technologies on eco-product and services that give to the producers real incentives to pursue innovative solutions (Rüdenauer et al. 2007).

To reach the main objective of this study, we analyze what is the current development of the Green Public Procurement in Europe. Specifically, we inspect a sample of best practices selected by the European Union in order to outline the recurrent elements of success and to understand their environmental impact and mapping the current trends. The findings are drawn by analyzing documents collected and published on the European Commission website regarding 129 public administrations practices with an international focus, using the methodology illustrated in Sect. 9.3.

The evidence coming from this chapter represents just a first step when observing and reflecting on this issue. These insights are useful to widen the debate and for generating further thoughts on the actual procurement initiatives. Indeed, while the relevance of Green Public Procurement has grown significantly over the past years (Sect. 9.2), there has not yet been a macro-vision of practices implemented at the same pace as the EU regulation. The intention is, therefore, to contribute to filling this gap.

The results, shown in the fourth section, reflect a commitment mainly coming from local public administrations to implement GPP strategies in public tenders; also the economic and environmental impacts are more evident at this administrative level. The last section of this chapter includes conclusions and discussion of the findings (Sect. 9.5), as well as some considerations on the selection criteria of the practices adopted by the European Union.

9.2 Green Public Procurement: A Theoretical Background

Sustainable development is an important global achievement to bring under control economic, environmental, and societal crises in many countries. One of the main strategies to follow in order to develop smart, sustainable, and integrated growth is through a reduction of greenhouse gas emissions by at least 20% compared to 1990

levels or by 30%, increase the share of renewable energy sources in our final energy consumption by 20% and a 20% increase in energy efficiency (European Commission 2010). In this setting, Green Public Procurement is considered to be an appropriate and effective tool when seeking the reduction of negative impacts on the environment (Shakya 2017). Practically, it consists in the integration by the public administration of environmental standards into all stages of the purchasing process (European Commission 2008a, b). As described by US EPA in 1995, it is the possibility to choose "those products and services that have a lesser or reduced effect on human health and the environment than other products and services used for the same purpose." From a comprehensive point of view, adopting green public procurement means taking into consideration environmental impacts in the whole life cycle of goods and services, from raw material extraction to waste disposal (Bouwer et al. 2006). Also, being one of the main instruments adopted to implement strategies for sustainable development, it can act as a strong stimulus for eco-innovation especially in the case public authorities are able to implement green criteria in public tender in terms of environmentally friendly products and services (Iraldo et al. 2007; Li and Geiser 2005) and can contribute to foster innovation. Testa et al. (2016) investigated local public authorities finding that the awareness of the institution to the value added by implementing GPP practices results in better performance. The same study also concludes that European, national and local supportive initiatives can help small institutions to overcome problems and difficulties in the implementation of green tender processes.

The Green Public Procurement approach was developed in Europe starting from the early 1990s (Table 9.1), and emphasized during the meeting in Rio de Janeiro (1992), which resulted in the creation of the Agenda 21, that includes indications to be followed in the course of the twenty-first century by each State. The compendium stresses, in particular, the importance of reviewing the purchasing policies of agencies and departments in order to improve, if possible, the environmental implications of public procurement (UNCED 1992). At the beginning of 2015, the General Assembly moved its steps for the creation of a post-2015 development agenda. The negotiation culminated at the UN Sustainable Development Summit with the 2030 Agenda for Sustainable Development, and a renewed paradigm that includes 17 SDGs (Sustainable Development Goals) at its base. This Agenda is the most important international strategy on sustainability and it is subscribed from 193 UN member countries during COP 21 (Paris Agreement on Climate Change in December 2015). GPP is nominated in SDGs 12 "Ensure sustainable consumption and production patterns," in a specific target: nr. 12.7 focused to promote public procurement practices that are sustainable, in accordance with national policies and priorities; nr.12.7.1 the importance of implementation of sustainable public procurement policies and action plans by the countries.

In the tool kit of the policy makers when developing policies that affect environmental sustainability, there is the GPP, a tool that has had a remarkable development, both at legal (Swanson et al. 2005; Walker and Brammer 2009) and theoretical level (Marron 1997; Lundberg and Marklund 2013) to finally become a pillar that could enhance environmental planning in Europe (Tukker et al. 2008).

Table 9.1 Relevant policies on Green Public Procurement

Year	Policy	Description
1992	Agenda 21	Compendium of directions to be followed in the twenty-first century by each State on Sustainable Development "think globally, act locally."
1996	COM(96) 583	Green Paper on public procurement, which introduced the environmental and social requirements at the level of National and Communitarian competitions.
2001a, b	COM(2001) 31	Sixth Environment Action Program of the European Community defines the Integrated Product Policy.
	COM(2001) 274	It describes the entire procurement process, identifying the contracts included in the directives and highlighting the possibilities offered by existing rules to structure the various stages of a procurement tender, starting with the definition of its subject to the execution and completion of the same.
2003	COM(2003) 302	National Action Plan on GPP and Integration of environmental criteria on procurement procedures.
2004a, b	Directive 2004/17/EC	Directives 17 and 18 of 2004 support further certain decisions of the European Court of Justice, filling some gaps in legislation and providing the legal support on GPP. Both Directives, guiding the Member States currently, respectively, govern the procedures of "Public procurement in water, energy, transport and postal services" and "Public procurement in work, supply and services."
	Directive 2004/18/EC	
2008a, b	COM(2008) 397	"Public procurement for a better environment," GPP definition.
	COM(2008) 400	Action plan "Sustainable Consumption and Production" and "Sustainable Industrial Policy," the Communication is concerned with the implementation of a several measures aimed to improve the energy and environmental performance of the products throughout their life cycle and to stimulate the demand and the consumption of better-quality products, creating a "virtuous circle."
2009	COM(2009) 400	Redefinition European long-term objectives with a prospective to achieving sustainability.
2010	COM(2010) 2020	Europe 2020 (inclusive, smart, and sustainable); European Map 2050 that requires the transition to a low carbon economy by 2050: −25% in 2020, −40% in 2030, −60% in 2040, and −80% in 2050.
2011a	COM(2011) 896	Enforcing the support to the future strategies and European Union norms.
2014a, b, c	Directive 2014/23/EU	Simplify the structure of the purchase contract and include requirement fostering social and environmental responsibility (Sustainable Public Procurement).
	Directive 2014/24/EU	
	Directive 2014/25/EU	
2015	Agenda 2030	Strategic program for people, planet, and prosperity signed in September 2015 by the governments of the 193 UN member countries. It encompasses

(continued)

Table 9.1 (continued)

Year	Policy	Description
		17 Objectives for Sustainable Development—Sustainable Development Goals (SDGs), in a major program of action for a total of 169 "target" or goals.
2017	Public Procurement for a Circular Economy	European policy framework and practical guidance to those involved in public procurement decisions.

Source: Authors' elaboration

Table 9.2 Relevant policies on Green Public Procurement

Benefits	Challenges
Environmental	
– Allows public authorities to achieve environmental objectives – Example for private consumers – Increases awareness to environmental issues	– Lack of training – Limited established environmental criteria for products and services
Social and health	
– Improve the quality of life – Support for high standards of environmental performance for products and services	– Lack of cooperation between authorities
Economic	
– Provides incentives for industry to innovate – Reduce prices for environmental technologies – Allows to save money and resources when considering the life cycle cost	– Perception of higher costs associated with green products – Need for systematic implementation and integration into management systems
Politicians	
– Effective way to promote the public sector commitment to environment protection and sustainable consumption and production	– Lack of legal expertise in the application of environmental criteria – Lack of political support

Source: Authors' elaboration from European Commission (2014a, b, c)

With the purpose of reducing their impact on the ecosystem, public authorities intensified the search of useful solutions, increased the awareness of the public opinion to the environment, have forced governments to pay attention, increase effort, and deliver more resources towards sustainable development (Bolton 2008). Green Public Procurement results in a good tool to tie the environmental sustainability to public spending, without many difficulties and barriers to its applications (Table 9.2).

Closer to the scope of this work is the recent publication by the European Union on circular economy, a system that is able to minimize waste and making the most of resources. In this light, circular public procurement can represent an extension to green public procurement that is even more oriented towards the transition of public authorities to a circular economy. The European Action Plan for the circular economy stresses the importance of integrating the criteria of a circular economy within GPP. By adopting these more comprehensive practices, public purchasing can effectively contribute to reaching the sustainable development defined in the Agenda 2030 by the United Nations. In particular, the objective number twelve

"Ensure sustainable consumption and production patterns" directly includes the specific objective of promoting sustainable procurement in line with national policies and priorities.

9.3 Research Method

After having defined a theoretical framework of Green Public Procurement, the researchers use a qualitative research methodology as documental analysis for reviewing and evaluating electronic documents (Bowen 2009). During the research, the Public Administration in the "examples of GPP in practice to illustrate how European public authorities have successfully launched 'green' tenders, and provide guidance for others who wish to do the same" (European Commission 2010), identified by the European Commission starting with 2010 (accessed on September 2014, from the authors) were considered. This list includes the most prominent Green Public Procurement practices, divided into 129 PDF documents (update in August 2016) and separated for each sector, in terms of the following parameters:

- the objective of procurement, i.e., an explanation of the motives of the public administration to implement a sustainable tender process and the summary of the aims to be pursued;
- the background, a recap of the GPP activities already completed by the public administrations involved;
- the criterion used, a set of information on the environmental criteria adopted as well as supplementary information about the tender;
- the results, i.e., a description of the outcome of the procedure;
- the environmental impact, an assessment of the results obtained from the end actions developed;
- the lessons learned, a collection of relevant aspects on which to set future strategies. Also the identification of mistakes to avoid in the future procedures.

The information included in the abovementioned sections of the documents has been structured, summarized, and analyzed in order to produce a map of initiatives promoted by public administrations and also to propose their critical reading by linking the evidence with the main relevant theories and models. According to the theory of the Triple Bottom Line (Elkington 1997), we also considered as part of the analysis the geographical origin of the cases, the timeframe of implementation and government level of implementation, the criterion used, the economic and environmental factors connected with this theory. In particular, the authors have reorganized the parameters into seven specific categories through the information analyzed in the documents (Labuschagne 2003), which helps to have a mapping of the practices, such as: (a) the starting date of the procurement process; (b) the country to which the procedure refer; (c) the degree of complexity of the administrative structure, categorized as local, regional/provincial, and national; (d) the tender sector (each containing the criteria to be used); (e) the award criterion (most economically

advantageous offer; lowest price or other methods); (f) the economic and environmental impacts both in quantitative (when the information is a numerical data) and qualitative (when the information is descriptive) terms; (g) type procedures used (Appendix 1). The study is not a selection from the authors of best practices. In fact, the authors analyzed all the documents selected by the European Commission in its website, updated to August 2016 (EU defined these cases as good practices).

The content analyzed was gathered in different section, for instance, the economic information was found in section "Lesson Learned" or "Results," the information about the year of implementation, the country, and the complexity of the administrative structure were found in the section "Objective of Procurement," the information of environmental impact was found in the section "Results" and "environmental impact," and the award criterion was found in the section "Criterion used."

When gathering objective data, the authors coded the information in data 1 if the information is present in the document (see Appendix 1). For the environmental and economic impact, the information was coded in positive (if the impact is a positive result), negative (if the impact is a negative result), or none (if there is no information about the impact). The results were given by the authors on the basis of the conceptual framework mentioned in the theoretical background (Sect. 9.2). They are considered useful in the research process for the interpretation and the identification of possible avenues for improvement by the European Commission in better identifying these practices. The research was developed on the basis of shared paths and recurring comparisons. During the analysis, intermediate steps were scheduled to allow the researchers necessary time to debate and consider any divergence of opinion in order to agree on a common approach. The results, which emerged from this research, (as summarized below) were therefore comprehensively compared and jointly discussed.

During the analysis of the documents, useful for mapping GPP practices, the authors did not find any explanation about the criteria used by the European Commission to select the best practices. The European Commission, in fact, presents the procurement activities by highlighting the "excellence" of each procedure in the application of environmental criteria promoted in EU without providing aggregate information or evaluation judgments. Due to this reason, it has not been possible for the authors to draw conclusions on the progress of green procurement policies in each country. Through the documental analysis methodology explained above, it has been possible to identify if any overlap existed between the regulatory processes of the European Commission and the Public Administrations initiatives, the most active geographical areas, the main government level involved and finally, the set of environmental criteria adopted and the most used award criterion.

The set of parameters presented above and identified by the researchers, designed using as a reference the cases examined, aims to be part of a broader research agenda that points towards the understanding of GPP, its evolution and practical implementation. The model is suitable to be applied to more generic samples and not necessarily limited to European cases.

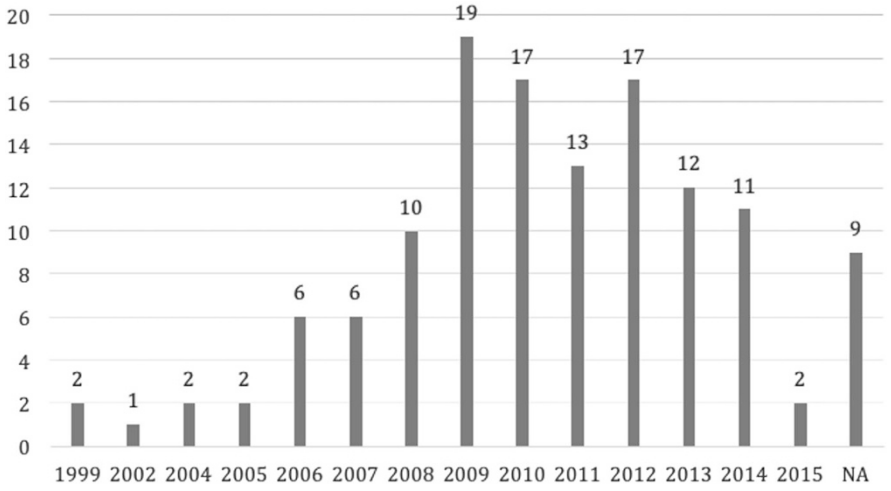

Fig. 9.1 Year of implementation. Source: Authors' elaboration

9.4 Research Results of Documental Analysis

This paragraph resumes the results of the analysis of 129 documents, each corresponding to one GPP practice, regarding the areas of analysis: (a) year of implementation; (b) geographic origin; (c) complexity of the administrative structure; (d) criterion of award; (e) sector of public tender; (f) environmental and economic impact; (g) type of procedure used.

(a) Year of Implementation
The year of implementation for all cases covers the period 1999–2016, with a peak in 2009 and 2010 (28%) (Fig. 9.1), which coincides with the European enactment period of the most important regulatory actions and policy in terms of GPP, including: COM(2008) 397 "Sustainable consumption and production" and "Sustainable industrial policy," COM(2008) 400 "Public procurement for a better environment," COM(2009) 400 "Mainstreaming the sustainable development into EU policies: 2009 Review of the EU Strategy for Sustainable Development," COM (2010) 2020 "A strategy for smart, sustainable and inclusive growth."

(b) Geographic Origin
Specifically, it is worth noting that five practices are from Eastern European Countries (Bulgaria, Hungary, and Romania), 45 are from Northern European Countries (Denmark, Estonia, Finland, Ireland, Iceland, Lithuania, Latvia, Norway, Sweden, and the UK), 41 are from Southern European Countries (Cyprus, Croatia, Greece, Italy, Malta, Portugal, Slovenia, and Spain), 38 of Western European Countries (Austria, Belgium, French, Germany, Netherlands and Switzerland), but 55 cases on 129 are from the Green-7 (PricewaterhouseCoopers, 2009): Austria, Denmark, Finland, Germany, Netherlands, Sweden, and the UK (Table 9.3). Some countries do not have prepared any strategy

Table 9.3 Geographic origin of the cases analyzed

Countries	Numbers of cases for each country
Spain	17
UK	14
Italy	11
Germany	10
France	8
Austria, Finland	7
Sweden, Netherlands	6
Denmark, Ireland	5
Norway, Portugal, Slovenia, Switzerland, Malta, Belgium	3
Estonia, Hungary, Bulgaria, Croatia	2
Romania, Iceland, Lithuania, Cyprus, Luxembourg, Greece, Latvia	1
Total	129

Source: Authors' elaboration

regarding the green public procurement in line with a National Action Plan promoted by European Commission, such as Estonia (with an alternative program), Greece, Romania, and Hungary, the plan formulated in 2006–2007 was not adopted. Iceland, Norway, and Switzerland are not part of EU28 and do not have a duty to implement the Communications nor those concerning National Action Plan (Litardi et al. 2019). However, Norway and Switzerland have their environmental policies.

(c) Complexity of the Administrative Structure

The levels of government mostly engaged in GPP activities are the local one. Some indicators underline the preponderant engagement of the local government (municipalities, universities, schools, museums, and other organizations or local authorities), which often supported by political level, are engaged in environmental causes since early 2000s or, more rarely, from the 1990s, as in the case of the city of Esbjerg, Kolding (Denmark), and Stockholm (Sweden), in particular, stand out as pioneers in GPP policies implementation, as per 1994 and 2003 plans. Less than a quarter of the practices come from the regional/provincial level; several cases highlights the engagement of regional commissions of Spain, Belgium, and Italian, such as the Department of the Environment and Territorial Policy of the Basque Government (IHOBE), the Regional Agency for Environmental Protection of Tuscany (ARPAT), the Lombardy Central Regional Agency of Purchases and Valle d'Aosta Region (the last active on environmental issues since the mid-2000s) and some County Councils in the United Kingdom (Gloucestershire, Cornwall, and East Ayrshire). The lowest percentage is represented by the national public administration, such as ministries and commissions, which introduce environmental criteria with the final aim of encouraging its application to lower government levels and facilitate its introduction within the procurement tenders (Fig. 9.2).

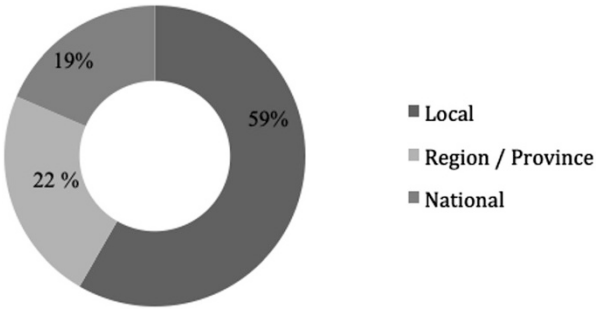

Fig. 9.2 Administrative level of the case studies. Source: Authors' elaboration

(d) Criterion of Award

Within the scheme, yield information is also related to the award of the criteria used during the offer. In most cases it has been adopted the most economically advantageous offer based award mechanism (MEAT), which is supposed to simultaneously evaluate the price and other qualities and technical aspects, including the environmental dimension. Overall, 50% of the cases examined refer to the MEAT, 12% of the cases refer to the lowest price, and finally, 8% of the cases are examples of the PA using alternative methods that not necessarily relate to the previous ones. Among the total number, in 30% of the cases, any information on this indicator was missing.

The most economically advantageous tender has allowed various public bodies through a fair approach weighing the score, to reach a good compromise between price and quality. In fact, this method rewards, in procurement terms, those competitive actors who propose valid environmental policies but weak economic terms in their proposals. The most economically advantageous tender use (MEAT) helps to ensure that the essential requirements for the award procedure, such as the connection between the award criterion and the subject of the contract, a limited choice for customers of PA, prior notification of the award criteria in the tender documents, the distinction between selection and award criteria, and finally, respect of European law (European Commission 2011a, b, c, d).

(e) Sector of Public Tender

Among the 129 cases of procurement, the key priority sectors identified are construction, copying and graphic paper and Transport. These are policy areas that have needed a multidimensional approach as the construction of buildings that requires raw materials procurement, material management dismantling, and installation. A total of 75% of all tender procedures is mono-sector and the remaining 25% has a multi-sectoral approach. The European Commission emphasizes the need to distinguish between two categories "core" and "comprehensive" criteria. The former focusing on a specific area of the product and the performance of GPP; while the latter criteria take in consideration various features or higher levels of environmental performance, with consequent higher costs.

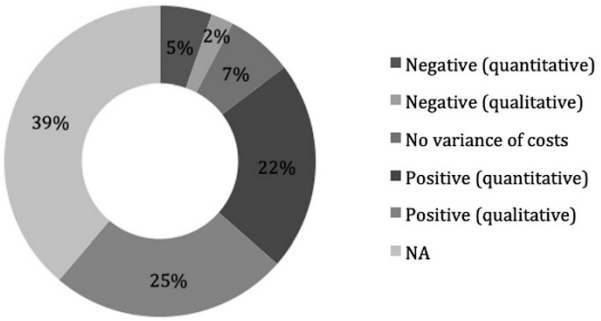

Fig. 9.3 The economic impact in the cases examined. Source: Authors' elaboration

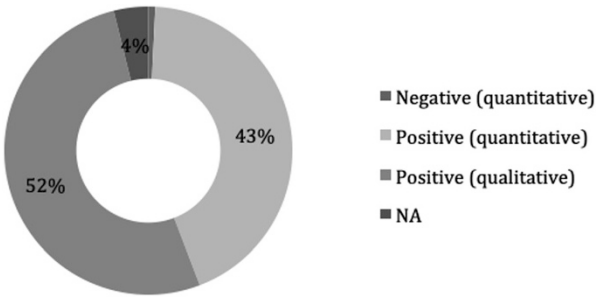

Fig. 9.4 The environmental impact in the cases examined. Source: Authors' elaboration

(f) Environmental and Economic Impact

Almost all cases (102 out of 129) present a result in a positive contribution in terms of environmental impact, an aspect that constitutes the central element of the papers published by the European Commission (Fig. 9.3). In particular, 46 cases include quantitative details in terms of CO_2 emission reductions (in tons), greenhouse gases (GHG), electricity consumption (in kWh), and water savings (in liters).

In the other 56 cases, there is a description of the environmental benefits in relation to the actions promoted by the European Commission on Environmental Impact. One case presents negative outcome (a German case study), due to the inclusion of both new and old emission of CO_2 in the final counting.

In terms of economic impact, 50 cases out of 129 do not present any information on financial results. In the remaining 60 cases, 28 present a reduction in costs (quantified in euro) or in a percentage reduction, compared to previously concluded contracts by using traditional procedures (Fig. 9.4). The amount of euro saved by the public administrations that put in place GPP strategies is not directly verifiable. In a large number of cases, quantitative information is not specified.

(g) Type of Procedures Used

The analysis of the cases coming from European public administrations, remark a preference for open tendering procedures (30) followed by narrow ones (3) in full respect of healthy competition (Fig. 9.5). Every firm can participate only if the

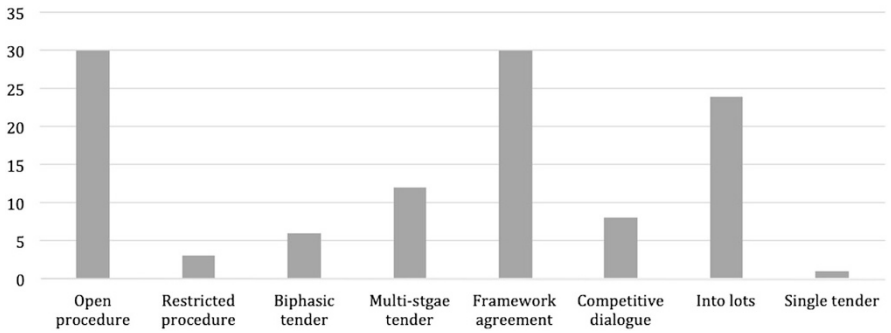

Fig. 9.5 Type procedures used. Source: Authors' elaboration

minimum requirements to access are met; the technical qualifications, certifications environmental, technical and financial capabilities, experience in the field gained by having signed contracts in the past, and there are not reported red flags. The maximum participation in the procurement process falls within the will to receive and transmit all the information in a multidimensional approach that embraces many stakeholders. In fact, in many areas, it is important the role of seminars and meetings in order to explain the characteristics of the tender, transparency, and importance of dialog.

9.5 Final Remarks

The research evidences a high level of attention on Green Public Procurement regulatory by the European Commission and dissemination of green purchasing by public authorities in the European area. The findings underline that GPP is used by public administration as an effective tool for saving energy and promoting technological innovation (for example, new model of computer monitors, which saves energy), but it is not possible to understand if this is a good leverage to rationalize public spending in the Member States.

In line with the context of documental analysis, research findings also mark the specific trajectories of green development practices and the connection with some SDGs (see Table 9.4). In some initiatives, depending on the complexity and the economic volume of the contract, the promoters have used characteristic features of GPP, such as the joint procurement, adopted mainly by local governments (small dimension), with the aim to get favorable condition in the tender; the division into sections of smaller technical complexity and cost, therefore, allowing the participation of small and medium enterprises not to restrict competition; finally, the provision of a pre-commercial phase, useful to investigate the market, the products or

Table 9.4 Connection between SDGs, targets, and the results of the documental analysis

SDGs	Targets	Results of practices
7- Ensure access to affordable, reliable, sustainable, and modern energy for all.	7.2 (By 2030, increase substantially the share of renewable energy in the global energy mix); 7.2.1 (Renewable energy share in the total final energy consumption); 7.3 (By 2030, double the global rate of improvement in energy efficiency); 7.3.1 (Energy intensity measured in terms of primary energy and GDP).	f) Environmental impact: reduction of CO_2 emissions, greenhouse gas, electricity use, and water saving in terms of energy. e) Sector of public tender: copying and graphic paper. The GPP in this sector is connected with the reduction of CO_2 emissions.
8- Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.	8.2 (Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors)	d) Criteria award: "joint procurement" used in some practices, is an innovation.
9- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	9.1 (Develop quality, reliable, sustainable, and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all).	e) Sector of public tender: use of sustainable materials in constructions sector for public building.
12- Ensure sustainable consumption and production patterns.	12.C (Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities).	e) Sector of public tender: transport.
13- Take urgent action to combat climate change and its impacts.	13.2 (Integrate climate change measures into national policies, strategies, and planning)	b) Geographic origin: all the practices are from EU members States, and they integrate in their public procurement tender the Environmental

(continued)

Table 9.4 (continued)

SDGs	Targets	Results of practices
		Minimum Criteria of GPP, and in general the members States applied the EU regulation (see Table 9.1)
15- Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	15.3 (By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world)	e) Sector of public tender: copying and graphic paper. Reduce the paper and, at the same time, reduce the tree felling, one of the causes of desertification.

Source: Author's elaboration

services to be included in the tender, and to assess the needs to be met through the purchasing process. It is not clear, within the sample of the cases analyzed, which degree of attention has been given to social impacts resulting from the purchasing practices, which, however, is a more recent feature taken into consideration by the European Commission (24 and 25 Directives of 2014). With the directives on public procurement, the European Parliament is trying to simplify the structure of purchase contracts and to integrate social and environmental responsibility requirements. One of the objectives of the directive is to guide the public authorities towards specific social goals at a national and international level. The recent developments raise, therefore, the level of attention on the social dimension within procurement and its subsequent transition towards Sustainable Public Procurement (SPP), a broader concept of GPP, which also embraces the governments' attempt to strike the right balance between the three pillars of sustainable development (economic, social, and environmental) in all phases of the procurement purchase of goods, services, and works, (Triple Bottom Line approach), with the objective to integrate competitiveness and sustainability within the supply chain, along with the attention through the process, to human and workers' rights.

Within the practices analyzed, it was possible to identify some features that characterize Green Public Procurement. Firstly, there is the use of criteria and eco-brands, based on the Life Cost Assessment that assures the inclusion of environmental aspects in the tendering products throughout the entire life cycle, from the extraction to the end life of the product. Secondly, with respect to the competition, while applying the public procurement directives, the PA is given free options to promote environmental protection, through the introduction of specific techniques in the tender documents. Despite this may result in a barrier to participate in the bidding

process, with the consequence of reducing competition, it constitutes an innovative stimulus for competitors. Examples of these options are the minimum environmental criteria and the eco-brands, particularly considered in the initiatives analyzed. Coupled with the first one, is the adoption of the Life Cycle Costing, applied in some of the case projects examined with the aim of achieving a reduction of costs and the evaluation phase of the prices of the offers received.

For future research, the authors intend to create a standardized form for the European Commission to collect the practices. A standard collection of more detailed information is finalized to facilitate the provision of a database of information accessible to public administrations active in this field. By collecting systematic data, based on a simple scheme similar to the current study, alongside with other new useful dimensions to enrich the analysis (including social impacts), it would be possible to track more accurately the trajectory of the European public procurement, together with more detailed mapping (Litardi et al. 2019). Finally, this would encourage the benchmarking and bench-learning among the already active public administrations or those interested to be involved in such practices.

Appendix 1. Scheme for the Analysis of Documents on Green Public Procurement Initiatives

	a) Year of implementation	b) Geographic origin	c) Complexity of the administrative structure		
N. Case	Year	Country	Local government	Regional/provincial government	National government

d) Criterion award		
MEAT	Other criteria	Comments

e) Sector of public tender																						
Copying and graphic paper	Cleaning products and services	Office IT equipment	Construction	Transport	Furniture	Electricity	Food and Catering services	Textiles	Gardening products and services	Thermal insulation	Hard floor coverings	Wall panels	Combined Heat and Power (CHP)	Roads construction and traffic signs	Street lighting and traffic signals	Waste Water Infrastructure	Indoor lighting	Toilets and urinals	Sanitary Tapware	Equipment of imaging	Printing copy and services	others

g) Type procedures used		
Procedures	Description	Comments

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