

METHODOLOGICAL PERSPECTIVE OF EVALUATION OF GREEN PUBLIC PROCUREMENT

Inese Pelsa, University of Latvia

Signe Balina, University of Latvia

Abstract. Every year the European Union (EU) Member States collectively spend around 14% of Gross Domestic Product (GDP) on public procurement. In Latvia, public procurement accounts for 17% of GDP. The review of the new public procurement directives and their transposition process in Latvia plans to show new opportunities for green public procurement (GPP) application: the contracting authority will be able to reject, for example, an abnormally low bid, include environmental management system requirements in the selection criteria, use life cycle costing criteria, etc. GPP is the systematic integration of environmental criteria into all activities related to the procurement of goods or services, from the identification of needs, the development of appropriate specifications and evaluation procedures, to the monitoring of the results achieved. Solutions for the promotion of GPP proposed by the new Public procurement Law project and the Cabinet of Ministers' draft regulation "Requirements and Application of Green Public Procurement" will also be analyzed. The aim of the work is to explore the application of GPP to improve the quality of GPP.

Keywords: *Green public procurement, procurement.*

JEL code: H57, Q58

Introduction

The European Commission has defined Green Public Procurement (GPP) as a process whereby public authorities strive to procure goods, services and works with lower environmental impacts throughout their life cycle than goods, services and works that share the same primary functions, but which would have been obtained by applying different procurement principles. Global economic output is projected to treble between 2010 and 2050 and resource use may double by 2030 (Reichel, A., De Schoenmaker, M., Gillabel, J., 2016) while the most recent United Nations forecast suggests that world population reached 7.7 billion in 2019 and the global population is likely to exceed 11 billion by the end of the 21st century (UNDESA, 2019). The planet is already struggling to meet humanity's demands for land, food and other natural resources, and to absorb its wastes (Reichel, 2016). While resource use in Europe has become more efficient in recent years, resulting in absolute reductions in emissions of greenhouse gases and pollutants, the continent's burden on global ecosystems remains considerable, particularly if pressures in the countries of origin of imported products and materials are taken fully into account (EEA, 2015). The consumption and production of products (goods and services) are responsible for adverse effects to the environment, encompassing effects on human health and natural resources (Antoine Beylot, Michela Secchi, Alessandro Cerutti, Stefano Merciai, Jannick Schmidt, Serenella Sala, 2019).

Sustainable consumption is a normative concept that calls for individuals, corporations, and nations to reduce their resource footprints in the interest of environmental protection and ecological integrity (Anantharaman, 2018). As the field of sustainable consumption has evolved and broadened, research falling under its ambit has moved beyond methodological individualism to consider the social, cultural, and systematic dynamics driving over-consumption, particularly in the developed world (Giulio, AD., Fischer, D., Schäfer, M., Blättel-Mink, B., 2014). GPP represents an increasing trend on sustainable lifestyles of green consumption, which is committed to addressing environmental problems by consumers' co-responsibility (Oosterhuis, F.; Rubik, F.; Scholl, G., 1996), and promoting sustainable consumption, eco-production and all together sustainable development by the enormous purchasing power (Gilg, A.; Barr, S.; Ford, N., 2005).

The object of the research is the methodological framework of GPP. The aim of the work is to explore the application of GPP to improve the quality of green public procurement. The methods of the research are analytical, graphical.

Literature Review

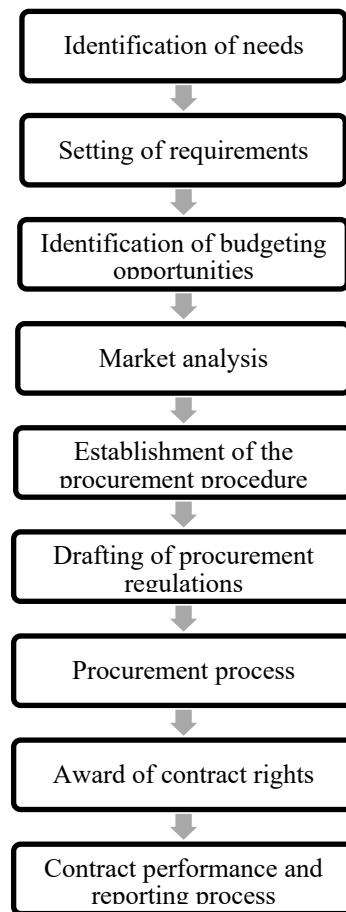
The green economy became a pillar of major European and international strategies: most notably in the Europe 2020 strategy adopted in 2010 by the EU to drive sustainable growth, and in the Rio+20 outcome. The incentive to use GPP is based on the fact that in many countries public sector spending amounts to a significant part of the economy, and that this purchasing power can be used to influence production and consumption to achieve desired reductions on environmental impact (Lundberg, S., Marklund, P.O., Strömbäck, E., Sundstrom, D., 2015). When public authorities go green, they make an invaluable contribution to environmental protection and sustainable development, setting a trend that often convinces other to follow suit (Day, 2005). The practice amounts to significant expenditure, excluding utilities and defence, across Europe, comprising 13% of European GDP in 2015 (Commission, 2016). In the last decade, the use of environmental criteria in public tenders has been increasing defusing (Testa, F., Iraldo, F., Frey, M., Daddi, T., 2016). The implementation of GPP is covering new sector in recent years, identifying new practices (Cheng, W., Apolloni, A., D'Amato, A., Zhu, Q., 2018). The challenges that the European municipalities face on a path towards sustainability were outlined, along with the undertaking of sustainable procurement and the active promotion of sustainable production and consumption, particularly, eco- labelled, organic, ethical and fair-trade products (Belgica, P.B., Jose, B.C.M., 2016).

GPP is defined in the EC's Communication as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared that would otherwise be procured" (EC (2008) 400, p.4). The basic concept of GPP relies on integrating environmental criteria for public products and services procurements (Evans, 2010). (Testa, F., Iraldo, F., Frey, M., 2011) found that effectiveness of GPP is strongly related to the investments in technological innovations and reputation. In addition to assessing environmental policy instruments in terms of objective effectiveness, the instruments are also assessed based on cost- effectiveness (Cheng, W., Apolloni, A., D'Amato, A., Zhu, Q., 2018). Moreover, among the EU countries, public procurement is implemented as the way to achieve both stimulating economic growth and solving social problems simultaneously (OECD, 2015) (McCrudden, 2004). On 26 February 2014, Directive 2014/24 / EU of the European Parliament and of the Council on Public Procurement (hereinafter - Directive 2014/24 / EU) and Directive 2014/25 / EU of the European Parliament and of the Council on Public Procurement active in the water, energy, transport and postal services sectors (hereinafter - Directive 2014/25 / EU), while repealing the previous public procurement directives (Directives 2004/18 / EC and 2004/17 / EC respectively). The general EU legal framework for public procurement is contained in the provisions of Directive 2014/24 / EU. These rules set out the procedures to be followed and oblige public authorities to treat all tenderers equally and avoid any discrimination in their procurement. Likewise, the functioning of the institutions and decision-making must be transparent. These basic rules and principles also apply to the water, energy, transport and postal services sectors, but Directive 2014/25 / EU takes into account their specificities.

Research results and discussion

Procurement process

The nature of public procurement is matching supply and demand to supply them goods, services and works for which the public sector is responsible. In public procurement, it is essential to follow the steps of the procurement procedure so that procurement can be successfully realised, it's illustrate in Fig. 1.



Source: authors' summary

Fig. 1. Procurement steps in a cycle of constant improvement, designed by the authors

In order to apply the GPP criteria correctly, the procurer must be familiar with the regulatory and procedural context of the procurement process. Before procurement, it is important to know what are the requirements and needs for product/services and what is the market supply. The more precisely the customer is able to define his requirements at the initial stage, the easier it will be throughout the procurement process. Consequently, consultation with market participants (suppliers) is needed in good time. Consultation with market participants enables:

- suppliers to prepare for the terms of the planned procurement;
- purchasers to better assess the market situation and formulate their needs.

The basic principles of the Public Procurement Law (PPL) must be respected irrespective of the estimated contract value of the contract, also those procurements that are not subject to the PPL procurement procedures. The following principles have been incorporated into the Treaty establishing the European Community (Union, 2002):

- **free competition and equal treatment of suppliers.** This means that all bidders must be subject to the same conditions. The contracting authority must observe the principle of equal treatment of tenderers at every stage of the procurement procedure and must be on an equal footing both when preparing their tenders and evaluating them. The principle of equal treatment is essentially aimed at establishing effective competition between tenderers;
- **openness of the procurement procedure** (transparency). The main purpose of the principle of transparency is to ensure that there is no risk of unequal treatment between contracting authorities and to control the impartiality of public procurement procedures. This requires that all terms and conditions of the award procedure be clearly, precisely and unequivocally stated in the notice of intended procurement or in the specifications so that, firstly, all tenderers can understand and interpret the requirements set out and, secondly, the contracting authority can effectively verify, whether the tenders of the tenderers meet the criteria governing the relevant procurement;

- **proportionality of requirements** (proportionality). Respect for the principle of proportionality requires that restrictions on the free movement of goods and services do not go beyond what is appropriate and necessary in order to achieve the objectives pursued; be disproportionate to the objectives pursued;
- **mutual recognition**. Compliance with this principle also requires recognition of evidence of professional or other qualifications provided by other EU Member States in accordance with the requirements of Directive 2005/36 / EC.

It must be remembered that Latvia is an EU Member State, but the EU is a single market space, therefore the procurement conditions must be compatible in this space and not violate the basic principles mentioned above.

Green Public Procurement

It is very important to incorporate the environmental requirements of green public procurement at an early stage in the identification of needs and in the context of consultation with market participants. The most recent literature (Ahsan, K., Rahman, S., 2017) identifies healthcare as one of the new most important sectors for its GPP implementation. Neto and Gama Caldas (2017) demonstrate how to include a green criteria in the provision of food productions and catering services (Neto, B., Gama Caldas, M., 2017). The diffusion of green technologies is evidenced by Aldenius and Khan (2017), focusing on way which Swedish transport authorities promote the introduction on renewable fuels in their public bus services. The effectiveness of GPP as an environmental policy tool to reduce environmental impact and achieve environmental objectives is challenged by Lundberg (Lundberg, S., Marklund, P.O., Strömbäck, E., Sundstrom, D., 2015). The more timely the inclusion of GPP requirements in the procurement procedure and the quality of the procurement procedure, the more likely it is that the procurement will be completed in a positive way. Conceptually, GPP is concerned with life cycle analysis and life cycle costing. This approach becomes important not only in an effort to preserve the quality of the environment, but also because it also succeeds in reducing a true cost of goods or service when calculated from an aspect of a cradle-to-grave life cycle. Not only the widespread, albeit often misleading, perception that green goods and services cost more, but also a lack of information and technical support and resources, violate regulatory requirements, and the complexity of the verification process. In Latvia often procurement decisions are still made on a basis of a purchase price, but costs that may arise in the upkeep and disposal of many products and work can also be very significant, such as energy consumption, aggregation, and the disposal of relevant materials (Pelsa, I., Balina, S., 2019).

GPP is still largely voluntary in EU, the Member States have implemented it at different levels according to their political will, understanding and readiness. GPP is voluntary in Poland, Slovakia, Spain and Sweden, while in Austria, the Netherlands it is mandatory for central government and compulsory for selected product groups in France. The Ministry of Environmental Protection and Regional Development of the Republic of Latvia is responsible for promoting GPP. Along with the new Public Procurement Law, Public Service Provider Procurement Law and Cabinet of Ministers (CoM) Regulations No. 353 "Green Public Procurement Requirements and Procedures for their Application", the application of GPP in the public sector is now mandatory in Latvia in several groups of goods and services. In 2019 GPP

The main principles of GPP are as defined in the CoM Regulation. No. 353:

1. Greening of procurement: environmental (and human health) considerations as part of generally accepted public procurement practices;
2. prevention of pollution or harm: environmental (and human health) considerations from the outset of the procurement process;
4. life-cycle thinking: the environmental impact and costs of a product or service throughout its life cycle;
5. comparison of environmental impacts: major impacts by size, geographic scale and reversibility;

6. environmental information: precise, objectively measurable and verifiable (Cabinet of Ministers, 2017).

The introduction of a regulatory framework for GPP has led to an increase in its share, reaching 18.3% in financial terms in 2018 (2017 12%) and by number of procurements, reaching 11% (2017 7%). Directives 2014/24 / EU and 2014/25 / EU offer greater scope for applying GPP requirements and also clarify how to do it best. Furthermore, the provisions of the directives are formulated in such a way as to balance the possibilities they afford with the need to respect the fundamental principles of openness, equal treatment, proportionality of requirements and free movement of goods and services (competition) enshrined in the Treaty. Table 1 summarizes some of the new options for applying GPP requirements.

Table 1

Opportunities created by the new EU public procurement directives to apply GPP requirements

Parameter	The opportunity of the Directive to apply GPP requirements
Unreasonably low price	Unreasonably low prices shall also be rejected if they result from a violation of certain international social or environmental conventions (eg ozone depletion, hazardous substances or waste treatment).
Environmental management system	Evidence that the tenderer is capable of implementing certain environmental management measures in the execution of any contract may be required at the tender selection stage.
Technical specifications	Technical specifications may also be formulated with reference to the manufacturing process and method at any stage of the life cycle of the good or service. For example, organic production methods in agriculture or the bleaching process without the use of chlorine in the paper industry.
The evaluation criteria	The evaluation criteria may include references to the social and environmental aspects of goods, services or works. For example, electricity from renewable sources or goods that meet the requirements of fair trade.
Eco - label	The contracting authority may require the eco-label in the technical specifications, the award criteria or the contract performance conditions as evidence of the conformity of the works, services or supplies with certain standards of openness and transparency.
Life Cycle Cost	Life Cycle Cost (LCI) can be used to determine and compare the cost of bids submitted, including external environmental costs such as greenhouse gas emissions.

Source: authors' summary

Application, evaluation and verification of GPP criteria

When environmental issues are taken in procurement, the most common way to be clear in mandating specific technical requirements (Mellissen, F., Reinders, H., 2012) or eco – label criteria for the product or service. In the implementation of GPP, supplier selection is a core procurement activity to evaluate whether bidders have capacity and ability to perform the environmental requirements in the contract. Empirical studies show that the two classical criteria of the price and quality are the most frequent award criteria (Cheng, W., Apolloni, A., D'Amato, A., Zhu, Q., 2018). Environmental criteria seems to have little influence on final decisions in a selection of a supplier (Igarashi, M., de Boer, L., Michelsen, O., 2015).

Compliance with a high environmental standard for a product or service is not a minor factor in today's business, and there is no shortage of firms and companies that strive to present their products and services in an environmentally sound manner, accompanied by unjustified environmental statements. On the other hand, a number of standards, certification schemes and labels have been developed to distinguish a truly environmentally friendly product from a case of counterfeiting or "green-washing".

During the procurement process, the customer must select a supplier, evaluate the quality of the offer and compare the costs. It is not an easy task to accurately assess and verify the information submitted by tenderers against the environmental criteria, but the new procurement directives and regulations transposing them in Latvia in 2014 offer several options for doing so. Product or service compliance with high environmental standards today business is not

a minor factor, so there is also a shortage of firms and companies, which seek to provide their services as environmentally friendly, by adding to them unwarranted evidence of compliance with environmental requirements. On the other hand the Parties have developed a number of standards, certification system and labelling by which help can be distinguished between a truly environmentally friendly product and counterfeit or green in the case of “laundering” criteria “green – wash”. In the Table 2 Authors summarize the criteria of verification. During the procurement process, the customer must select a vendor, evaluate the quality of the supply and the costs must be compared. To accurately assess and verify information submitted by tenders in relation to environmental criteria is not easy the task, however, of the 2014 Procurement Directives and regulatory enactments, with for which they are taken over in Latvia, there are a number of possibilities for doing this. GPP possibility of verification of the eligibility of the criteria (verification) at the same procurement stages summarized in Table 2.

Table 2

Opportunities for verification (verification) of GPP criteria at different stages of procurement

Procurement phase	The type of GPP criteria	What evidence can be required
Selection criteria	Ability to apply environmental management (management) measures.	EMAS, ISO 14001 or other equivalent independent third party environmental management systems. Environmental management systems (action plans) developed by companies / organizations themselves may be accepted if they specify the implementation of environmental management measures that are relevant to the subject of the procurement contract. Under the new public procurement directives, it is for the tenderer to demonstrate that these measures are equivalent to those required under the applicable environmental management system or standard.
Technical specifications	Environmental standards, manufacturing processes, compliance with a particular technical or functional performance (eg energy efficiency level).	Certificates, test reports, technical reports, type I ecolabels or their equivalent.
Criteria for the evaluation of the tender	Compliance with a higher technical or functional performance than specified in the technical specification, life-cycle costs, environmental added value.	Where a specific marking is required, the applicant must prove that he was unable to obtain this or an equivalent marking for reasons beyond his control. Other equivalent evidence shall then be accepted.
Purchase agreement execution rules	Key performance indicators, incentives, penalties.	Eco-labels may be required under the same conditions as labels. Other forms of evidence are not covered by the public procurement directives.

Source: authors' summary

In the analysis of verification methods, one of the types is self – declaration which, in other cases, is not available or deemed necessary, an objective third – party validated proof. In such cases, signed self- declaration, such as compliance with certain environmental laws, may be considered acceptable. Such self – declarations must meet the requirements of ISO 14021 standard.

From the point of GPP, it would be desirable for the contracting authority to formulate the technical specification as being result oriented, without specifying the specific way to achieve this result. This saves both the customer's time spent preparing detailed technical specifications and the supplier's ability to innovate. For example, instead of specifying the required air conditioner specifications, the technical specification can simply state that the indoor temperature should be within the range of 18-20 oC. This allows the supplier to find the most efficient solution. Of course, this result-oriented approach to the formulation of a technical specification also has its limitations. The customer must be convinced that in this way any environmental aspect is not underestimated or, on the contrary,

overestimated. In addition, in some cases, the time saved to develop a more detailed technical specification is lost due to more complex criteria verification in the evaluation process. Such risks could be mitigated by pre-procurement consultation with potential suppliers and bidders.

In order to evaluate the benefits of green public procurement, the authors made a comparison of the two procurements taking into account several aspects, more details in Table 3.

Table 3

Green public procurement compared to public procurement

Criteria	Public procurement	Green public procurement
Environment protection	Environmental issues are not explicitly included in the procurement.	One of GPP's main objectives is to integrate environmental concerns into procurement, minimizing environmental damage.
Social aspects	Not directly integrated	GPP criteria are also defined taking into account human health aspects.
The most economically advantageous tender	Consider only the initial purchase price, not a long-term cost vision. So overpay for example on maintenance costs.	The life-cycle cost approach takes into account the purchase price, maintenance costs, and this makes the purchase financially more profitable in the long run. In many commodity groups, particularly in the construction, transport and electrical goods sectors, in order to: choosing the most economically advantageous offer is not enough simply to evaluate the initial investment.
Quality	Product / service quality is not always the goal of this procedure.	GPP requirements are used to evaluate the purchase of a high quality product / service.
Economic support	There are no such tools in the PPL.	Green procurement is also called "smart procurement" when you can support a local manufacturer or service provider by applying short supply chains.
Knowledge	Knowledge of the PPL procedure.	Knowledge of the PPL procedure and in-depth knowledge of GPP application, integration, market research.

Source: authors' summary

As mentioned in Table 3, GPP is a more comprehensive type of procurement that involves not only environmental considerations but also financial benefits in the long run, as it is important to consider not only the purchase price of the product or service but also the maintenance costs and services groups make up a very significant part of the total cost, such as construction, energy-using goods, vehicles. Knowledge is very important when doing GPP, as you need to know not only the procurement procedure, but also the green purchasing criteria, and market research to make sure the product / product is available on the market.

Conclusions, proposals, recommendations

1. In order to apply green public procurement criteria, the commissioning party must have knowledge of the procurement process as well as of the requirements and criteria that can be integrated into green public procurement.
2. Identifying all stages of procurement and carefully integrating criteria, requirements, verification methods to ensure that green public procurement principles, as well as the principles set out by the European Commission, are essential to the success of green public procurement.

3. One of the principles that promote the use of green public procurement and the evaluation of the most economically advantageous tender, not only taking into consideration price, but also factors such as environmental, social and quality criteria.
4. Applying life-cycle costing to overstate cost-effectiveness, not just the purchase price, but also other costs - maintenance, utilization, etc. - has a very significant impact on the application of green public procurement.
5. Companies, which seek to provide their services as environmentally friendly, by adding to them unwarranted evidence of compliance with environmental requirements. Parties have developed a number of standards, certification system and labelling by which help can be distinguished between a truly environmentally friendly product and counterfeit or green in the case of “laundering” criteria “green – wash”.
6. Green procurement is also seen as a smart purchase, which at the same time allows for the development and integration of environmental and social aspects, as well as opens up opportunities for innovative solutions and opportunities.

Bibliography

- Ahsan, K., Rahman, S., 2017. Green public procurement implementation challenges in Australian public healthcare sector. *Journal of Cleaner Production*, 152, 181 - 197.
- Anantharaman, M. (2018). Critical sustainable consumption: a research agenda. *J. of Environmental Studies and Sciences*, OnlineFirst.
- Belgica, P.B., Jose, B.C.M., 2016. Green public procurement as an initiative for sustainable consumption. An exploratory study of Spanish public universities. *Journal of Cleaner Production*, 133, 648-656.
- Cabinet of Ministers, 2017. Cabinet of Ministers Regulations No 353 Requirements and Application of the Green Public Procurement. *Latvijas Vēstnesis*.
- Cheng, W., Apolloni, 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.
- Commission, E. 2016. Public Procurement Indicators 2015. Retrieved from <http://ec.europa.eu/DocsRoom/documents/20679>
- Day, C., 2005. Buying green: the crucial role of public authorities. *Local Environment*, 10(2), 201-209.
- EEA, 2015. The European environment — State and outlook 2015: Synthesis report. European Environment Agency.
- Evans, L.N., 2010. Assessment and comparison of national green and sustainable public procurement criteria and underlying schemes.
- Gilg, A., Barr, S., Ford, N., 2005. Green consumption or sustainable lifestyles? Identifying the sustainable consumer. *Futures*, 37, 481-504.
- Giulio, AD., Fischer, D., Schäfer, M., Blättel-Mink, B., 2014. Conceptualizing sustainable consumption: toward an integrative framework. *Sustainability: Science, Practice and Policy*, 10(1), 45-61.
- Igarashi, M., de Boer, L., Michelsen, O., 2015. Investigating the anatomy of supplier selection in Green Public Procurement. *Journal of Cleaner Production*, 108(A), 442- 450.
- Lundberg, S., Marklund, P.O., Strömbäck, E., Sundstrom, D., 2015. Using public procurement to implement environmental policy: an empirical analysis. *Environmental Economics and Policy Studies*, 17(4), 487-520.
- McCrudden, C., 2004. Using public procurement to achieve social outcomes. *Natural Resources Forum*, 28(4), 257-267.
- Mellissen, F., Reinders, H., 2012. A reflection on the Dutch sustainable public procurement programme. *Journal of Integrative Environmental Sciences*, 9(1), 27-36.
- Neto, B., Gama Caldas, M., 2017. The use of green criteria in the public procurement of food products and catering services: a review of EU schemes. *Environment, Development and Sustainability*, 20, 1905-1933.
- O’Rourke, D., Lollo, N., 2015. Transforming consumption: from decoupling, to behaviour change, to system changes for sustainable consumption. *Annual Review of Environment Resources*, 40(1), 233-259.
- OECD, 2015. Size of public procurement”, in *Government at a Glance 2015*. Organisation for Economic Co-operation and Development.

Oosterhuis, F., Rubik, F., Scholl, G., 1996. Product policy in Europe: New environmental perspectives. Kluwer Academic Publishers, 302 p.

Pelsa, I., Balina, S., 2019. Electronic Procurement System – Instrument for Implementating Green Public Procurement: Analysis of the Latvia's Experience. Proceedings of International Scientific Conference "New Challenges in Economic and Business Development", 16-18.05.2019, University of Latvia, pp. 631- 641.

Reichel, A., De Schoenmaker, M., Gillabel, J., 2016. Circular economy in Europe. EEA. Luxembourg: Office of the European Union.

Testa, F., Iraldo, F., Frey, M., 2011. The effect of environmental regulation on firms' competitive performance: the case of the building and construction sector in some EU regions. *Journal of Environmental Management*, 92, 2136-2144.

Testa, F., Iraldo, F., Frey, M., Daddi, T., 2016. What factors influence the update of GPP practices? New evidence from an Italian survey. *Journal of Cleaner Production*, 112, 1893-1900.

UNDESA, 2019. World Population Prospects: The 2019 Revision, Key Findings and Advance Tables. United Nations, Department of Economic and Social Affairs, Population Division, New York.