

CREATION OF A MECHANISM FOR THE IMPLEMENTATION OF GREEN PURCHASES IN THE PUBLIC SECTOR: UKRAINIAN EXPERIENCE

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Abstract: The globalization of public relations has led to the need to reform the public sector of the economy. Harmonization of legislation and regulatory basis with European Union standards requires the generation of new approaches and forms of interaction between customers and participants in procurement processes. The reform of the public procurement system gave an impetus to a change in the attitude of the state customers to the procurement process and the recognition of the need to introduce green procurement.

In the article, the authors investigate the process of implementing green procurement in Ukraine, analyse the regulatory basis and determine the shortcomings in the implementation of the environmental procurement mechanism. In this work carried out a research the priority sectors of the economy for which procurement is most often realize in the regions of Ukraine and suggests using an individual approach to the implementation of green procurement, depending on the needs of the local public sector. The work has developed tools for implementing green procurement, but the mechanism for their application requires research by a wider circle of specialists in various industries. The authors note the shortcomings of the generally accepted methodology for calculating budget savings, which does not take into account the life cycle of goods, should be the future research of scientists.

Key words: public procurement, green public procurement, public policy, ecology, Ukraine

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СЪЗДАВАНЕ НА МЕХАНИЗЪМ ЗА ОСЪЩЕСТВЯВАНЕТО НА „ЗЕЛЕНИ ПОКУПКИ“ В ПУБЛИЧНИЯ СЕКТОР: УКРАИНСКИЯТ ОПИТ

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Резюме: Глобализацията на връзките с обществеността доведе до необходимостта от реформиране на публичния сектор на икономиката. Хармонизирането на законодателството и нормативната база със стандартите на Европейския съюз изисква генерирането на нови подходи и форми на взаимодействие между потребителите и участниците в процесите на възлагане на обществени поръчки. Реформата в системата за обществени поръчки даде тласък за промяна в отношението на държавните клиенти към процеса на обществени поръчки и признаването на необходимостта от въвеждането на зелени обществени поръчки. В настоящата статия, авторите изследват процеса на внедряване на зелени обществени поръчки в Украйна, анализират

нормативната база и определят недостатъците при прилагането на механизма за екологични обществени поръчки. В рамките на научното изследване е проведено проучване на приоритетните сектори на икономиката, за които най-често се осъществяват обществени поръчки в регионите на Украйна и се предлага използването на индивидуален подход при изпълнението на зелени обществени поръчки в зависимост от нуждите на местните публични сектори. В изследването са разработени инструменти за изпълнение на зелени обществени поръчки, но механизмът за тяхното прилагане изисква проучване от страна на по-широк кръг от специалисти в различни индустрии. Авторите отбелязват недостатъците на общоприетата методика за изчисляване на икономии на бюджетни средства, която не отчита жизнения цикъл на стоките и трябва да се превърне в обект на бъдещи изследвания от страна на учените.

Ключови думи: обществени поръчки, зелени обществени поръчки, държавна политика, екология, Украйна

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СОЗДАНИЕ МЕХАНИЗМА ВНЕДРЕНИЯ ЗЕЛЕННЫХ ЗАКУПОК В ГОСУДАРСТВЕННОМ СЕКТОРЕ: УКРАИНСКИЙ ОПЫТ

Резюме: Глобализация общественных отношений привела к необходимости реформирования государственного сектора экономики. Гармонизация законодательства и нормативной базы со стандартами Европейского Союза требует генерации новых подходов и форм взаимодействия заказчиков и участников закупочных процессов. Реформирование системы публичных закупок дало толчок к изменению отношения государственных заказчиков к процессу закупки и признание необходимости введения зеленых закупок.

В статье авторы исследуют процесс имплементации зеленых закупок в Украине, проводят анализ нормативной базы и определяют недостатки системы внедрения механизма экологических закупок. В работе проведено исследование приоритетных отраслей хозяйства по которой чаще всего осуществляются закупки в регионах Украины и предложено использовать индивидуальный подход к внедрению зеленых закупок в зависимости от потребностей местного государственного сектора. В работе разработаны инструменты внедрения зеленых закупок, но механизм их применение требует исследований более широкого круга специалистов различных отраслей. Авторы отмечают недостатки общепринятой методологии расчета экономии бюджетных средств, которая не учитывает жизненного цикла товаров, что должно стать будущим исследованиям ученых.

Ключевые слова: государственные закупки, зеленые закупки, государственная политика, экология, Украина

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Introduction

The global economic crisis and increasing environmental problems, which threatens the existence of future generations, require new approaches to address the issue of establishing a sustainable balance between economic well-being and environmental protection by greening the economy. Technological progress, integration processes in the global economy, increasing competition in the global market, increasing the environmental orientation of consumers have an impact on producers, who should be guided by changes in the structure of demand, which should take into account the environmental factor in their production activities.

Global spending on public procurement accounts for 13-20% of GDP, which demonstrates the great economic importance of public procurement in the economy and is a powerful tool for influencing market relations. In every country, regardless of the level of economic development, public procurement must ensure the solution of strategic and tactical tasks. Strategic ones include general economic policy aimed at supporting a national producer, managing public finances, protecting the environment, social policy, supporting depressed regions, etc. Tactical tasks include increasing competition, the best quality of the subject of procurement at the best price, timeliness of procedures, minimizing risks and corruption opportunities.

The key role is played by the state by creating a legislative framework and developing additional incentives to promote environmental goods and services. Recently, the green public procurement system has gained a significant development in the countries of the European Union, as one of the most important instruments that stimulates the greening of the economy by establishing certain framework conditions that stimulate the economy's orientation towards green production and consumption.

The green public procurement system helps to increase the number of companies that will increase competitiveness in the world market, will stimulate the economic growth of the country, by opening new opportunities for small and medium-sized businesses and, as a consequence, creating jobs for the population.

Commitments in the area of public procurement are one of Ukraine's top priorities under the EU-Ukraine Association Agreement. The reform of the public procurement system in Ukraine was necessitated by the need to improve the existing rules and to apply transparent and competitive procedures based on objective criteria for overcoming corruption risks in public procurement. However, not only our legislation is in line with individual EU directives, but first and foremost, building a public procurement culture and being able to compete on the international market.

Review of the scientific literature

The current trends in global economic growth have led to many environmental problems, such as climate change and pollution. Therefore, the process of transition to an ecological economy has attracted the attention of scientists around the world. One of the instruments that drives the transition to an eco-friendly economy is green public procurement, which sets environmental standards for the purchase of goods and services at the government level.

Construction is one of the largest environmental industries damaging the environment and is a priority target for public procurement worldwide. Therefore, many scientists have devoted their research to this particular field of economics. Rais et al. (2018) are exploring environmental procurement issues in Malaysia. Ruparatna and Hewage (2015) surveyed statistics to assess the problems and benefits of green procurement in the Canadian construction industry. Schmidt and Osebold (2017) studied the state of environmental management of corporate business in the

construction in Germany. Spanish scientists have concluded that the environmental criteria for public procurement of the construction sector of the economy are much less applicable than under economic agreements and far behind the European level (Fuentes-Bargues at al., 2018).

Mosgaard (2015) conducts case studies and analysis of green procurement practices on the example of Scandinavian organizations and concludes that green procurement should become a habit in everyday business practice and should be adapted to existing public procurement practices. Da Costa and Da Motta (2019) focused their research on identifying and classifying major barriers to the massive introduction of green public procurement in Brazil. Rietbergen and Block (2013) quantified the environmental impact of public procurement. Fuentes-Bargues at al. (2018) conducted research of practical implementation of green procurement by universities in Spain, carried out a classification and identified low environmental criteria when purchasing goods and services. Stofova at al. (2016) suggest the concept of measuring the overall environmental impact and assessment of green public committees based on the criteria developed, as well as a methodological plan for the implementation of the green public commission. Interesting studies Kubaščíková at al. (2019) on the impact of non-financial information on business performance and the results of the enterprise. The authors argue that additional indicators, to which environmental factors can be attributed, should be used to assess the company's performance.

Most scholars agree that the level of use of environmental criteria in the public procurement process is rather low, and the same opinion is expressed by Ukrainian scientists who are in search of tools for the best implementation of green procurement in the national public procurement system (Konashchuk, 2016).

Research methodology

Green public procurement is an innovative concept for Ukraine that aims the rational use of public finances, the use of market opportunities and the enhancement of environmental and social impact at local and global level. The introduction of the concept of environmental public procurement is public policy tool for the economic development of the country without harming the environment and quality of life of the population.

In most developed countries, government programs to increase green public procurement have already been developed and are being actively implemented. Austria, Denmark, Finland, Germany, the Netherlands, Sweden and the United Kingdom have declared themselves countries that apply the principles of environmental procurement back in 1995. Following the decision of the UN General Assembly in 2002 in Johannesburg (South Africa), a global summit was held to evaluate the implementation of the Agenda for the 21st Century for Sustainable Development, taking into account the balance between social justice, economic growth and environmental solutions approved at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro. Establishing a target group for sustainable public procurement to assist countries in implementing their green procurement policy took place after an international expert meeting in 2003 in Morocco. In 2004, the EU Council and the European Parliament approved two Directives aimed at clarifying, simplifying and improving existing European legislation in the public procurement system. Subsequently, global economic processes and the requirements of a modern approach to the development of international instruments in the field of public procurement necessitated the

improvement and adoption of new Directives. Table no. 1 provides an overview of the EU Directives used to increase transparency and fairness in the public procurement system.

Table 1.
EU Public Procurement Directives

Directives	Scope
2014/24/EU of 26 February 2014	Procurement in the public sector
2014/25/EU of 26 February 2014	Procurement in the field of municipal legislation
2014/23/EU of 26 February 2014	Conclusion of the concession agreement
89/665/EEC of 21 December 1989	Regulates the application of procedures for appealing decisions on the appointment of contracts for the purchase of goods and works for public funds
92/13/EEC of 12 February 1992	Regulates the application of procedures for appealing decisions on the appointment of contracts for the purchase of goods and works for public funds for the implementation of procurement procedures by institutions operating in the fields of water, energy, transport and telecommunications sectors
2009/81/EC of 13 July 2009	Defense procurement
2014/55/EU of 16 April 2014	About e-implementation in e-procurement

Source: own elaboration

The Directives presented introduce an effective procurement process aimed at the rational use of budgetary resources. The directives introduce certain controls aimed at increasing competition, reducing the risk of corruption and excessive spending from the budget.

The Directives contain detailed provisions that encourage the use of green procurement, although they do not oblige them to take environmental aspect into account in the procurement process. The Directives provide clarifications and recommendations on voluntary green procurement. An overview of the most relevant articles is presented in Table2.

Table 2.
Directive 2014/24 /EU on the implementation of green procurement

Article of 2014/24/EU Directive	Summary of the article
Article 18.2.	The article emphasizes that Member States should take the necessary measures to ensure that entities comply with environmental, social and labor law obligations laid down by European Union law, national law, collective agreements or international environmental law, social and labor law.
Article 42.	Establishes technical specifications that must be formulated to meet performance or functionality requirements, including environmental performance.

Article 43.	It establishes the right of the customer to determine specific environmental, social or other characteristics, in the technical specifications, as a criterion for awarding the contract or conditions of its performance, to require certain marking as a means of proof that the works, services or materials meet the required characteristics.
Article 62.	Regulates references to environmental management measures and systems when contracting entities require certificates issued by independent bodies certifying that the entity meets certain environmental management systems or standards.
Article 67.	Determines the methodology for using the environmental criteria for the most cost-effective competitive bid from a customer's point of view, which should be determined on the basis of price or cost using the cost-effectiveness approach.
Article 68.	It establishes that the costs attributed to external environmental factors related to a product, service or work over its life cycle, provided that their monetary value can be determined and verified.
Article 70.	Determines that contracting authorities may set specific conditions related to the performance of the contract, if they are related to the subject of the contract, these conditions may include economic, innovative, environmental or social.

Source: own elaboration

In accordance with European Union law, green procurement must be conducted in accordance with the basic principles of non-discrimination, transparency and proportionality. The detailed rules laid down in those articles help to ensure that these principles are applied in practice. Ukraine has committed itself under the Association Agreement, in particular Art. 148-156, on the implementation of public procurement in accordance with EU standards (VRU 2014). All reforms of the public procurement system were carried out in accordance with the approved Road Map and in accordance with the EU Project "Harmonization of the Public Procurement System in Ukraine with EU Standards". With the support of the project by the European Commission a guide to green public procurement and a set of criteria for green procurement for different groups of goods and services have been developed and published.

The introduction of green procurement has also been approved in the provisions of the Law on Public Procurement No. 922 of December 25, 2025, which stipulates in Article 22 (3) that the technical and qualitative characteristics of the procurement must provide the need to apply environmental protection measures.

In addition, the idea of green procurement is supported by the Law on the Fundamental Principles (Strategy) of the State Environmental Policy of Ukraine for the period until 2020, which envisages a number of measures to reduce the level of pollution of water, soil, air, including the adoption of relevant acts of public authorities.

As we can see, the idea of green public procurement is a voluntary tool for use in public policy. In 2015, a comprehensive assessment of the legal and market conditions for green procurement was conducted in Ukraine. Based on the results of this evaluation, which was carried out on the basis of 75 procurement organizations at the expense of the state budget, priority sectors for green procurement were identified: fuel and energy complex, chemical industry, construction and special equipment. The analysis of the procurement subject for 2018, presented in Table no 3, does not

significantly change the priority sectors, since the largest number of purchases is made in the construction and fuel and energy complex.

Table 3

Selective analysis by the subject of procurement in the regions of Ukraine

Region of Ukraine	Purchase Lot	Quantity	Total (million UAH)
Kyiv region	Construction work and ongoing repairs	23706	71279,6
	Repair and maintenance services	13794	5173,3
	Petroleum, fuel, energy and other energy sources	13467	53482,3
	Construction structures and materials; auxiliary products to construction	12026	11658,6
	Medical equipment, pharmaceuticals and personal care products	11574	5609,3
Kharkiv region	Construction work and ongoing repairs	12466	13559,4
	Food, beverages, tobacco and related products	5335	767,2
	Construction structures and materials; auxiliary products to construction	5185	3809,3
	Architectural, construction, engineering and inspection services	4850	521,3
	Petroleum, fuel, energy and other energy sources	4343	3603,6
Odessa region	Construction work and ongoing repairs	11402	13041,6
	Food, beverages, tobacco and related products	6107	581,5
	Construction structures and materials; auxiliary products to construction	4907	573,3
	Petroleum, fuel, energy and other energy sources	4385	3484,69
	Repair and maintenance services	3927	875,9
Chernihiv region	Food, beverages, tobacco and related products	5359	219,9
	Construction work and ongoing repairs	3849	4370,2
	Petroleum, fuel, energy and other energy sources	3586	1592,4
	Construction structures and materials; auxiliary products to construction	3541	183,1
	Office and computer equipment and supplies	2224	73,0
Khmelnitsky region	Food, beverages, tobacco and related products	6084	335,8
	Construction work and ongoing repairs	4276	4924,6
	Petroleum, fuel, energy and other energy sources	3443	1541,1
	Medical equipment, pharmaceuticals and personal care products	2894	330,7

	Repair and maintenance services	2208	121,2
Ivano-Frankivs'k Region	Construction work and ongoing repairs	5230	5366,0
	Petroleum, fuel, energy and other energy sources	2803	1308,7
	Construction structures and materials; auxiliary products to construction	2316	176,5
	Food, beverages, tobacco and related products	2023	167,1
	Services in the field of agriculture	1842	177,9
Vinnytsya Region	Food, beverages, tobacco and related products	5555	346,5
	Construction work and ongoing repairs	4447	8362,9
	Petroleum, fuel, energy and other energy sources	4251	2115,9
	Medical equipment, pharmaceuticals and personal care products	3425	518,9
	Construction structures and materials; auxiliary products to construction	2985	507,4

Source: <http://bipro.prozorro.org/qlikview/index.htm>

Table 3 analyses the priority sectors for which public procurement was most often conducted. In each of the studied regions, the largest number of lots belongs to construction works and the fuel and energy complex. Therefore, we believe that basic rules for the introduction of green procurement at the legislative level should be developed and applied for such sectors of the procurement process, which would reduce energy and water consumption, lead to material savings, reduce construction waste, reduce the impact on air pollution. Therefore, during the procurement procedure for construction works, fuel, energy, at the stage of qualification criteria identification, it is necessary to establish requirements for customers, to require the participants to comply with safety and performance standards, energy efficiency, water resources combined with the reduction of pollutants and greenhouse gases, waste reduction and consumption.

However, it is clear that the process of developing and implementing instruments for stimulating green procurement at the state level is quite lengthy, since today it is a voluntary process. In order for green procurement to become a reality, it is necessary to increase the interest of the customers in the qualitative and functional characteristics of the procurement subject. Today, the only criterion for determining the successful bidder is the price. Therefore, in order to increase the share of organic products in public procurement, the following issues need to be addressed:

- what conditions can be defined as environmental and in what situations and specifically for what products it is appropriate to use them;
- what products should be classified as “green”, who should determine which certification systems to use;
- clear environmental criteria and a national system of standards in this field should be developed;
- clarification and dialogue between customers and participants on new practices is needed;
- to develop and approve standard bidding documents containing environmental requirements (technical documentation, requirements for participants, application evaluation criteria, additional contract terms);

- to develop a methodology for calculating the life cycle for different product groups.

It is therefore necessary to develop, at the expert level, and to establish at the legislative level the signs of environmental friendliness and energy efficiency. And also to change the procedure for determining the winner of the auction, taking into account the price preference at the level of 15-20% when performing the signs of green goods. Such a mechanism is quite transparent and will encourage incentives for participants to produce eco-friendly products, which are often more expensive.

Considering the above and analysing the results of the study in Table 3, we believe that the most effective way of implementing green procurement is to identify in the regions the priority procurement items for green procurement, that is, the most commonly auctioned. For such products, one should set environmental requirements and criteria at the regional level, as well as develop methodological guidelines and standard requirements for specific products. Such individual approach will make it possible to realize the economic, social and environmental impact of green procurement, taking into account the needs of local communities. For example, in the Ivano-Frankivsk region, we consider it is necessary to pay attention at the regional level to the agricultural sector, which includes logging and forestry and to develop mechanisms for the implementation of environmental procurement. In this case, the economic effect will be to save money throughout the purchasing life cycle, to create demand for certain categories of goods that are a priority in a particular region, to stimulate innovative technologies and to develop production. The environmental effect is determined by energy efficiency and rational use of available resources, reduction of deforestation, regulation of greenhouse gas emissions. The introduction of high environmental standards for the production of works and services, improving the quality of life of the population will increase the social impact of green procurement.

The biggest achievement of the new system was the introduction of the ProZorro Electronic Procurement System, the main principle of which is: “everyone sees everything.” The introduction of electronic procurement system in Ukraine has enabled small and medium-sized businesses to participate in the bidding, which has increased competition among participants. All interested parties were given access to the monitoring of the procurement process; participants are able to challenge unfair decisions. But the main achievement of the electronic system is the saving of public funds, which is reflected on the official site of public procurement system. But according to the decision of the Accounting Chamber of Ukraine “On reviewing the report on the results of the analysis of the state of public (government) procurements in 2017” No. 13-1 from 31.05.18, there is no methodology for calculating the saving of budget funds, which makes it impossible to officially analyse and estimate the savings of budget funds during the use of the ProZorro Information and Telecommunication System. Which means that the information provided for public use cannot be considered as credible. To date, no public service entity in Ukraine has been tasked with collection of information on the implementation of public procurement, and therefore, the amount of funds used, the number of concluded contracts which were paid for with budget funds and the amount of savings of budget funds are impossible to officially determine.

Now, the savings are calculated as the difference between the expected value of the purchase and the actual value of the contracts. Expected value of procurement is determined by the customer at the time of the publication of the procurement announcement and shows the maximum amount of money that can be spent by the

customer under a separate procurement contract, which is rather a subjective indicator, since during the establishment of the initial contract price, a reasonable and real market value of the item are not taken into account. In addition, the full life cycle of a product or service is not taken into account at all.

In order to introduce procurement, which will be based on the principle of balancing economic, environmental and social criteria, we suggest that customers apply the following algorithm of actions:

1. Determine the objectives of the purchase;
2. Determine the subject of procurement, work or service (lot of procurement) and the required volume (quantity, unit of measurement);
3. Determine the quality and other technical characteristics;
4. Establish the need to apply measures to protect the environment, taking into account the specifics of the subject of the procurement;
5. Consider the need to establish specific criteria and whether there is adequate justification for such a need;
6. Determine the method of confirmation of compliance with the established requirements of technical specifications;
7. Conduct an analysis of the method of assessment by price criterion, taking into account the cost of the life cycle of goods and search for opportunities to optimize costs;
8. Assess market opportunities (marketing research, consultations with potential suppliers);
9. To adapt the essential conditions and the draft agreement with the requirements of technical specifications.

The introduction of non-price criteria in the procurement process at the level of an individual customer will stimulate the market for responsible manufacturers and introduce innovative technologies; will improve the quality of life of the population; in the long term, there will be savings in money due to energy savings or the possibility of recycling after the expiration date; promotes the development of small and medium-sized businesses that respond quickly to new market requirements.

But the introduction of "green" procurement at the level of social responsibility of an individual customer is not enough for the sustainable development of the country's economy. Without a fundamental decision by the authorities and the general environmental policy of the state, the efforts of individual socially responsible customers will be in vain. Therefore, a fundamental decision by the authorities is needed to establish environmental criteria in regulations for certain groups of goods that are most important from the point of view of environmental friendliness (construction, agriculture, vehicles, etc.)

Conclusion

It is necessary to stimulate the use of ecological products for both customers and participants of public procedures. A participant cannot set technical requirements for the supply of organic products unless they are available on the market. On the other hand, suppliers are not trying to make a massive transition to production of products with environmental characteristics, because it is not in demand, due to the high cost in the initial stages of production. There are many examples of the use of environmentally friendly goods and services that do not require large costs: the use of reusable packaging, the use of locally produced products, thereby saving on delivery, economical use of electricity, water, refuse of disposable products, etc. It would be advisable to make such green procurement a priority at the local level.

In addition, taking into account the product life cycle, we realize that the total cost of purchasing and using eco-friendly buildings and equipment is less than for a regular facility. But in reality, life cycle procurement is used very little because of the lack of knowledge and lack of tools developed.

The introduction of green public procurement should be an incentive for mass production of such products, but additional methods of financial support for such businesses should be provided in the form of tax rebates or the financing of individual programs.

The widespread introduction of green public procurement is hampered by poor customer motivation, high prices for eco-friendly products, imperfection of the legal framework and the lack of a uniform methodology for defining ecological criteria for each group of goods and services. In addition, the main difficulty is the lack of political will and support from the leadership at the regional level. Therefore, for the effective implementation of environmentally friendly public procurement, the priority of green procurement needs to be integrated into Ukraine's overall development strategy.

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