



Demonstration of an innovative method for the detoxification of pharmaceutical wastewater from pharmaceutical facilities

Deliverable E.1.1: Guidelines for Green Procurement practices
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Coordinating Beneficiary



PARTNERS



UNIVERSITÀ degli STUDI di CATANIA

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Background

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Disclaimer

The information included herein is legal and true to the best possible knowledge of the authors, as it is the product of the utilization and synthesis of the referenced sources, for which the authors cannot be held accountable.

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Abbreviations and Acronyms

LIFE	LIFE Programme
ENV	Environment
CY	Cyprus
Medochemie	Medochemie Ltd.
AU	Aarhus University
CUT	Cyprus University of Technology
NEVIS	NEVIS - NOVEL ENVIRONMENTAL SOLUTIONS S.A.
NTUA	National Technical University of Athens
UNICT	Università degli Studi di Catania
DoE	Department of Environment, Ministry of Agriculture, Rural Development and Environment.

Executive Summary

The present report was prepared in the framework of the co-financed European LIFE Environment and Resource Efficiency program. The overall aim of this document is to provide a simplified guidance to the beneficiaries of LIFE PHARMA DETOX project about the green procurement practices.

1 Introduction

The benefits of the responsible use of pharmaceuticals to the quality of life is widely recognised. The pharmaceutical sector is one of the top performers in the EU, playing an essential role in fostering EU growth and competitiveness, with more than 765 000 employees, contributing over €105 billion to the trade balance.

However, studies over the past two decades have shown that Active Pharmaceutical Ingredients (APIs) are continuously accumulating in soil, animals (especially fish), surface and groundwater. APIs are non-biodegradable, toxic and persistent, having endocrine-disrupting properties. Moreover, antibiotics are a major contributor towards antimicrobial resistance (AMR).

Contamination by APIs occurs through three different pathways:

- Wastewater from the pharmaceutical industry (manufacture).
- Excretion of pharmaceuticals from animals and humans (use).
- Improper disposal of expired medicines (disposal).

The LIFE PHARMA-DETOX project aims to detoxify wastewater from the pharmaceutical industry by developing an innovative, economically viable and cost-efficient system for the transformation of pharmaceutical compounds present in wastewater into non-toxic substances (novel detoxification process). The system will treat the wastewater generated from production activities, ensuring that no APIs end up in the wastewater sewage system without being processed and detoxified by the system developed (PHARMA-DETOX).

The current document describes the guidelines for the green procurement practices to be adopted during the LIFE Pharma-Detox project implementation as per the approved proposal and the related Grant Agreement. All partners are expected to adhere to the suggestions and practices that may be followed in relation to green procurement set hereby, provide insight for their improvement or modification when required and related input as to their implementation in every reporting form to the Co-ordinator.

2 General Framework

Green procurement refers to the acquisition transactions of bearing environmentally friendly features products and services, the selection of contractors applying environmentally friendly management and the environmental requirements included in a contract. The concept of green procurement arose from the ever-growing concern about moderating the adverse impact that produced goods, services and works have on the environment.

Since 2003 the European Commission encouraged Member States to formulate National Action Plans (NAP) for greening the public procurement as part of its Communication on Integrated Policy. The NAPs would not be legally binding but should provide information and assessment of the existing situation as well as set targets and next steps suggested for implementing and raising awareness to all stakeholders involved in the public sector with regards to greener public procurement since the public sector is the core purchaser of goods and services.

Directives 2014/23/EU of the European Parliament and of the Council on the award of concession contracts ('the Concessions Directive'), 2014/24/EU on public procurement and repealing Directive 2004/18/EC ('the Public Sector Directive'); and Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sector and repealing Directive 2004/17/EC ('the Utilities Directive') are the directives that originally imposed to the public sector assignment of government expenditure on works, goods and services. Moreover, new sets of EU GPP criteria have been published in the last years either reviewing existing ones or expanding to sectors not previously existing for. More specifically, in 11.3.2020 regarding data centers, server rooms and cloud services, in 5.3.2021 regarding computers, monitors, tablets and smartphones, in 27.9.2019 for food, catering services and vending machines, in 27.7.2020 for imaging equipment, consumables and print services and in 13.11.2019 for public space maintenance. Lastly, in 18.10.2021 a revision of the EU Green Public Procurement Criteria for Road transport was published.

As the share of public expenditure constitutes an important part of EU Gross Domestic Product (GDP) it was considered that if the public sector was using green principles in the criteria for performing public expenditure it would solve a number of problems at once and also raise the environmental concern of all stakeholders involved. The public sector would contribute to the improvement of climate and environmental conditions and at the same time would boost growth rates and increase employment while encouraging a wide spectrum of services offered to evolve such as certifications, ecolabelling schemes etc. Furthermore, public

authorities who implement Green Public Procurement (GPP) would be more aware and thus more directed to face evolving environmental challenges and move towards a more circular economy and they would induce, in a direct and indirect way, the stakeholders involved to also assume green practices.

GPP is defined in the European Commission's Communication Public procurement for a better environment as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life-cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

GPP is thus considered to fundamentally contribute to a series of initiatives aimed to accomplish environmental policy goals relating to scale down the effects of climate change, boost the sustainable use of resources and responsible consumption and production – especially given the importance of public sector spending on goods and services in Europe, as well as promote circular economy principles.

The adherence to specific GPP is obligatory to international tenders or to tenders above a set threshold, however, GP may be applicable to contracts with contractual value below the threshold for application of the Procurement Directives.

The private sector has been encouraged to use the GP rules and several certifications have evolved which take into consideration green procurement principles. Furthermore, private companies particularly the larger players or those publicly listed or issuing bonds have been "forced", in a way, to adopt Green Procurement as required originally by large investors (mainly Swedish and Nordic pension funds). Thus, private sector companies have been required to adhere or to adopt to a set of ESG criteria and considerations which include green procurement considerations.

To this end, several certification schemes – methods have evolved to certify the adherence to sustainable environmental practices by businesses or organisations. Currently, among the existing certification processes are ISO14001, the Eco-management and audit scheme (EMAS), and ECOVADIS:

- ISO 14001 is the most widely used Environmental standard in the world. It specifies the general requirements for an Environmental Management System in an organization and focuses on recognition of the environmental impacts of the organization's operations in order to minimize them and enhance its environmental performance. The ISO 14001 Environmental Management System can be applied to all categories of organizations, regardless their sector or the product or service they provide. The standard's fundamental principles are:

- Customer Focus
- Engagement of top management
- Active participation of personnel
- Commitment to continuous improvement and compliance with the applicable regulations and legislation
- Management of relationships with interested parties

ISO 14001 can also be combined during application or certification with other standards that follow the same structure, such as ISO 9001, ISO 45001, ISO 2200, ISO 27001.

- The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organizations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organization eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide. EMAS Regulation refers to the Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organization in a community eco-management and audit scheme (EMAS), repealing Regulation (EC) 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC, and known as EMAS III (Official Journal of the European Communities L 342 of 22 December 2009). Annexes I, II and III of the EMAS Regulation were amended by the Commission Regulation (EU) 2017/1505, which came into force on 18 September 2017. To provide easier access to the up-to-date EMAS requirements, the Commission has produced an informal consolidated version of the EMAS Regulation that includes the amended annexes.
- The EcoVadis sustainability assessment methodology is an evaluation of how well a company has integrated the principles of Sustainability/CSR into their business and management system. EcoVadis is built on international sustainability standards, including the Global Reporting Initiative, the United Nations Global Compact, and the ISO 26000, covering 200+ spend categories and 160+ countries. It is also backed by a powerful technology platform and a global team of domain experts. Industry leaders are among the more than 55,000 businesses on the EcoVadis network, all working with a single methodology to evaluate, collaborate and improve sustainability performance to protect their brands, foster transparency and innovation, and accelerate growth.

The writing of this manual regarding guidelines for green procurement practices is based on the Handbook on Green Public Procurement, “Buying Green”, 3rd edition. A number of other publications, articles etc. have also been very assistive in its drafting which are mentioned in the bibliography section.

3. PROJECT SPECIFIC CONSIDERATIONS

3.1 Background

This set of guidelines builds upon the “Buying Green Handbook”, the directives, the requirements of the LIFE Program as set out in the LIFE Regulation (REGULATION (EU) No 1293/2013) and in specific objectives of Article 10 for the priority area Environment and Resource Efficiency, the green procurement practices and practical instruments followed by the partner organizations or similar business sectors or activities as well as their existing national legal and institutional framework with respect to green procurement framework.

The level of green procurement implementation varies between the LIFE Pharma- Detox partner countries as well as between the partners.

Many partner organizations already have ambitious objectives with regards to social, ecological and economical aspects, including the transition to a circular economy, international climate agreements, international social conditions in the international chains, and stimulating innovation. Embedding these ambitions in the practice of procurement and commissioning in their own organizations, remains a challenge towards which the present manual aims to contribute.

3.1.1 Procurement and commissioning as enablers

LIFE Pharma – Detox beneficiaries have set a framework within their organizations related to environmental objectives and need to ensure that they perform their tasks and operations, in particular to the procurement process, in such a way that they will optimally contribute to the achievement of these objectives for the commissioning of works, services and supplies involved in the implementation of the project itself.

3.1.2 Market sustainable development

LIFE Pharma – Detox beneficiaries acknowledge that they can contribute, in their role as clients and assignees, towards maximum uniformity in ambitions, award criteria and practical

implementation relating to GP within the framework of the project implementation and selected areas of GP application.

Procurement within the project will encourage and invite the market to develop and supply products and services having sustainable characteristics to the greater extent as possible. Even before the beginning of the procurement process, partners will stimulate the market by means of innovation-oriented procurement to develop and deliver innovative sustainable solutions.

To challenge and encourage the market, LIFE PHARMA – DETOX beneficiaries’ senior staff, technical managers, budget holders or purchasing officers would enter into a dedicated dialogue with the market before the tendering process begins to develop innovative solutions in partnership and offer scope for these solutions in the procurement process.

3.1.3 Tools and Networking

There are many GPP directives and practical instruments on EU and local level that may inspire LIFE Pharma - Detox beneficiaries to take Green Procurement (GP) forward, to share these examples and continue to learn from each other as a result and related bibliography as well as sources that have been useful to the compilation of this manual are included for further reference.

Beneficiaries will align the implementation of the GP Guidelines as closely as possible with existing consultation structures between them and related stakeholders. According to Deliverable E.1.1 NEVIS has prepared the guidelines for the Green Procurement good practices to be applied in the project implementation and notify the other beneficiaries. The PHARMA DETOX beneficiaries will be also required to report on GP practices adopted during tendering and commissioning the project purchase of goods and services. Moreover, 2 Project meetings will be also held in Cyprus and 1 project meeting in Greece for partners to discuss and report their progress to the EC regarding the management of the project including their GP practices adopted.

3.2 Green Procurement in Partner Countries

3.2.1 GPP in Greece

Article 18 of Law No. 3855/2010 “Measures for the improvement of energy efficiency in end-use, energy services” is the first reference of a National Action Plan of the Greek legislative scheme introduced in 2010. It was subsequently amended by Article 24 of Law No. 4342/2016

and to state law with leg. 4412/2016 in compliance to European directives 2014/24/EU and 2014/25/EU which have also been integrated by this article. Articles include measures for the establishment of environmental labels (article 55), quality assurance and environmental management system standards (article 82), life cycle cost analysis (LCCA) (article 87).

On a national scale, a diversified portfolio of structural reforms has paved the way for a more transparent, economically efficient, and eco-friendly public procurement regime. Legislative initiative 4412/2016 combined with mandatory use of the National Electronic Public Procurement System for the acquisition of products, services and large-scale public constructions have led to the modernization and simplification of procedures. The establishment of the National Central Procurement Authority (EKKA) and the National Strategy for Public Procurement (2016) have provided sustainable and consistent efforts towards achieving greener GPP practices. The General Agency for Public Procurement, initiated by the Ministry of Development and Investments, adopted in 2017 a set of green criteria regarding the procurement of a variety of products and consumables (paper, PCs and screens, eco-efficient air-conditioning, led lighting etc.) with a total value of 87.25 million euro. Those purchases provide quintessential green materials to central government agencies, resulting in their further integration to environmentally friendly practices. Moreover, for the promotion of electromobility and other provisions (Law 4710/2020) and for the incorporation of the Directive (EU) 2019/904 on the reduction of the impact of certain plastic products on the environment (Law 4736/2020), were also included at the National Legislation, in 2020.

According to the Greek GPP National Action Plan (2021-2023), by 2023 all public procurers have to adopt gradually at least the core criteria presented in the Annex of the GPP NAP both for the mandatory and the non-mandatory categories. More specifically, in 2021 all the governmental public authorities adopted all the obligatory GPP measures. In 2022 all the non-governmental public authorities (municipalities and regions) have started to implement the Greek GPP policy and in 2023 all the rest public authorities are expected to act respectively. The affected product categories on which GPP criteria have been mostly implemented in Greece include copying and graphic paper, computers and monitors, imaging equipment, LED lamps for interior lighting, air conditioning machines, lubricants (regenerated and biodegradable), road transport, road lighting and traffic signals, on which the GPP targets differ from 20% for some categories to 80% for some other, most of the categories have the target 50 as reported in Greece's National Action Plan (2020 -2023) in December 2020, based on EU's website: https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm.

Regarding the actions for GPP at regional and local level, noteworthy actions are being implemented by local authorities in cooperation with other public entities and within the framework of co-funded programs in the field of circular and sustainable development. Applications include the updating of national road network lighting to modern specifications, measures to reduce municipalities' energy expenditure and upgrading energy efficiency of public building under the funding program "save" («εξοικονομώ»), which has already been implemented 3 times (2018 – 2020) and is currently in its 4th cycle, running from 2021. The program aims to reduce the energy needs of buildings and relative emissions that contribute to the reduction of the greenhouse effect and cost savings for citizens, the improvement of daily living and comfort conditions as well as the safety and health of citizens when using these buildings and most importantly a healthy environment.

The establishment of green criteria for public procurement in the field of public works, studies and technical services is interconnected with the initiation of a specific legislative framework for environmental action, described in the national climate law which was established in 2021, promoting eco-friendly planning and circular economy and development. To this end, applicants are obligated to comply with the procedure of environmental licensing of projects and activities in accordance with a matrix of legislative and regulatory environmental provisions.

Greek authorities also actively promote the adoption of the EU Ecolabel for products and services that have a lower environmental impact throughout their life cycle. Products and services awarded with the Ecolabel are presented in a table on the website of the Ministry of the Environment.

Regarding the Eco Management and Audit Scheme (EMAS31), in Greece there are five companies – environmental verifiers accredited by the National Accreditation System (NSYD) and 36 organizations with 1,333 installations are registered in the EMAS Register.

In the last years, other increasingly used certifications have been ECOVADIS and ISO 14001. ECOVADIS, allows procurement executives to get access to easy-to-use, dynamic scorecards, and to monitor the sustainability performance of their trading partners as well as their continuous improvement actions and on the other hand, ISO 14001 focuses on recognition of the environmental impacts of the organization's operations, in order to minimize them and enhance its environmental performance.

3.2.2 GPP IN ITALY

Italy has gradually become a pioneer force towards the application of GPP practices, EU regulatory provisions and monetary measures, resulting in the country being regarded as a prime example for its circular economy strategy and legislative framework. Based on the strategic recommendations of the Italian Ministry of Environment (Ministero dell’Ambiente e della Tutela del Territorio e del Mare) and the Italian GPP NAP (art. 34 of the Legislative Decree 50/2016 on GPP, as amended by art. 23 of the Legislative Decree 56/2017), mandatory environmental criteria (MEC – CAM in Italian) were implemented to all Italian public institutions to amplify the eco-consciousness of their procurement procedures.

Italian policy towards GPP has key strategic importance assisting public procurers in applying the socio-economic and environmental advantages of the new “Codice degli Appalti” – Italian Code for Public Contracts (D.lgs.50/2016) provisions. Via the novel Public Procurement Act and GPP no longer having voluntary nature, technical reports, assessment, and certification system are utilized. The tenderer's accredited assessors shall provide verification on the realization of the terms of the GPP agreements. The Directives for Public Procurement, supplies or services are intended for a public purpose, together with the use of recycled materials in production processes for health and consumer protection.

Italy has complied with UNI EN ISO 14001 for the enhancement of existing standards and development of standards for testing procedures to determine the lifetime of products, the recycled content, and the design for recycling. More than 22,000 Italian companies can provide analysis results by organizations accredited to ISO showing an increase of 9% (ref. data of 2015 – the law no.221 known as “Collegato ambientale” entered into force).

The EU strategy, using third party certifications, represents a unique cooperation between organizations with a long background in conformity assessment procedures for public purchasers.

Accredia, is the sole national accreditation body appointed by the Italian government in compliance with the application of the European Regulation 765/2008, attesting the competence, independence and impartiality of certification, inspection and verification bodies, as well as testing and calibration laboratories. Accredia is a recognized association which operates on a non-profit basis, under the vigilance of the Ministry of Economic Development. Accredia, ensures that consumers, suppliers, and purchasers can have confidence in the environmental safety of goods and services that meet sustainability criteria. Public demand for third party certification provides greater incentive for brands and manufacturers to certify their products. Accredia has developed a close cooperation with

ANAC, Conferenza delle Regioni and CONSIP to facilitate the translation of sustainability into daily public procurement practices. Education and training of procurement staff is therefore essential for successful implementation and certification systems data dissemination. Furthermore, Accredia is committed to cooperation between different institutions also to provide added value; in Italy, the GPP market value currently stands at 2 billion Euros”.

3.2.3 GPP in Denmark

The public sector of Denmark allots around 50 billion euro of investment into public procurement, while the private sector invests even more. To encourage the purchase and sales of products and services with lower environmental repercussions, the Danish government has proposed a new strategy for GPP, becoming one of the first countries in the world to set figures on how much the GPP policy and practices will contribute to the reduction of CO2 emissions. Meticulous environmental research and structural modelling indicate that current public procurement practices burden the atmosphere with 12.000.000 tons of emissions, with nearly a third of it produced domestically. The Danish government aspires to significantly reduced those numbers, utilizing GPP as an engine to the country’s green transition.

Legal framework and legislation for public procurement GPP enforces [Directive 2014/24/EC](#) and [Communication from the Commission on Public Procurement for a Better Environment \(COM \(2008\) 400\)](#) which are subjected to the [Public Procurement Directive](#), the [Utility Company Directive](#) and the [Tender Act](#) (European Commission, Directive 2014/24/EU). In October 29th, 2020, the government launched the strategy for green public procurement for a green future and thereby took the lead by sending a clear signal that the public sector must procure greener and that it’s contribution is fundamental in achieving the target of reducing Denmark's green-house gas emissions by 70 per cent in 2030.

The strategy for green public procurement sets the direction for a green transition of public procurement in three dimensions which all focus on procurement areas having a large climate footprint. The three dimensions are:

- Green Action Now
- Long-term Green Development
- Green Knowledge and Tools

These three dimensions present initiatives which have been launched and initiatives with great potential for reducing the climate footprint in the longer term. The initiatives are wide-

ranging regarding both procurement processes as well as procurement areas, and the strategy goal is to ensure that we examine all aspects of the green transition in the public procurement.

Green Action Now

Among other things, a joint government food policy was introduced, including vegetarian meals two days a week in all government staff canteens, and 60 per cent of the food is set to be organic. Furthermore, it is mandatory for government procurement officers to choose eco-labelled products for some product groups. Likewise, it is mandatory to focus on costs throughout the life cycle of a product - and not only on the price at the time of purchase - for some product groups according to Denmark's GPP strategy published on October of 2020.

Long-term Green Development

Moreover, the strategy commits the public sector to a gradual conversion of the entire public vehicle fleet to emission-free vehicles, so that the public vehicle fleet will be emission-free in 2030. In 2021, a reduction target for the public procurement's climate footprint was determined based on a projection of the public procurement's climate footprint in 2030. Denmark will be one of the first countries to set a specific reduction target for the climate footprint of public procurement.

It is mandatory for government procurement officers to increase the quality of the procurement with special focus on green procurement through a Charter for Good and Green Procurement which was launched in 2021. As part of the Charter, the relevant procurement officers are obligated to participate in an empowerment process developed by the Rådgivningsenheden - Statens Indkøb and have focus on green procurement, among other things.

The secretariat for green procurement in the Danish Environmental Protection Agency has started to strengthen and is the main access point for guidance, advice, and knowledge sharing regarding green public procurement.

Green Knowledge and Tools

An annual calculation and projection of the climate footprint of the public procurement will be developed and implemented and it will form the basis for the setting and follow-up of the future reduction target. Furthermore, guidelines will be prepared for public procurement officers as to how they can set requirements for extended warranty and repair options in order to ensure a longer life span for products.

Organizations and institutions responsible for GPP Policy in Denmark:

- Ministry for Environment
- Ministry of Finance
- SKI (National Procurement Ltd.)
- State Procurement Office at the Danish Agency of Governmental Management

The Ministry for Environment, with the coordinating assistance of the Danish Environmental Protection Agency, utilizes three main initiatives to promote GPP practices:

- The Forum on Sustainable Procurement
 - a dissemination network where both public and private institutions are updated on best practices, tools and methods for GPP through electronic means and events.
- The Partnership for Green Public Procurement
 - a collaborative network of the twelve most innovative and green municipalities (responsible for 2/3 of the public procurement of Denmark) and public institution to reduce the environmental footprint of the procurement process.
- The “Responsible Procurer”
 - a webpage where procurers search guidelines and Total Cost of Ownership tools to use in tender documents for several sectors.

3.2.4 GPP In Cyprus

Cyprus published its first National Action Plan (NAP) for the promotion of GPP within the EU framework in March 2007. It was later replaced (January 2012) by an updated second NAP, which is currently still valid, making the implementation of the GPP Action Plan mandatory for all contracting authorities in the public sector, at national or local level. More specifically, Cyprus’ NAP includes strategic targets and actions that aim to change the public consumer model by adopting policies for sustainable production and consumption. One of the qualitative targets’ set also in the National Strategic Plan for Waste Prevention is further promoting green public procurement.

The environmentally sustainable procurement practices, towards the Global Sustainable Goals, include purchase of goods and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Such products or services may include, but are not limited to, those that

contain recycled content, minimize waste, conserve energy or water, and reduce the amount of toxics disposed or consumed.

So far, with certain exceptions, the target proposed by the European Commission in 2008, of including green criteria in at least 50% of all public purchases has been adopted in Cyprus. For instance, for purchases of office IT and imaging equipment (90% has been achieved), road signs (100%), public fountains (100%), indoor lighting (95%), toilet cisterns (100%), etc. Moreover, all public authorities have also assigned a GPP Internal Coordinator.

The Department of Environment of the Ministry of Agriculture, Rural Development and Environment (DoE) is the Competent Authority (Body) for GPP, EU Ecolabel and EU EMAS. More specifically, the DoE acts in compliance to the national and EU legislation regarding Green Procurement (i.e. Law 3855/2010 “Measures for the improvement of energy efficiency during end use, energy services and other provisions” Art 18 Green Public Procurement and COM(2008) 400 Final “Public procurement for a better environment” document). DoE sets to public tenders’ green criteria (for example, recycled pulp in copy paper tenders), as well as eco-labels and environmental schemes. Both eco-labels and environmental schemes (EU EMAS and ISO 14001) are premiumed (giving extra bonus/remarks) at the evaluation stage of the offers. Ecolabelling schemes are also part of the NAP GPP. Moreover in 2012, the Department of Environment included the EU GPP Toolkit criteria in Cyprus’ GPP NAP, which is also directly linked to the National Action Plan for Renewable Energy (2010-2020) of the Ministry of Energy, Commerce, Industry and Tourism. At national level all public procurers must adopt at least the core criteria from the Toolkit, or for some categories that are not included in Toolkit, they have to adopt the criteria that have been set by national experts (50%).

Furthermore, an inter-ministerial Committee, established in 2017, is working on the Development of the appropriate Action Plan for the promotion of mandatory Green Public Procurements at all levels of Public Administration. MEEN will also apply the provisions set in 2014/24/EU and 2014/25/EU. To this end it has a very closely corporation with the public procurement authority (Treasury of the Republic of Cyprus).

Moreover, the Department of Environment, has started since 2014, the Green Public Procurement Awards (CY GPP Awards) as an extra motivation for Public Authorities, Local Authorities and for Private Organizations. CY GPP Awards are accompanied with a big ceremony, including awarding for EU Ecolabel new products/services and EU EMAS ceremony as well for new registered organizations.

Lastly, with the LIFE IP CY Zero Waste currently being implemented in Cyprus with 19 Partners being mostly local authorities, a special law is being examined in order to be introduced in all procurement activities to ensure and promote the use of green procurement.

3.3 Green Procurement in LIFE PHARMA – DETOX partners

3.3.1 GPP in Università degli Studi di Catania

In accordance with the strong legislative framework and strategy of the Italian government, the University of Catania has implemented specific GPP practices to minimize its carbon output and achieve maximum green status, including the dissemination of information related to the responsible use of resources between students, teachers, and administrative employees. More specifically, the University of Catania has embraced multifunctional rental practices that are subjected to checks of compliance with the Minimum Environmental Criteria (CAM, in Italian) of the Ministry of the Environment and protection of land and sea (MATTM, in Italian), with containment of energy consumption, compliance with R.A.E.E (RAEE means the waste generated from appliances, instruments and devices powered by electricity or batteries, such as: large household appliances, small household appliances, IT and telecommunications equipment, R.O.H.S. (Restriction of Hazardous Substances Directive) and CE marking (CE letters signify that product sold in the EEA have been assessed to meet high safety, health, and environmental protection requirements).

Practices include among others:

- Telematic communication technologies,
- photovoltaic panels,
- sustainable methods of transports in and around campus
- support research into green technologies,
- participation in the local Observatory on waste collection and reconversion of waste materials,
- collection and disposal of waste materials in the buildings of the University in collaboration with the local municipality of the city of Catania,
- at least 30% of the toner and inkjet cartridges supplied are regenerated ('prepared for re-use') in accordance with the technical specifications contained in the CAMs for supplies of toner cartridges and inkjet cartridges in force,
- use of electronic meal vouchers (the dispensing process is completely electronic - no longer printing on paper and "transport" only virtual),

- purchases of Desktop PCs with reduced energy consumption, ergonomic requirements for monitors and,
- proper disposal of Electronic Waste (R.A.E.E.)

3.3.2 GPP in National Technical University of Athens

NTUA is Greece's oldest and most prestigious educational institution in the field of technology and engineering, with more than 20.000 students. In the last years, NTUA has made great efforts to correspond its operations with the principles of Circular Economy and Sustainability via the establishment of common Green public procurement criteria. Another easing factor has been the fact that the vast majority of NTUA's employees and students are environmentally conscious and willing to participate in the transition for an ecofriendly NTUA. Throughout the years NTUA has also been organizing and hosting environmentally oriented seminars and contests, such as its latest collaboration with MEGA DISPOSABLE S.A for the contest "Mega green innovation", for innovative ideas and solutions to promote the sustainable development and environmental protection. Furthermore, the School of Chemical Engineering of NTUA has especially made some major steps towards the green transition of the university and has gained knowledge and experience via its participation in several EU and nationally funded projects (LIFE IP & HORIZON) on the assessment of climate change impacts and adaptation. NTUA is also the official technical consultant of the Ministry of Environment and Energy (MEEN) on climate change related issues.

With regards to contracts below the threshold of obligatory green procurement (EUR 144,000), NTUA follows the best practices and a thorough market investigation to ensure the purchase and use of environmentally friendly goods and services that contain recycled content, minimize waste, minimize the effects on climate change, conserve energy or water etc.

Within the office and lab premises special consideration is given to energy conservation measures. For instance, products containing post-consumer recycled content are used, such as office papers and envelopes, packaging, and toner cartridges. Furthermore, other environment friendly directives include restrained use of air-conditioning and heating to the extent that natural ways of cooling or ventilation are possible and special provisions are made for recycling. Outdated or obsolete pc's, printers or other electronic and office equipment etc. are collected and removed following special protocols in order to end up to "Appliances Recycling S.A." the official collective system that organizes, operates and controls the collective system for the alternative management of the Waste of Electrical and Electronic

Alternative Equipment (WEEE) in Greece. Lastly, special provisions and management are taken for hazardous substances resulting from the laboratory operations at NTUA.

3.3.3 GPP in NEVIS - Novel Environmental Solutions S.A.

NEVIS SA is a consulting company providing services and solutions on a wide range of technical and environmental issues. NEVIS staff has significant experience and a strong background in the implementation of research programs and projects related to environmental protection and sustainable management through novel environmental solutions. Moreover, NEVIS has been a beneficiary to several LIFE projects for which they have been offered guidance and practical tips. Both management & staff share environmental concerns and follow green procurement rules and practices to the maximum extent possible, making certain arrangements for:

- Office consumables and equipment, where possible to use recycled, refilled, minimum packaging and spreadable waste products (e.g., furniture, paper, PC, printer and stationery, food, and water).
- Travel, where possible use public transport, minimize travel to absolutely necessary and mainly host virtual meetings, use the greenest method of transport pending time, distance, and cost.
- Savings in energy and water consumption.
- Sorting office waste for recycling (packaging waste, paper, electronics etc.) to the extent that is possible.
- Selection of suppliers from within a pool already selected based on the ESG practices they follow or if they have related ISO or their products are eco-labeled. In addition, they also use the criterion that their suppliers' premises are at the shortest distance to NEVIS premises.
- Digital education or trainings are primarily used wherever possible having as second-best hybrid or blended meetings.

3.3.4 GPP in Aarhus University

Aarhus University is fully harmonized with the aspiration of the Danish Government to reduce Denmark's greenhouse gas emissions by 70% in 2030 and push for the green transition, through the promotion of the production and sales of products with lower environmental impacts, throughout the entire product chain.

More specifically, Aarhus University is now to lead a working group on circular procurement. The working group is one of the five working groups under Climate Alliance Aarhus, which was established at the initiative of the City of Aarhus as a new collaboration between some of the largest businesses and organizations in Aarhus. The aim is to support the green transition to climate-friendly and sustainable workplaces and businesses in the municipality.

As a university, and as one of the municipality's largest workplaces, the university will make a key contribution to the greener future with both research-based knowledge and practical experience.

More specifically, Aarhus University has adopted some Climate-friendly solutions for the procurement including:

- the purchase of products that can be recycled or reused wholly or partly,
- the purchase of products with a longer life cycle,
- the phase out of petrol and diesel vehicles,
- the lowering of the temperatures on the campus,
- Establishment of joint university-wide solutions for electric vehicle charging stations
- the recycling of all the food waste from the cafeterias of the university,
- vegetarian food as the standard catering option for meetings and conferences
- energy optimization in AU buildings
- fitting solar cells to the roofs of AU buildings (potentially several buildings)
- better use of excess heat in AU's own buildings & to the district heating network,
- appointment of a working group for CO2 reduction in laboratories,
- the establishment of a green network for students and employees at the university for brainstorming ideas, sharing information/events and to access knowledge about how to make the university even more green,
- identification of prerequisites for setting up an AU CLIMATE training course under the auspices of the AU Green Network
- Providing staff and students with more knowledge about climate issues and how they as individuals can contribute to the green transition in the workplace.

3.3.5 GPP in Cyprus University of Technology

Since its launch, the Cyprus University of Technology (CUT) has been raising environmental awareness and implementing environmental policy within all its functions and departments. Moreover, CUT has also been using environmental criteria within its public procurement activities, to fulfill its aim to become a pioneer “green” university in Cyprus. More specifically,

CUT established an Environmental Policy Office for GPP implementation across the university in 2010, coordinated by the Planning and Design Department's Estate Management Service. The university's Green Public Procurement (GPP) Procedure, is based on the National Green Public Procurement Action Plan (GPP NAP), established by the Department of Environment within the Cyprus Ministry of Agriculture, Natural Resources and Environment, and aims to transform procurement and related procedures into more sustainable activities and cultivate increased environmental consciousness amongst the university community.

More specifically, lower budget tenders are managed under the Green Office Program, which individual departments must adhere to in order to achieve a 'Green Office Certificate'. Moreover, the University's Green Public Procurement Consulting Committee (GPPCC), is responsible for providing input on environmental aspects in the highest value tenders. The University's Public Procurement Office, which manages these tenders, informs the Committee when such a tender is coming up to allow enough time for effective consultation.

As a result of the proper operation of the above-mentioned bodies, CUT managed to win the first prize at Cyprus' inaugural GPP Awards for its GPP Policy and accompanying Procedure.

The university community is now familiar with the use of environmental specifications and the majority of procurement activities now include at least some environmental aspects. Furthermore, the university persisted in asking for relatively simple environmental parameters - for instance recycled paper - and gradually the market started to evolve. Last but not least, one of CUT's primary policy goals concerns sustainable development within the city. One tangible outcome in terms of the implementation of the GPP Procedure was the renovation of old historic buildings in the center of Lemesos, which will now be used by the university. Several buildings have already been restored and the university is currently undertaking two further renovation projects.

3.3.6 GPP in Medochemie Ltd.

Throughout the years of Medochemie's operation in the pharmaceutical sector, the environmental protection coupled with community involvement has been a foremost priority and a key part of its strategy. Medochemie, as a firm believer in Green Operations activities, is also a co-founder of Green Dot, a non-profit organization that manages and recycles packaging materials in Cyprus. Green Dot's goal is to organize a collective packaging waste management system from the companies that participate within . To date, it has contracted with 130 companies, including the largest companies in the country, while the registration of other products in the System continues at a rapid pace. Green Dot Cyprus collects three

categories of packaging from all over Cyprus, including PMD (plastic bottles, containers, metal packaging, cans, and paper packaging containing liquid, such as milk and juice - called tetrapak), PAPER (cartons of medicine boxes, shoe boxes, cereal boxes) and GLASS (glass bottles, jars and other glass packaging). Green Dot Cyprus also manages two other Organizations, WEEEE Cyprus and AFIS Cyprus. More specifically, WEEEE Cyprus is the first Collective Management System for Electrical and Electronic Equipment in Cyprus while AFIS Cyprus is the first Collective Management System for dry type household batteries.

Medochemie, has also established an Environmental Protection and Energy Saving Committee, which advises on energy and environmental issues and has also completed the installation of a 150kW photovoltaic system on one of its factory premises for a substantial reduction in emissions by more than 160,000kg CO₂/year.

The company's employees have been setting an example for environmental consciousness too through volunteerism and support of global and local non-profit organizations, while the company itself has been involved in a multitude of ecologically focused events. For instance, Medochemie organizes and participates in tree plantings, coastal cleanups as well as in programs aimed at fostering environmental awareness. It has also been awarded with the Green Dot (Cyprus) Honoree Award 2015 for its significant contribution to the environmental sustainability and the "Environmental Keeper Gold Award 2018, by the President of the Cyprus Republic, Mr. Nicos Anastasiades, as part of the Pancyprian Environmental Awards for Organizations and Businesses. This high distinction is yet an additional recognition of Medochemie's efforts to operate in a manner that protects the environment, which is a key pillar of its Corporate Responsibility program and at the same time, declaring its full commitment to the good environmental practices' implementation, as well as its dedication to the principle of sustainability.

Lastly, all the company's waste is separated and managed by licensed managers, depending on the type of waste and in accordance with Cypriot legislation and European regulations. The company also recycles most of the wastepaper/cardboard and plastics. The company is also at the early stage of the process to be certified with ISO 14001 for its further contribution to the environmental pillar of sustainability.

4 GREEN PROCUREMENT PRACTICES IN LIFE PHARMA - DETOX PROJECT

4.1 Objectives & definitions

4.1.1 Definitions

The following definitions are used in the present guidelines:

Green Procurement: is the purchase of environmentally friendly products and services, the selection of contractors and the setting of environmental requirements in a contract.

Stakeholders: other parties involved, excluding the LIFE Pharma – Detox project partners, that can contribute to the adherence of the objectives of guidelines set here.

4.1.2 Objectives

The objective of this set of guidelines is to promote, encourage and enhance the application of Green Procurement within LIFE Pharma – Detox project and its contribution to the achievement of the policy objectives set forth by the related national, EU and International Directives. LIFE Pharma - Detox partners do this by:

- Outlining a set of common minimum requirements for embedding green procurement practices to be followed by all.
- Promote, boost Green Procurement in their own organizational bodies, and request or press for the support from fellow colleagues, executives, purchasing officers and budget holders/clients.
- Actively participating in a learning network for and by partners, and promoting mutual cooperation and exchange of knowledge, best practices and lessons learned or experiences gained between partners.

4.2 Guidelines-Commitments and actions

4.2.1 Sectors prioritization

In order to prioritize the products, works and services on which to focus the LIFE Pharma - Detox projects Green Procurement guidelines all three factors included in the Buying Green Handbook have been taken into consideration, namely the environmental impact, the budgetary aspect and the potential to influence the market.

LIFE Pharma Detox project specific existing environmental labels and certifications related to technical requirements as well as cost considerations throughout the life cycle: purchase cost, usage cost and disposal costs and availability of existing criteria have also been considered. Thus, this set of guidelines refer to a minimum set of categories of products, works or services as outlined below for which the LIFE Pharma - Detox project partners are encouraged and to a possible extent are committed to adhere, specifically referring to the following GP sectors:

- Food: Market investigation for the catering of all events will take place before the Action implementation to enhance project's green procurement. (Relevant GP guidelines are given in section 4.2.8)
- Paper: Green procurement will be preferred for the production of leaflets (Relevant GP guidelines are given in section 4.2.10)
- Furthermore, LIFE Pharma – Detox partners which are Public Sector Companies/Organizations will prepare assessment reports in order to evaluate compliance of the following with the Green Procurement best practices:
 - IT equipment consumables purchase and use (Relevant GP guidelines are given in section 4.2.9)
 - Office operation and (Relevant GP guidelines are given in section 4.2.11)
 - Implementation of project actions

4.2.2 Recommended procurement process

Beneficiaries who do not already have in place ESG rules or are not ISO certified or do not already apply GP are encouraged to set up a process within their organization for the development of their GP plan and the use of their best endeavors to involve senior officers or budget holders or purchasing officers to ensure that the formulated green procurement objectives and ambitions are realistic and achievable and that the relevant agreements are sufficiently embedded in their organizations.

Based on the procurement request, partners will contact market players/stakeholders/suppliers and encourage them to supply sustainable and innovative products, even before the tender starts by means of a dialogue before the tender starts or partners will offer a prior information notice in their web site.

Partners will ensure that contract management includes an evaluation of the extent to which supplied services, goods and works comply with sustainability commitments expressed in quotations.

4.2.3 Determining the green requirements of a contract

When tendering, beneficiaries will try to define the subject matter and technical specifications for contracts in a way which will take into account environmental impacts throughout the life cycle of the goods, services or works you are buying, and will consider using labels to define requirements.

4.2.4 Prioritizing to the possible extent green tenderers

Beneficiaries are encouraged to apply, where appropriate, selection criteria based on environmental technical capacity or environmental and supply chain management measures and exclude tenderers who do not comply with applicable environmental laws.

4.2.5 Assigning a contract

Beneficiaries will set award criteria which encourage tenderers to deliver even higher levels of environmental performance than those specified and apply these in a transparent way. Partners will assess life-cycle costs when comparing tenders and reject abnormally low tenders if these do not comply with environmental law.

4.2.6 Green commitment clauses

Beneficiaries are encouraged to set contract performance clauses which underline the environmental commitments made by contractors and provide appropriate remedies where they fall short. Furthermore, partners will ensure there is a system for monitoring these commitments and that they are also applied to subcontractors.

4.2.7 Key GP provisions

In order to be effective, GP requires the inclusion of clear and verifiable environmental provisions and criteria for products and services in the public procurement process. The European Commission and some of its members have developed guidelines for this issue, in the form of national GPP criteria and provisions. Here below, are presented the EU GPP criteria for the sectors selected to be applicable within LIFE Pharma – Detox project.

4.2.8 GPP on Food, Catering and Vending Machines

According to the available sources, the following conclusions were drawn on the environmental impacts of the product group food, catering services and vending machines through its life cycle:

The key environmental impacts of food procurement are associated with the food's production and include environmental impacts such as the combustion of fossil fuels and energy use for different activities, land use or land-use change, and water use and water pollution.

Table 1: Key environmental impacts -Food, catering and vending machines

Key environmental impacts during product life cycle	EU GPP approach
<p>Key environmental impacts</p> <ul style="list-style-type: none"> • Energy used in farming, agricultural activities, food processing and facilities • Land use and land-use change (e.g. destruction of natural habitats, particularly forests and related CO₂ emissions associated with the production of feed, crops, fruits, vegetable fats, etc.) • Depletion of fish stocks and reduction of biodiversity • Production and use of fertilisers and pesticides • Water use and water pollution • Emissions of pollutants such as methane or nitrites from farming and agricultural activities • Disposal of waste 	<p>Selected approaches to minimise key environmental impacts during life cycle</p> <ul style="list-style-type: none"> • Organic food products • More environmentally responsible marine and aquaculture food products • Increased offer of plant-based menus • More environmentally responsible vegetable fats • Food and beverage waste prevention • Other waste: prevention, sorting and disposal • Energy and water consumption in kitchen

The order of impacts does not necessarily reflect their magnitude. Source: EU Commission Staff Working Document, EU Green Public Procurement criteria for food, catering services and vending machines, 27.9.19.

However, there are other environmental impacts that are associated with specific food product categories. These include:

- the production and use of pesticides and chemical fertilizers associated with food product groups such as meat, milk and cheese, eggs, fruit and vegetables, bread and cereals, oils and fats and hot and cold drinks;
- the soil degradation associated with product groups such as fruit and vegetables, bread and cereals and oils and fats;
- emissions of methane and nitrate are environmental impacts associated with various product groups; and
- the depletion of fish stocks or the production of feed for fish and the use of antifouling treatment in fish cages associated with fish and seafood.

- In terms of catering services, energy and water use are important contributors to the overall environmental impact, as are waste generation and waste management. It should be noted that reducing the food waste is crucial to reducing the overall environmental impact of the catering service.

Detailed information about GPP on food, catering services and vending machines, including information about related legislation, standards and technical sources used as evidence, can be found in the technical report, at the following link:

<https://ec.europa.eu/jrc/en/publication/eu-gpp-criteria-food-procurement-catering-services-and-vending-machines>

4.2.9 Updated GPP on Computers and Monitors

The focus of the criteria for Computers and Monitors is on the most significant environmental impacts during the life cycle of the products. Those, have been grouped into four distinct categories:

- Energy consumption;
- Hazardous substances;
- Product lifetime extensions;
- End of life management.

Evidence from life cycle assessments suggest that environmental criteria for Computers and Monitors are distinguished based on the form factor of the computer (e.g. desktop, notebook, tablet) and the use pattern of computers and displays:

- More energy-intensive to run such as desktop computers and displays, the most significant environmental impacts are associated with electricity consumed during their use.
- Using less energy to run such as notebooks and tablets: their most significant environmental impacts relate to the manufacturing of their sub-assemblies such as motherboards, hard drives, batteries and display units. They use proportionally less electricity and consist of more advanced miniaturized components.
- Portable: The portable devices lifespan is determined by the conditions and stresses to which these products are exposed to in the workplace or in the outside environment.

The related technical report and GPP in greater detail may be found at:

https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

Table 1: Key environmental aspects - Computers and Monitors

Key environmental aspects	GPP approach
<ul style="list-style-type: none"> • Use of finite resources and critical raw materials to produce IT products. • Air, soil and water pollution, bioaccumulation and effects on aquatic organisms due to raw material extraction and processing, and hazardous substances used in products. • Energy consumption and resulting greenhouse gas emissions from production and use. • Generation of potentially hazardous waste electronic equipment upon final disposal. 	<ul style="list-style-type: none"> • Extended services and warranty. • Design for durability, upgradeability and reparability. • Extending a product's life at the end of its service life (reusability). • Purchase of energy-efficient models. • Purchase of products with a restricted amount of hazardous constituents and reduced potential for hazardous emissions upon disposal. • Design for dismantling and end-of-life management to maximise the recovery of resources. • Purchase of refurbished/remanufactured equipment.

Please note that the order of environmental aspects does not necessarily translate to the order of their importance.
Source: European Commission Staff Working Paper, EU GPP Criteria for Computers and Monitors, 5.3.2021

4.2.10 GPP on Copying and Graphic Paper

The recommendations below cover the purchase of copying and graphic paper. This encompasses unprinted paper for writing, printing, and copying purposes (up to 170g/m²) sold in sheets or reels. Finished paper products such as writing pads, drawing books, calendars, manuals, etc. have not been included.

According to the related technical report on GPP which may be found at the following link: https://ec.europa.eu/environment/gpp/pdf/toolkit/paper_GPP_product_sheet.pdf, the table below summarizes the main environmental impacts related to copying and graphic paper as described above, and indicates the focus of measures to address these impacts.

Table 3: Key environmental impacts – Copying and Graphic Paper

Environmental Impact	GPP Approach
<ul style="list-style-type: none"> • Forest destruction and potential loss of biodiversity • Emissions to air and water during pulp and paper production • Energy and water consumption during production • Chemical consumption during production • Waste generation during production such as rejects and sludge 	<ul style="list-style-type: none"> • Procurement of paper based on post-consumer recovered paper fibres (recycled paper) or paper from legally and sustainably harvested wood • Procurement of paper produced through processes characterised by low energy consumption and emissions • Avoidance of certain substances in paper production and bleaching

Source: EU Commission Green Public Procurement (GPP) Training Toolkit, Copying and Graphic Paper, Background Product Report, 2008.

4.2.11 GPP on Office Operation

Office Operation criteria are included in the criteria under the category **Office Building Design, Construction and Management**. Existing GPP criteria related to the environmental aspects to be addressed with respect to the buildings (Office operation) with a brief description are shown below.

Table 2: Criteria related to different environmental aspects of the building

Key Environmental Areas in Office Buildings life cycle and Key Environmental Impacts	Proposed EU GPP Office Buildings approach
<p>Key environmental areas</p> <ul style="list-style-type: none"> • Primary energy consumption and associated greenhouse gas emissions during use of and travel to and from the building • Depletion of natural resources, embodied energy and emissions associated with the manufacturing and transportation of building materials • Waste generation during site preparation, construction, use and demolition of the building • Deterioration in indoor air quality due to emissions of hazardous substances from building products and the intake of particulate air pollution from the external environment • Pollution of the local environment and deterioration of local air quality due to emissions from vehicles used to travel to and from the building • Water consumption during use of the building <p>Key life cycle environmental impacts and parameters for resource use:</p> <ul style="list-style-type: none"> • The following environmental impact categories along the product life cycle are considered to be the most important ones: global warming potential, acidification, exploitation of renewable and non-renewable primary energy resources eco-toxicity, human toxicity, eutrophication, abiotic resource depletion and water consumption, use of secondary and re-used materials and waste material flows 	<ul style="list-style-type: none"> • Design and construction to achieve high energy efficiency performance and low associated CO₂ emissions • Installation of high efficiency and renewable energy technologies which make use of site-specific opportunities to reduce energy consumption and CO₂ emissions • Design and specification to reduce the embodied impacts and resource use associated with construction materials • Design, specification and site management to minimise construction and demolition (C&D) waste and to use building products or materials with a high recycled or re-used content • Specification of fit-out and finishes that minimise hazardous emissions to indoor air • Ventilation design in order to ensure healthy air and minimise the intake of external air pollution • Specification and installation of water saving technologies • Installation of physical and electronic systems to support the ongoing minimisation of energy use, water use and waste arisings by facilities managers and occupiers • Implementation of staff travel plans to reduce transport related fuel use and CO₂ emissions, including infrastructure to support electric vehicles and cycling

Energy-related criteria	
Energy performance	
Minimum energy performance	- Achieving Cost-Optimal performance with rewards of a further reduced energy consumption as award criterion
Commissioning of building energy systems	- By reference to EN, ISO or equivalent standards for systems
Quality of the completed building fabric	- Thermal imaging (Core) and air tightness testing (Comprehensive)
Lighting	
Lighting control systems	- Requiring features not addressed in national energy calculation methodologies
Commissioning and handover of lighting control systems	- Manual, training and Building Energy Management System interface
Building Energy Management System (BEMS)	
BEMS installation	- Intelligent systems and data collection
Commissioning and handover of the BEMS	- By reference to EN, ISO or equivalent standards for systems
	- Manual, training and use of user interface
Low or zero carbon energy sources	
Energy supply systems	- Highly efficient or renewable sources with rewards for a higher share of sustainable supply sources as award criterion
Commissioning of energy supply systems	- Connection and commissioning

Energy-related criteria	
Heating systems including CHP	- Reference to EU GPP criteria for CHP and water-based heaters
Facilities energy management	
Reporting on energy use	- Monthly data collection and reporting
Life cycle performance	
Performance of the main building elements	- Two options based on EPDs and/or LCA results
Construction product recycled content	
Incorporation of recycled content	- 15% (Core) and 30% (Comprehensive)
Wood sourcing	
Legal sourcing of wood construction materials	- Due diligence along the supply chain
Waste management plans	
Demolition waste audit and management plan	- 55% (Core) and 70% (Comprehensive) by weight
	- Structure and fit-out elements
	- Hazardous waste risk assessment
	- Bill of quantities and methods for recycling and re-use
Site waste management plan	- On-site monitoring and accounting
Site waste management plan	- 11 tonnes (Core) and 7 tonnes (Comprehensive) per 100m ² floor area
Other environmental criteria	
Recycling facilities	
Recyclable waste storage provision	- Designation of space in the design
	- Detailed plan of facilities
Waste management system	- Basic segregation systems with monitoring and reporting of arisings
Water saving	
Water saving installations	- Link to other EU GPP criteria sets
Quality of the office environment	
Thermal comfort conditions	- Maximum/minimum temperatures
Daylight and glare	- Dynamic modelling of illuminance and glare
Air quality	
Ventilation and air quality	- Clean air intake and filtration
Selection of fit-out materials and finishes	- Testing to minimise emissions of VOC's, SVOC's and carcinogens
Air quality testing	- In-situ sample testing for VOC's, formaldehyde and particulates

Source: European Commission, JRC Science for Policy Report, Green Public Procurement Criteria for Office building Design Construction and Management, Technical Background Report and Final Criteria, June 2016.

4.3 Checklist of actions associated with GP and practical suggestions

This section presents some indicative actions to be shared among partners aiming to serve as a code of conduct for LIFE Pharma - Detox partners' and systemize in a "green way" offers requests for the provision of goods and services in relation to the project implementation. It also aims to encourage all involved beneficiaries to apply these suggestions if they are not already applying beyond the scope of the project implementation.

✓ **Be informed and regularly updated about existing EU or national mandatory policy specific frameworks.**

This document offers an introductory and quite general approach as well as a summary of the existing partner country specific policy requirements and offers a selection of related links currently identified by the writer for further study. Involved experts in LIFE Pharma – Detox project have multiple roles via their participation in the projects as they are acting both as representatives of an organization, a business or a public body as well as procurers. Thus, their role can be twofold: they may contribute to their organizations' sustainable operation by encouraging the endorsement of greener or more sustainable procurement practices as well as when undertaking the procurers' role improve existing levels of sustainable criteria awareness and advise the "internal client" effectively.

✓ **Be aware and regularly updated of organizational objectives**, if existing and if non existing try to start a dialogue with involved departments pushing to the direction of at least GP criteria existing awareness initially and possibly, by the end of project implementation, set some minimum GP requirements within.

✓ **Consider ways of engaging other stakeholders involved in the project or setting the "green" requirement to the market.**

Prior to awarding a contract assume your own analysis of the existing market, the companies involved in the particular sector as well as their relations to sustainable products and services. A market analysis may assist towards the determination to be an achievable level of requirements which will both encourage the suppliers and possibly boost the number of possible suppliers and will not limit the supplier base thus exacerbating the supply risk or the risk of being accused for "preferred" suppliers. Thus, requirements have to be sufficiently ambitious and at the same time be feasible. Here are a couple of ideas, particularly for the partners whose national requirements are relatively loose: Check if the suppliers' website has any indication of "green" awareness or ask them whether they have any such policy in place or any specific measures in place or if there has been any internal consideration within their companies with regards to the "greening" of their procurement. Check if they have been ISO certified for environmental practices.

✓ **Allow for social responsibility when formulating requirements.** Again, part of this statement can be achieved during the consultation phase through setting a general objective i.e. invite suppliers to come up with smart or innovative ideas encompassing the social dimension.

- ✓ **Specify the themes and level of aspiration involved.** Themes may vary from environmental considerations i.e. Green Procurement or Social return on investment or social conditions in global supply chains or circular procurement or bio-based procurement. For LIFE Pharma - Detox project and in the context of this manual the theme is Green Procurement or Environmental specifications. However, partners are encouraged to apply other themes as well. The level of aspiration will be determined following the completion of the previously mentioned points, following, in short, the attitude towards the suppliers “prescribe-encourage-invite”.
- ✓ **Choose an appropriate procurement approach.** The methodology for the procurement process to be followed will be determined by the responses received to the points highlighted above. All available methodologies such as MEAT (Most Economical Terms), Best Value Procurement, Competitive dialogue or Innovative partnership may successfully encompass GP criteria.
- ✓ **Incorporate all costs incurred during a product’s lifetime.** When calculating costs try to involve to the possible extent all costs assumed such as management, operating, maintenance as well as demolition, disposal costs, emissions etc. Smart SPP project (www.smartspp.eu) and Procura+ (network of European public authorities that connect, exchange and act on sustainable and innovation procurement) have developed a life-cycle-cost tool that can help obtain an impression of the total costs involved. This tool can be used to calculate the life cycle costs (LCC) and CO2 emissions of various products and services. You can use this tool when deciding about specific public procurements requirements.
- ✓ **Include where possible performance incentives in the contract. Based on the** outcome of the above-mentioned actions, assess the feasibility of including some incentives in the contract's provisions that will make more sustainable their implementation throughout the term of the contract. These may relate to issues such as pricing, liability and risk distribution, as well as to sustainability. This might involve a bonus or penalty linked to improved sustainability (e.g. energy conservation measures) throughout the period of implementation or service.
- ✓ **Monitor progress throughout the contract period.** In order to be able to do so, specific indicators should be included in the contract to allow, periodically, the assessment of the suppliers through evaluation interviews during the contract implementation.
- ✓ **Make the design of the procurement process itself as sustainable as possible,** i.e. try to avoid using paper and arrange that all announcements for procurements as well as

submitted offers are received electronically, choose neighbouring contractors to avoid transportation and other costs, select or offer extra points when awarding contracts to companies already using ISO Certification or eco labels, check if the location of the premises of the supplier is within a Municipality applying sustainable policies.

5 Summary Note

Climate change is one of the biggest and most comprehensive challenges. It is only through focused work on the green transition that the future generations can be prevented from bearing the burden alone. Green procurement is the way to the future and both the public and private sector must be at the forefront of the green transition. However, Green procurement is neither mandatory nor adhered to a high level in some of the project beneficiaries' countries, particularly for the private sector and for contracts of lower value than the threshold when they are obligatory. The effort of adherence to the maximum extent possible to the guidelines set forth in this document with regards to LIFE Pharma - Detox project implementation aims to boost and encourage their adaptation by all colleagues and associates involved in the project. It also aims to raise awareness about existing GP criteria and well as existing certification methods that may offer many advantages to organizations or businesses or public bodies or individuals irrespective of the capacity under which they are operating.

The environmental impacts cited in this report illustrate the specific possible benefits associated to the use of the green procurement criteria. It has also been shown that green procurement practices vary and depend on the goods, products and services being purchased. Integrating environmental, health or other parameters of products and services in the procurement process alongside traditional criteria such as cost, quality or technical performance remains a big challenge for all organizations be it private or public.

The guidelines set forth, the sources referred to as well as the tracking and reporting the green procurement practices followed within the project as foreseen project deliverable is expected to greatly assist to the enhancement of their promotion within the beneficiaries' organizations.

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