GUPP: Upgrading skills for EU Greener Public Procurements in Construction Works

Grant agreement no: 2020-1-FR01-KA204-080421

Deliverable: IO1/ Task 1.4. Green Handbook: An instrument on GPP Regulatory Framework – Transnational Report-

IO1. Green Handbook: An instrument on GPP Regulatory Framework and Practice on construction works - Transnational Report

Partners involved:

- ✓ France: OEC- Office de l' Environnement de la Corse
- ✓ Greece: PEDMEDE– Panhellenic Association of Engineers Contractors of Public Works, MA YMEPERAA- Managing Authority of Operational Program "Transport, Infrastructures, environment and sustainable development"
- ✓ Ireland: TUS- Technological University of the Shannon, Midlands MidWest
- ✓ Slovenia: CCIS– Chamber of Commerce and Industry of Slovenia

November 2021

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Table of Contents

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Output factsheet:

Funding Programme	Erasmus+ Programme of the European Union
Funding NA	Agency Erasmus+ France/Education & Formation
Project full title	GUPP: Upgrading skills for EU Greener Public Procurements in Construction Works
Project Number	2020-1-FR01-KA204-080421
Project Duration	2020-2022
Output title	IO1. Green Handbook: An instrument on GPP Regulatory Framework and Practice on Construction Works
Task title	T 1.4 Delivery of the Green Handbook: An instrument on GPP Regulatory Framework and Practice on construction works
Output leader	PEDMEDE
Partners involved	• France: OEC- Office de l' Environnement de la Corse • Greece: PEDMEDE– Panhellenic Association of Engineers Contractors of Public Works, MA YMEPERAA- Managing Authority of Operational Program "Transport, Infrastructures, environment and sustainable development" • Ireland: TUS- Technological University of the Shannon, Midlands MidWest • Slovenia: CCIS– Chamber of Commerce and Industry of Slovenia

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Executive summary

The current report aims to provide a "Green Handbook: An instrument on GPP Regulatory Framework and Practice" that will introduce a general understanding of the green procurement process and challenges faced upon its implementation in the participating countries (France, Greece, Ireland, Slovenia) at different levels (central and regional), with a special focus on construction works.

The overall aim of the report is to compare, map and develop a methodology for the GUPP framework, recognizing the differences in each country (France, Greece, Ireland, Slovenia) and determining a mutually recognizable approach to GPP practice, in the effort to develop learning opportunities for public authorities' staff to stimulate resource efficiency and green growth.

The report encloses a review on the current legislative framework, actual practices, training, and skills needs for Green Public Procurement in construction building works, as well as experience and results gained through relevant previous and ongoing EU initiatives, with a view to explore the progress made as well as the drivers, barriers, and outcomes in each participating country.

Finally, the report provides key conclusions reached and recommendations for consideration upon developing the training design of the GPP program.

As regards the policy framework in GPP, partner countries have adopted (integrated in National contexts/ legal frameworks) the definition of "Green Public Procurement (GPP)" provided by the European Commission. The **State of the art of the National framework related with GPP indicates different levels of maturity and progress**. In particular, **Ireland points out the most significant progress in GPP**, with its National Action Plan for 'Green Tenders' having been established since 2012. **Significant progress in the appliance of GPP regulatory frameworks has been highlighted by French partners** too, through the establishment of their first national action plan for sustainable public procurement for the period 2007-2010 and its revision for the period between 2015-2020. **Slovenia shares an average progress on GPP**, compared to other EU countries in implementation of GPP, having different national framework and policies related with GPP. Finally, **the take up of GPP lags significantly behind in Greece**, compared to the rest EU. Up to March 2020, Greece was among the five (5) EU countries (along with Estonia, Hungary, Luxembourg and Romania) which had not issued a Strategic National plan on GPP, while the rest 23 countries had already adopted their respective National Plan, with many of them having already made significant progress in the inclusion of GPP (such as Denmark, Finland, Netherlands, Germany, Austria, Sweden). The Greek strategy for GPP has been approved by the beginning of 2021.

Within this ground, **several political/ institutional/ organisational barriers and challenges faced upon the take up of GPP** were highlighted by partner countries with the most significant to be:

- Risk of legal challenges
- Lack of resources
- Increased/ higher costs of green products and green processes
- Lack of environmental knowledge from public investors

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Lack of managerial and political support
- Lack of tools and information and lack of training
- The uptake of EU GPP criteria varies significantly across the EU
- Lack of examples for green public procurement tender (only guidelines and listed general possibilities)
- Lack of databases of environmental criteria to adapt to procurement processes
- Rapid integration of new sustainable materials
- Lack of readiness of the supply market to respond to these new needs
- Limited decision-making support
- **Li**mited knowledge on sustainable materials that can be used in construction projects
- Limited access/ availability of financial tools that allow stakeholders to have cost analysis of construction projects

It was commonly agreed that integrating green criteria in public procurement is not an easy goal to achieve. The contributing partners report many barriers that need to be overcome for this adaptation to be possible. In general terms, partners find that in their countries, the necessary political incentive is not yet present for brave change. **The lack of information and knowledge on GPP remains a bottleneck**.

Therefore, there is **a growing need for capacity building of all parties involved in a PP, for exchange of best practices and case studies on how to effectively incorporate GPP between interested parties**, i.e. contracting authorities, contractors and their staff, managers, etc., along with the need for **financial and technical support for all stakeholders to implement GPP**.

It has also been reported that familiarity with **GPP policy tends to be confined to high levels of local authorities, central government authorities** or high levels of PP officials. It is therefore important that **the GPP training approach incorporates a specific institutional, legal and policy context**.

Key Conclusions and recommendations concerning the training content:

Skills needs that could be addressed through the GPP capacity building program are the following:

- Institutional, legal and policy framework relative with GPP, applied in national contexts, as well as on EU level.
- Provision of good practices and case studies with efficient GPP applications, along with their results, impact and lessons learnt.
- Raise awareness of GPP inclusion through highlighting GPP benefits, with particular focus on the environmental impact, energy savings, financials and long-term cost benefits.
- Particular recommendation for BIM correlation with GPP, and potential benefits, expected environmental impacts and costs.
- Familiarity with Level(s) methodology provided by the EU.
- Familiarity with Life Cycle Costs (LCC) analysis and Life Cycle Assessment (LCA) approach.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Capacity building in available tools and databases, such as green clauses, e-platforms for PP, financial tools, where to find accurate green Procurement information such as Environmental Product Declarations (EPD) and specifications- toolkit, concrete tender documentation specifications for GPP etc.
- Mobilization of national building industry towards more green construction product conception and market certification.
- Estimating environmental impacts and costs of projects.
- Raise awareness in technology developments in the areas that affect GPP in relation to materials and construction methods.

Finally, it should be respected the different profiles of participants/ trainees, along with their different familiarity and involvement in GPP. Therefore, customized training according to the different profiles, along with different levels of education could be an option.

Theoretical knowledge provision as well as practical, by integrating case studies, tools, and good practices is strongly recommended.

Raising awareness on the subject matter should be horizontally addressed within the training provision.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Résumé (Executive summary, FR)

Le présent rapport a pour but de fournir un «Manuel Vert: Un instrument sur le cadre réglementaire et la pratique des marchés publics écologiques pour les travaux de construction ” qui présentera une compréhension générale du processus d'achat écologique et des défis rencontrés lors de sa mise en œuvre dans les pays participants (France, Grèce, Irlande, Slovénie) à différents niveaux (central et régional), avec un accent particulier sur les travaux de construction.

L'objectif global du rapport est de comparer, de cartographier et de développer une méthodologie pour le cadre des MPE, en reconnaissant les différences dans chaque pays (France, Grèce, Irlande, Slovénie) et en déterminant une approche mutuellement reconnaissable de la pratique des MPE, dans le but de développer des opportunités d'apprentissage pour le personnel des autorités publiques afin de stimuler l'efficacité des ressources et la croissance verte.

Le rapport comprend un examen du cadre législatif actuel, des pratiques actuelles, des besoins en formation et en compétences pour les marchés publics écologiques dans le secteur de la construction, ainsi que de l'expérience et des résultats obtenus dans le cadre d'initiatives européennes antérieures et en cours, afin d'étudier les progrès réalisés ainsi que les moteurs, les obstacles et les résultats dans chaque pays participant.

Enfin, le rapport présente les principales conclusions et recommandations à prendre en compte lors de l'élaboration de la conception de la formation du programme des MPE.

En ce qui concerne le cadre politique des marchés publics écologiques, les pays partenaires ont adopté (intégrée dans les contextes nationaux/cadres juridiques) la définition des "marchés publics écologiques (MPE)" fournie par la Commission européenne. L’**État de l’art du cadre National lié aux MPE indique différents niveaux de maturité et de progrès**. Notamment, l’**Irlande souligne les progrès les plus significatifs en matière de marchés publics écologiques,** son plan d'action national pour les "appels d'offres écologiques" ayant été mis en place depuis 2012. **Un progrès important dans l’application des cadres réglementaires des MPE a été souligné par les partenaires français aussi,** à travers l’adoption de leur plan national d’action pour les achats publics durables pour la période 2007-2010 et sa révision pour la période 2015-2020. **La Slovénie a fait part de progrès moyen en matière de MPE**, en comparaison aux autres pays de l’UE dans la mise en œuvre de MPE, en ayant un cadre national et des politiques liées aux MPE différents. Enfin, **le recours aux MPE accuse un retard important en Grèce**, comparé au reste de l’UE. Jusqu’à Mars 2020, la Grèce faisait partie des 5 pays de l’UE (avec l’Estonie, la Hongrie, le Luxembourg et la Roumanie) qui n’ont pas publié de Plan National Stratégique sur les MPE, tandis que les 23 autres pays avaient déjà adopté leur plan national respectif, beaucoup d'entre eux ayant déjà fait des progrès significatifs dans l'inclusion des marchés publics écologiques (comme le Danemark, la Finlande, les Pays-Bas, l'Allemagne, l'Autriche, la Suède). La stratégie grecque concernant les MPE a été approuvée début 2021.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Dans ce contexte, **plusieurs obstacles et défis politiques, institutionnels et organisationnels rencontrés lors de l'adoption des marchés publics écologiques** ont été mis en évidence par les pays partenaires, les plus importants étant les suivants :

- Risque de difficultés juridiques
- Manque de ressources
- Couts des produits écologiques et des processus écologiques accrus/ en augmentation
- Manque de connaissance environnementale de la part des investisseurs publics
- Manque de soutien managérial et politique
- Manque d'outils et d'informations et absence de formation
- L'adoption des critères des marchés publics écologiques de l'UE varie considérablement d'un pays à l'autre
- Manque d'exemples d'offres de marché public écologique (uniquement des lignes directrices et des listes de possibilités générales)
- Manque de base de données des critères environnementaux à adapter aux processus de marché public
- Intégration rapide de nouveaux matériaux durables
- Le manque de préparation du marché de l'offre pour répondre à ces nouveaux besoins
- Soutien de prise de décisions limité
- Connaissance sur les matériaux durables qui peuvent être utilisés dans les projets de construction
- Accès/disponibilité limité des outils financiers qui permettent aux parties prenantes d'obtenir une analyse des couts des projets de construction

Il est communément admis qu'intégrer des critères écologiques dans les marchés publics n'est pas un objectif facile à atteindre. Les partenaires impliqués ont fait part de plusieurs obstacles qui ont besoin d'être surmonter pour que cette adaptation soit possible. En termes simples, les partenaires trouvent que dans leurs pays, il n'existe pas de réelle volonté politique pour réaliser un changement courageux. **Le manque d'informations et de connaissances en matière de MPE maintient la situation dans l'impasse**.

Par conséquent, il existe **un besoin grandissant de renforcer les capacités de toutes les parties impliquées dans un marché public, échange de bonnes pratiques et d'études de cas sur comment incorporer efficacement les MPE entre les parties intéressées,** autrement dit les pouvoirs adjudicateurs, les entrepreneurs et leurs personnels, responsables, en plus du besoin **de soutien financier et technique pour toutes les parties prenantes pour mettre en œuvre les MPE.**

Il a aussi été fait état que la connaissance **en matière de politique portant sur les MPE ont tendance à être confinée aux hauts niveaux des collectivités locales, des autorités du gouvernement central** ou aux hauts fonctionnaires des marchés publics. Il est par conséquent important que **l'approche de formation sur les MPE incorpore un contexte institutionnel, juridique, politique spécifique.**

Conclusion et recommandations clés concernant le contenu de formation :

Les besoins en compétences qui peuvent être couverts à travers un programme de renforcement des capacités sont les suivants :

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Cadre institutionnel, juridique et politique relatif aux MPE, appliqué aux contextes nationaux, ainsi qu'au niveau de l'UE.
- Offre de bonnes pratiques et d'études de cas avec des applications sur les MPE efficaces, en plus de leurs résultats, impacts et leçons apprises.
- Sensibiliser à l'intégration des MPE à travers la mise en valeur des avantages des MPE, avec un attention particulière mise sur l'impact environnemental, les économies d'énergie, les avantages financiers et en termes de coûts à long terme.
- Recommandation particulière pour la corrélation entre le BIM et les MPE, ainsi que les avantages potentiels, les impacts environnementaux attendus et les coûts.
- Connaissance du(des) Niveau(x) de méthodologie fournis par l'UE.
- Connaissance du Cout du Cycle de vie (CCV) et de la démarche d'Évaluation du Cycle de Vie (ACV).
- Renforcement des capacités dans les outils et les bases de données disponibles, tels que les clauses vertes, les plateformes en ligne consacrées aux marchés publics, les outils financiers, où trouver des informations précises sur les marchés écologiques telles que les Déclarations Environnementales de Produit (DEP) et les spécifications – boite à outils, spécifications concrètes de la documentation en matière d'appel d'offres pour les MPE etc.
- Mobilisation du secteur national du BTP autour d'une conception de produit de construction et une certification de marché plus écologique.
- Estimation des impacts environnementaux et des coûts de projets.
- Sensibiliser aux développements technologiques des domaines qui affectent les MPE en relation avec les matériaux et les techniques de construction.

Enfin, les différents profils des participants/stagiaires devraient être respectés, ainsi que leur différente connaissance et implication dans les MPE. Par conséquent, une formation personnalisée selon les différents profils, mais aussi les différents niveaux d'études pourraient être une solution.

L'apport de connaissances théoriques mais aussi pratiques, en intégrant des études de cas, des outils et des bonnes pratiques est fortement recommandé.

La sensibilisation au sujet devrait être abordée de manière horizontale dans l'offre de formation.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Σύνοψη (Executive summary, EL)

Η παρούσα έκθεση έχει ως στόχο την ανάπτυξη ενός «Πράσινου Εγχειριδίου: Ένα εργαλείο παρουσίασης του Κανονιστικού πλαισίου και της πρακτικής εφαρμογής των Πράσινων Δημόσιων Συμβάσεων (ΠΔΣ)» που θα εισαγάγει μια γενική κατανόηση της διαδικασίας πράσινων δημόσιων συμβάσεων και των προκλήσεων εφαρμογής τους στις συμμετέχουσες χώρες (Γαλλία, Ελλάδα, Ιρλανδία, Σλοβενία) σε διάφορα επίπεδα (κεντρικά και περιφερειακά), με έμφαση στα κατασκευαστικά έργα.

Ο γενικός στόχος της παρούσας έκθεσης είναι η σύγκριση, η χαρτογράφηση και η ανάπτυξη μιας μεθοδολογίας για το πλαίσιο των ΠΔΣ, αναγνωρίζοντας τις διαφορές σε κάθε χώρα (Γαλλία, Ελλάδα, Ιρλανδία, Σλοβενία) και καθορίζοντας μια κοινή προσέγγιση πρακτικής εφαρμογής των ΠΔΣ, με απώτερο στόχο την εκπαίδευση του προσωπικού των δημόσιων και αναθετουσών αρχών στη κατεύθυνση της προώθησης της αποδοτικής χρήσης πόρων και πράσινης ανάπτυξης.

Η έκθεση περιλαμβάνει μια ανασκόπηση του ισχύοντος νομοθετικού πλαισίου, των πρακτικών εφαρμογών, της κατάρτισης και των δεξιοτήτων που απαιτούνται για τις πράσινες δημόσιες συμβάσεις σε κατασκευαστικά έργα, καθώς και την εμπειρία και τα αποτελέσματα που αποκτήθηκαν μέσω σχετικών πρωτοβουλιών της ΕΕ, με σκοπό τη διερεύνηση της προόδου που έχει σημειωθεί, καθώς και των βασικών παραμέτρων, των εμποδίων και των αποτελεσμάτων σε κάθε συμμετέχουσα χώρα.

Τέλος, η έκθεση παρέχει συμπεράσματα και συστάσεις που πρέπει να ληφθούν υπόψη κατά την ανάπτυξη του εκπαιδευτικού σχεδιασμού του προγράμματος ΠΔΣ.

Όσον αφορά το πλαίσιο πολιτικής στις ΠΔΣ, οι εμπλεκόμενες χώρες έχουν υιοθετήσει (ενσωματώσει σε εθνικά πλαίσια / νομικά πλαίσια) τον ορισμό των «Πράσινων Δημόσιων Συμβάσεων (ΠΔΣ)» που παρέχει η Ευρωπαϊκή Επιτροπή. Η επισκόπηση της **υφιστάμενης κατάστασης των εθνικών πλαισίων που συνδέονται με τις ΠΔΣ υποδηλώνει** διαφορετικά **επίπεδα ωριμότητας και προόδου στις συμμετέχουσες χώρες**. Ειδικότερα, **η Ιρλανδία σημειώνει τη σημαντικότερη πρόοδο ενσωμάτωσης ΠΔΣ,** με το εθνικό σχέδιο δράσης της για τους «Πράσινους διαγωνισμούς» να έχει θεσπιστεί από το 2012. **Σημαντική πρόοδο όσον αφορά τη λειτουργία των κανονιστικών πλαισίων υπογράμμισαν** και οι Γάλλοι εταίροι, μέσω της κατάρτισης του πρώτου εθνικού σχεδίου δράσης για βιώσιμες δημόσιες συμβάσεις για την περίοδο 2007-2010 και της αναθεώρησής του για την περίοδο 2015-2020. **Η Σλοβενία σημειώνει μεσαία πρόοδο στην ενσωμάτωση ΠΔΣ**, σε σύγκριση με άλλες χώρες της ΕΕ, με διαφορετικό εθνικό πλαίσιο και πολιτικές που σχετίζονται με τις ΠΔΣ. Τέλος, η εφαρμογή **ΠΔΣ υστερεί σημαντικά στην Ελλάδα**, σε σύγκριση με την υπόλοιπη ΕΕ. Μέχρι τον Μάρτιο του 2020, η Ελλάδα ήταν μεταξύ των πέντε (5) χωρών της ΕΕ (μαζί με την Εσθονία, την Ουγγαρία, το Λουξεμβούργο και τη Ρουμανία) που δεν είχαν εκδώσει εθνικό σχέδιο δράσης για τις ΠΔΣ, ενώ οι υπόλοιπες 23 χώρες είχαν ήδη εγκρίνει το αντίστοιχο εθνικό τους σχέδιο, με πολλές από αυτές να έχουν ήδη σημειώσει σημαντική πρόοδο όσον αφορά στην εφαρμογή του (όπως η Δανία, Φινλανδία, Κάτω Χώρες, Γερμανία, Αυστρία, Σουηδία). Το εθνικό σχέδιο δράσης για τις ΠΔΣ εγκρίθηκε στις αρχές του έτους 2021.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Στο πλαίσιο αυτό, **διάφορα πολιτικά/ θεσμικά/ οργανωτικά εμπόδια και προκλήσεις σημειώθηκαν κατά την υιοθέτηση και ενσωμάτωση των ΠΔΣ,** όπως επισημάνθηκε από τις εμπλεκόμενες χώρες, με σημαντικότερα τα κάτωθι:

- Προκλήσεις σχετικά με το νομοθετικό πλαίσιο
- Έλλειψη πόρων
- Αυξημένο/ υψηλότερο κόστος πράσινων προϊόντων και πράσινων διεργασιών
- Έλλειψη περιβαλλοντικών γνώσεων από δημόσιους επενδυτές
- Έλλειψη διαχειριστικής και πολιτικής στήριξης
- Έλλειψη εργαλείων , πληροφοριών και κατάρτισης
- Η υιοθέτηση κριτηρίων ΠΔΣ της ΕΕ ποικίλλει σημαντικά σε ολόκληρη την ΕΕ
- Έλλειψη παραδειγμάτων σε διαγωνισμούς ΠΔΣ (μόνο κατευθυντήριες γραμμές και γενικές δυνατότητες)
- Έλλειψη βάσεων δεδομένων περιβαλλοντικών κριτηρίων για την προσαρμογή στις διαδικασίες σύναψης συμβάσεων
- Ταχεία ενσωμάτωση νέων βιώσιμων υλικών
- Έλλειψη ετοιμότητας της αγοράς εφοδιασμού να ανταποκριθεί στις νέες ανάγκες
- Περιορισμένη υποστήριξη λήψης αποφάσεων
- Περιορισμένη γνώση σχετικά με βιώσιμα υλικά που μπορούν να χρησιμοποιηθούν σε κατασκευαστικά έργα
- Περιορισμένη πρόσβαση/ διαθεσιμότητα χρηματοδοτικών εργαλείων ανάλυσης κόστους των κατασκευαστικών έργων προς ενδιαφερόμενους φορείς να έχουν

Επισημάνθηκε από κοινού ότι η ενσωμάτωση πράσινων προδιαγραφών στις δημόσιες συμβάσεις δεν αποτελεί εύκολο στόχο, ενώ σημαντικά εμπόδια επιβραδύνουν την υιοθέτηση των ΠΔΣ, μεταξύ των οποίων είναι και η έλλειψη πολιτικού κινήτρου. Παράλληλα, **η έλλειψη πληροφόρησης και εκπαίδευσης σχετικά με τις ΠΔΣ παραμένει σημαντική πρόκληση**.

Ως εκ τούτου, κρίνεται αναγκαία η **ανάπτυξη ικανοτήτων όλων των μερών που συμμετέχουν σε μια Δημόσια Σύμβαση (ΔΣ), η ανταλλαγή καλών πρακτικών και μελετών περίπτωσης σχετικά με τον τρόπο αποτελεσματικής ενσωμάτωσης των ΠΔΣ μεταξύ των ενδιαφερόμενων μερών**, δηλαδή των Αναθετουσών αρχών , των εργοληπτών και του προσωπικού τους, των διευθυντών κλπ., σε συνδυασμό με την ανάγκη για οικονομική **και τεχνική υποστήριξη όλων των ενδιαφερόμενων μερών για την εφαρμογή των ΠΔΣ**.

Υπογραμμίστηκε επίσης ότι η εξοικείωση με την **πολιτική γύρω από τις ΠΔΣ τείνει να περιορίζεται σε υψηλά επίπεδα τοπικών αρχών, κεντρικών κυβερνητικών αρχών** ή υψηλόβαθμων στελεχών. Ως εκ τούτου, είναι σημαντικό η προσέγγιση του προγράμματος **κατάρτισης στις ΠΔΣ να ενσωματώνει συγκεκριμένο θεσμικό, νομικό και πολιτικό πλαίσιο**.

Βασικά συμπεράσματα και συστάσεις σχετικά με το περιεχόμενο της κατάρτισης:

Οι ανάγκες για δεξιότητες που θα μπορούσαν να αντιμετωπιστούν μέσω του προγράμματος ανάπτυξης ικανοτήτων είναι οι ακόλουθες:

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Θεσμικό, νομικό και πολιτικό πλαίσιο σε σχέση με τις ΠΔΣ, που εφαρμόζεται σε εθνικό πλαίσιο, καθώς και σε επίπεδο ΕΕ.
- Παροχή καλών πρακτικών και μελετών περιπτώσεων με αποτελεσματικές εφαρμογές ΠΔΣ, παρουσιάζοντας τα αποτελέσματα, τον αντίκτυπο και τα διδάγματα που αντλήθηκαν.
- Αύξηση της ευαισθητοποίησης σχετικά με την ένταξη των ΠΔΣ μέσω της επισήμανσης των πλεονεκτημάτων τους , με ιδιαίτερη έμφαση στις περιβαλλοντικές επιπτώσεις, την εξοικονόμηση ενέργειας, τα οικονομικά και τα μακροπρόθεσμα οφέλη κόστους.
- Ειδική σύσταση για τη συσχέτιση BIM (Building Information Modeling) με τις ΠΔΣ, και πιθανά οφέλη, αναμενόμενες περιβαλλοντικές επιπτώσεις και κόστος.
- Εξοικείωση με τη μεθοδολογία Level(s) που παρέχει η ΕΕ.
- Εξοικείωση με την ανάλυση κόστους κύκλου ζωής (LCC) και την προσέγγιση αξιολόγησης κύκλου ζωής (LCA).
- Ανάπτυξη ικανοτήτων σε διαθέσιμα εργαλεία και βάσεις δεδομένων, όπως πράσινες ρήτρες, ηλεκτρονικές πλατφόρμες για Δημόσιες Συμβάσεις, χρηματοδοτικά εργαλεία, πηγές εύρεσης πράσινων προδιαγραφών, προδιαγραφές περιβαλλοντικών προϊόντων κλπ.
- Κινητοποίηση της εθνικής οικοδομικής βιομηχανίας προς την κατεύθυνση σχεδιασμού πιο πράσινων δομικών προϊόντων και της πιστοποίησης της αγοράς.
- Εκτίμηση των περιβαλλοντικών επιπτώσεων και του κόστους των έργων.
- Ευαισθητοποίηση σχετικά με τις τεχνολογικές εξελίξεις στους τομείς που επηρεάζουν τις ΠΔΣ σε σχέση με τα υλικά και τις μεθόδους κατασκευής.

Τέλος, το πρόγραμμα πρέπει να λαμβάνει υπόψη τα διαφορετικά προφίλ των εκπαιδευομένων, καθώς και το διαφορετικό βαθμό εξοικείωσης με τις ΠΔΣ. Ως εκ τούτου, συνίσταται η διαμόρφωση του προγράμματος κατάρτισης σύμφωνα με τα διαφορετικά προφίλ και επίπεδα εκπαίδευσης.

Συνιστάται επίσης η παροχή θεωρητικών καθώς και πρακτικών γνώσεων, με την ενσωμάτωση μελέτη περιπτώσεων , εργαλείων και καλών πρακτικών.

Η ευαισθητοποίηση σχετικά με το θέμα θα πρέπει να επιδιώκεται οριζόντια στο πλαίσιο της κατάρτισης.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Povzetek (Executive Summary, SL)

Namen pričujočega poročila je pripraviti "Zeleni priročnik: Instrument o regulativnem okviru in praksi na področju zelenih javnih naročil", v katerem bo predstavljeno splošno razumevanje postopka zelenega javnega naročanja in izzivov, s katerimi se soočajo sodelujoče države (Francija, Grčija, Irska, Slovenija) na različnih ravneh (osrednji in regionalni), s posebnim poudarkom na gradbenih delih, pri izvajanju zelenih javnih naročil.

Splošni cilj poročila je primerjava, kartiranje in razvoj metodologije za GUPP okvir, ob upoštevanju razlik v posameznih državah (Francija, Grčija, Irska, Slovenija) ter določitev vzajemno prepoznavnega pristopa k praksi zelenega javnega naročanja z namenom razvoja priložnosti za izobraževanje osebja javnih organov za spodbujanje učinkovite rabe virov in zelene rasti.

Poročilo vsebuje pregled sedanjega zakonodajnega okvira, dejanskih praks, usposabljanja in potreb po znanju in spretnostih za zeleno javno naročanje pri gradbenih delih ter izkušenj in rezultatov, pridobljenih z ustreznimi prejšnjimi in tekočimi pobudami EU. Vse to z namenom pregleda doseženega napredka ter dejavnike, ovire in rezultate v vsaki sodelujoči državi.

Nenazadnje poročilo vsebuje ključne ugotovitve in priporočila, ki jih je treba upoštevati pri oblikovanju načrta usposabljanja za program zelenega javnega naročanja.

Kar zadeva okvir politike na področju zelenih javnih naročil, so partnerske države sprejele (vključene v nacionalne kontekste/pravne okvire) opredelitev "zelenih javnih naročil", kot jo je zagotovila Evropska komisija. **Trenutno stanje nacionalnega okvira, povezanega z zelenim javnim naročanjem, kaže na različne stopnje zrelosti in napredka**. **Največji napredek na področju zelenih javnih naročil je dosegla Irska**, ki je že leta 2012 pripravila nacionalni akcijski načrt za zelena javna naročila, t.i. "Green Tenders". **Pomemben napredek pri uvajanju regulativnih okvirov zelenega javnega naročanja so izpostavili tudi francoski partnerji**, in sicer z vzpostavitvijo prvega nacionalnega akcijskega načrta za trajnostno javno naročanje za obdobje 2007-2010 in njegovo revizijo za obdobje 2015-2020. **Slovenija ima v primerjavi z drugimi državami EU pri izvajanju zelenih javnih naročil povprečen napredek**, saj ima različne nacionalne okvire in politike, povezane z zelenimi javnimi naročili. V primerjavi z ostalimi državami EU pa **Grčija precej zaostaja pri uvajanju zelenih javnih naročil**. Do marca 2020 je bila Grčija med petimi (5) državami EU (skupaj z Estonijo, Madžarsko, Luksemburgom in Romunijo), ki niso izdale strateškega nacionalnega načrta za zelena javna naročila, medtem ko je preostalih 23 držav že sprejelo svoj nacionalni načrt, pri čemer so številne od njih že dosegle znaten napredek pri vključevanju zelenega javnega naročanja (na primer Danska, Finska, Nizozemska, Nemčija, Avstrija in Švedska). Grška strategija za zeleno javno naročanje je bila sprejeta v začetku leta 2021.

Na tem področju so partnerske države izpostavile več **političnih/institucionalnih/organizacijskih ovir in izzivov**, s katerimi se soočajo pri vključevanju zelenega javnega naročanja, pri čemer so bili najpomembnejši:

- tveganje pravnih izzivov
- pomanjkanje virov
- povečani/višji stroški zelenih proizvodov in zelenih postopkov

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- pomanjkanje okoljskega znanja javnih vlagateljev
- pomanjkanje vodstvene in politične podpore
- Pomanjkanje orodij in informacij ter pomanjkanje programov usposabljanja
- Sprejemanje meril EU za zelena javna naročila se po EU zelo razlikuje
- Pomanjkanje primerov za zelena javna naročila (samo smernice in naštete splošne možnosti)
- Pomanjkanje podatkovnih zbirk okoljskih meril, ki bi jih bilo mogoče prilagoditi postopkom javnega naročanja
- Hitro vključevanje novih trajnostnih materialov
- Pomanjkanje pripravljenosti trga dobave, da bi se odzval na nove potrebe
- Omejena podpora pri sprejemanju odločitev
- Omejeno znanje o trajnostnih materialih, ki se lahko uporabljajo v gradbenih projektih
- Omejen dostop do finančnih orodij, ki zainteresiranim stranem omogočajo analizo stroškov gradbenih projektov

Vsi so se strinjali, da je vključitev zelenih meril v javna naročila cilj, katerega ni enostavno doseči. Sodelujoči partnerji poročajo o številnih ovirah, ki jih je treba premagati, da bi bila ta prilagoditev mogoča. Na splošno partnerji ugotavljajo, da v njihovih državah še ni potrebnih političnih spodbud za pogumne spremembe. **Pomanjkanje informacij in znanja o javnem zelenem naročanju ostaja ozko grlo.**

Zato je **vse večja potreba po krepitvi zmogljivosti vseh strani, vključenih v javna naročila, po izmenjavi najboljših praks in študij primerov o tem, kako učinkovito vključiti zelena javna naročila med zainteresirane strani**, tj. naročnike, izvajalce in njihovo osebje, menedžerje, itd.

Poročano je bilo tudi, da je **poznavanje politike zelenega javnega naročanja običajno omejeno na višje ravni lokalnih organov, osrednjih vladnih organov ali višje ravni uradnikov** na področju javnega naročanja. Zato je pomembno, da **pristop k usposabljanju za zelena javna naročila vključuje poseben institucionalni, pravni in politični okvir**.

Ključne ugotovitve in priporočila v zvezi z vsebino usposabljanja:

Potrebe po znanjih in spretnostih, ki bi jih lahko obravnavali v okviru programa za krepitev zmogljivosti GPP, so naslednje:

- institucionalni, pravni in politični okvir, povezan z zelenim javnim naročanjem, ki se uporablja v nacionalnih okvirih in na ravni EU.

- Zagotavljanje dobrih praks in študij primerov z učinkovito uporabo zelenega javnega naročanja, skupaj z njihovimi rezultati, vplivom in pridobljenimi izkušnjami.

- Povečanje ozaveščenosti o vključevanju zelenega javnega naročanja s poudarjanjem koristi zelenega javnega naročanja, s posebnim poudarkom na vplivu na okolje, prihrankih energije, finančnih in dolgoročnih stroškovnih koristih.

- Posebno priporočilo za korelacijo BIM z zelenim javnim naročanjem ter morebitnimi koristmi, pričakovanimi vplivi na okolje in stroški.

- Poznavanje metodologije Level(s), ki jo zagotavlja EU.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Poznavanje analize stroškov življenjskega cikla (LCC) in pristopa ocene življenjskega cikla (LCA).

- Krepitev zmogljivosti na področju razpoložljivih orodij in zbirk podatkov, kot so zelene klavzule, e-platforme za javna naročila, finančna orodja, kje najti natančne informacije o zelenem javnem naročanju, kot so okoljske izjave o izdelkih (EPD) in specifikacije - nabor orodij, konkretne specifikacije razpisne dokumentacije za zelena javna naročila itd.

- Mobilizacija nacionalne gradbene industrije za bolj zeleno zasnovo gradbenih proizvodov in tržno certificiranje.

- Ocenjevanje okoljskih vplivov in stroškov projektov.

- Ozaveščanje o tehnološkem razvoju na področjih, ki vplivajo na zeleno javno naročanje v zvezi z materiali in gradbenimi metodami.

Na koncu je treba upoštevati različne profile udeležencev/usposabljencev, skupaj z njihovim različnim poznavanjem in vključenostjo v zeleno javno naročanje. Zato bi usposabljanje lahko bilo prilagojeno različnim profilom in stopnjam izobrazbe.

Zelo priporočljivo je zagotavljanje teoretičnega in praktičnega znanja z vključevanjem študij primerov, orodij in dobrih praks.

Pri usposabljanju je treba horizontalno obravnavati tudi ozaveščanje o tej temi.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

1. Content and aim of the Report

The current report aims to provide a "Green Handbook: An instrument on GPP Regulatory Framework and Practice" that will introduce a general understanding of the green procurement process and challenges faced upon its implementation in the participating countries (France, Greece, Ireland, Slovenia) at different levels (central and regional), with a special focus on construction works.

The overall aim of the report is to compare, map and develop a methodology for the GUPP framework, recognizing the differences in each country (France, Greece, Ireland, Slovenia) and determining a mutually recognizable approach to GPP practice, in the effort to develop learning opportunities for public authorities' staff to stimulate resource efficiency and green growth.

The report encloses a review on the current legislative framework, actual practices, training, and skills needs for Green Public Procurement in construction building works, as well as experience and results gained through relevant previous and ongoing EU initiatives, with a view to explore the progress made as well as the drivers, barriers, and outcomes in each participating country.

Finally, the report provides key conclusions reached and recommendations for consideration upon developing the training design of the GPP program.

To this end, the report entails the findings of research activities implemented in the era by each partner country (France, Greece, Ireland, Slovenia), concerning:

- Regulatory framework review – Stocktaking
- GUPP Best Practice Compendium
- GUPP Training needs analysis

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

2. Regulatory framework review – Stocktaking at transnational level

2.1. Content/ Aim

This task consisted of carrying out desktop research to review the current situation in the participating countries regarding the actual practices in GPP in construction works. It deepened the collective understanding of the current barriers, needs, opportunities, challenges, and innovations in GPP and provided a first guide that will improve knowledge and mainstream GPP into sustainable development policies, programmes and strategies.

Concretely, a comprehensive literature review and comparative study of reports on regional and national level GPP, including academic and other studies has been conducted in each participating country.

Themes that were under review included:

- Legislative framework, policies associated with GPP in construction works/ the construction industry;
- Government agencies and authorities in charge of the GPP program;
- Program goals and targets/ strategic directions and objectives;
- Potential Green Criteria that could be integrated in a PP as selection criteria, technical specifications, award criteria and contract performance clauses.

  GPP criteria could be considered within the perspective of the following aspects/ pillars:

  - Construction materials
  - Construction technology and procedure
  - Recycled/ re-used materials (RCM)
  - Human resources
  - Construction project Financial Evaluation (value for money/ cost benefit analysis)
- Special focus on GPP requirements has been placed on key environmental areas in construction and renovation works related to:

  - Primary energy consumption and associated greenhouse gas emissions
  - Waste generation, target service life, upgradeability, adaptability and recyclability
  - Design performance, such as energy and water consumption,
  - Material specifications with limited environmental impact
  - Execution of the contract, including site waste management

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

2.2. Key areas of investigation in National context

2.2.1. Definition of 'Green Public Procurement (GPP)' in national context

France

A sustainable public purchase is a public purchase:

- integrating provisions in favour of the protection or enhancement of the environment, social progress, and promoting economic development;
- considering the interest of all the stakeholders involved in the deed of purchase;- enabling to achieve "intelligent" savings as close as possible to the need and encourage sobriety in terms of energy and resources;
- and which integrating all stages of the market and the life of the product or service.

A public procurement includes an environmental provision if:

- the procurement object (article 5 of the public procurements code) includes an environmental dimension, as for example: provision of catering services with products from organic agriculture; this object results in the inclusion of at least one contractual clause in the contract;
- or the environmental dimension is considered in the technical specifications (article 6 of the public procurements code). This can be done by defining requirements equivalent to those of ecolabels (e.g. European ecolabel) performance requirements (e.g. "car emitting less than 110g CO2/km") or production methods and processes (e.g, Electricity must be generated from renewable energy sources);
- or the environmental dimension is considered in the execution conditions (article 14 of the public procurements code) of the procurement (e.g: collecting and recycling generated waste);
- or one or several awarding criteria related to sustainability (article 53 of the public procurements code) are considered, with at least one contractual clause associated with the criteria. It should be performances in terms of environmental protection, performance in terms of developing direct supplies of agricultural products, overall cost of use or costs throughout the life cycle. Any environmental criteria that may be used to judge and classify bids are considered only to the extent that their use results in the inclusion of at least one clause in the contract.

Greece

Greece has adopted the definition of "Green Public Procurement (GPP)" applied by the European Commission. In particular:

"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

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

with the same primary function that would otherwise be procured."

This definition is provided in the National Action Plan [1] for the promotion of GPP (2021-2023) as approved and integrated in the Ministerial Decision No 14900/ 14/2/2021.

[1] Joint Ministerial Decision 14900/2021 – Government Gazette 466/ B/ 8-2-2021, Approval of the National Action Plan for Green Public Procurement

Ireland

"Green Public Procurement (GPP)" is defined as: "A process whereby public and semi-public authorities meet their needs for goods, services, works and utilities by choosing solutions that have a reduced impact on the environment throughout their life-cycle, as compared to alternative products/solutions" (2014 Green Procurement Guidance[2]).

Slovenia

"Green Public Procurement (GPP)" from Decree on green public procurement (first was adopted already in 2011, last the 8th change was made in aug 2021):

"Green public procurement is procurement in which the contracting authority, in accordance with the Public Procurement Act procures goods, services or works that, compared to ordinary goods, services and life-cycle constructions have a lower impact on the environment and provide savings in natural resources, materials and energy, and have the same or better functionalities." [3]

[1] Joint Ministerial Decision 14900/2021 – Government Gazette 466/ B/ 8-2-2021, Approval of the National Action Plan for Green Public Procurement

[2] 2014 EPA Green Procurement Guidance for the Public Sector: GreenPublicProcurementfinalwebv2.pdf (epa.ie)

[3] http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO7086

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

2.2.2. State of the art of the National framework and policies related with GPP (existence of national strategy, existing situation/ status, goals and targets, compliance with EU directives). Specification in GPP for the construction industry- building works.

France

The Public Procurement Directive in 2004 organized for the first time the conditions for including environmental or social issues in the technical specifications of the desired products and services and/or the criteria for selecting bids. By transposing the 2004 European directives, French law incorporated this requirement into the French Public Procurement Code in 2006.

The Order of the 23rd July 2015 and the decree of the 25th March 2016 related to the public procurements:

Since 2015, the legal framework aims to promote social and environmental considerations through the integration of criteria and specific clauses in the public procurement or concession agreements. The article 38-1 of the Order of the 23rd July 2015 enables to make the social and environmental clauses a condition of contract execution procurement. Some provisions included in the Order of 2015 have validated innovative practices as:

- Free, direct and total access to Open data
- Recognition of Sourcing
- Competitive dialogue and the use of negotiation
- Considering innovation
- Labels

National Action Plan for Sustainable Public Procurement 2015-2020

The implementation of national action plans for sustainable public procurement is an expectation of the European Commission, expressed in 2003 (with a request for an update every three years) and pursued since then.

A first national action plan for sustainable public procurement had been developed for the period 2007-2010. It reviewed the current state of regulations, actors and systems that are still not well known and set out a number of strategic priorities. France is one of the top five Member States in terms of the number of public purchasers that have included environmental clauses in at least 50% of their contracts.

According to a survey conducted by the Observatoire économique de l'achat public (OEAP)-Economic Observatory of Public Procurement, public purchasers wanted a second action plan for sustainable public procurement that was more operational and better disseminated.

The National Action Plan 2015-2020 sets the following targets for 2020:

- 25 % of procurements awarded during the year include at least one social provisions
- 30 % of procurements awarded during the year include at least one environmental provision
- 100 % of procurements are subject to a further analysis, aiming to define if Sustainable Development Goals could be considered in the procurement

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- 60 % of the public organizations are signatories to the charter for sustainable public procurement in 2020
- 100 % of products and services purchased by public organizations are high efficiency energy products, unless the overall cost of high-performance products and services is higher than that of conventional products and services, and insofar as this is compatible with technical suitability and sustainability in a broad sense
- 80 % of the organizations, purchasing paper, printing equipment, supplies, furniture, clothing and office equipment take into account the end-of-life of these products, whether as part of a contract performance conditions approach or as part of an overall approach to managing the end-of-life of products (recycling, reuse, waste treatment, etc…)

The National Action Plan for Sustainable Public Procurement 2015-2020 is made up of 3 axes and 11 works

I. Mobilizing the policy makers

- Recalling the requirements or tools and make them applied
- Encouraging policy makers to redesign the purchasing process in their organisation
- Showing successes and benefits to create the desire to develop sustainable procurement

II. Accompanying purchasers

- Reviewing the legal and technical conditions of some new and challenging subjects
- Raising awareness of the operators working in sustainability and sustainable public procurement areas
- Developing training for public purchasers in sustainable public purchasing
- Developing and supporting networks of public purchasers to develop good practice in sustainable public procurement
- Improving the national platform and website dedicated to sustainable public procurement
- Providing tools for public purchasers

III. Reporting on progress

- Piloting the system with a view to continuous improvement over several years
- Engaging stakeholders

This Plan includes several detailed guidelines to improve GPP including raising awareness actions, priorities, building of a public buyer profile, encouraging sustainable considerations, etc..

Greece

As a general comment, the take up of GPP lags significantly behind in Greece, compared to the rest EU[4]. As of March 2020, Greece was among the five (5) EU countries (along with Estonia, Hungary, Luxembourg and Romania) that had not issued a Strategic National plan on GPP, while the remaining 23 countries had already adopted their respective National Plan, many of which

[4] Πράσινες Δημόσιες Συμβάσεις, Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Διπλωματική Εργασία

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

had already made significant progress in the inclusion of GPP (such as Denmark, Finland, Netherlands, Germany, Austria, Sweden)[5].

The Greek GPP strategy has just been approved and launched by Ministerial Decision No. 14900/ 14/2/2021, following the completion of a consultation process and under the coordination of a special inter-ministerial committee. The strategy introduces the National Action Plan for the promotion of GPP for the years 2021-2023.

The National Action Plan[6] for Green Public Procurement presents the state of the art for the take up of GPP in Greece. In short, the above examples of GPP inclusion in local/ regional/ national level are highlighted, including the application of relevant legislations and policies that encourage the inclusion of GPP:

- The first reference of the Greek legislation in the National Action Plan for the promotion of GPP took place in 2010, and specifically in article 18 of law 3855/2010 "Measures to improve end - use energy efficiency, energy services and other provisions-"(AD 95), which was subsequently amended by article 24 of law 4342/2015 (AD 143).
- In local/ regional level, several actions take place towards GPP in the field of green and sustainable development by local authorities and stakeholders.
- Upgrade of the energy performance of the existing public building stock has been promoted through the funded program entitled “Save”.
- The Law 4412/2016 for public procurements made mandatory the implementation of the National Electronics System for Public Procurement for the supply of goods, services and public works, enabling a more transparent and friendly to business system of public procurement. The law also incorporates terms for "Quality assurance standards and environmental standards”, including environmental standards that Contracting Authorities can demand through bidding procedures.
- Occasionally, several Green specifications have been integrated from Contracting Authorities in a series of products, such as: photocopying paper, PCs and monitors, energy efficient air conditioners, indoor lighting led lamps, office furniture, as well as car tires, trucks and buses.
- Through the involvement of the General Directorate of Public Procurement in the funded project GRASPINNO (InterregMED 2014-2021), there has been promoted the inclusion of GPP in projects related to the upgrade of the energy performance of public buildings.
- Both to the design and the construction phase of public works, “ecodesign” best practices have been adopted.
- The application of the process for the environmental licensing of projects foresees the compliance with policies towards environmental protection. Within this procedure, each project is characterized during its lifetime by a specific “Environmental Identity”,

[5] https://ec.europa.eu/environment/gpp/action_plan_en.htm

[6] Joint Ministerial Decision 14900/2021 – Government Gazette 466/ B/ 8-2-2021, Approval of the National Action Plan for Green Public Procurement

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

concerning the environmental.

- The adoption of the European Ecolabel (EU Ecolabel) for products and services that have a limited environmental impact throughout their life cycle.

The objectives of the National Action Plan for Green Public Procurement are provided below[7]:

- Establishment and implementation of an elementary level for the adoption of green criteria in public procurement of products, services and projects.
- Gradual increase of GPP during the next three years in certain sectors of goods, services and projects.
- Wider integration of life cycle cost estimation in public procurements.
- Dissemination of the environmental and economic benefits of GPP.
- Raising awareness, building capacity and active participation of stakeholders (contracting authorities and economic operators) in GPP.
- Monitoring the achievement and updating the objectives.

As regards the compatibility of the relevant EU legislation with the National one, the European Directives 2014/24 / EU and 2014/25 / EU on public procurement have been incorporated in national law with Law 4412/2016 "Public Contracts for Works, Procurement and Services" (AD 147). The main articles that promote the implementation of the GPP are Article 55 entitled "Marks" (Article 43 of Directive 2014/24 / EU), Article 82 entitled "Quality Assurance Standards" and environmental management standards (Article 62 of Directive 2014/24 / EU) ", Article 87 entitled "Life cycle costing (Article 68 of Directive 2014/25 / EU)", Article 283 entitled "Signals (Article 61 of Directive 2014/25 / EU) ", Article 309 entitled" Quality Assurance Standards and environmental management standards (Article 81 of Directive 2014/25 / EU) "and Article 312 entitled "Life cycle costing (Article 83 of Directive 2014/25 / EU)".

Regarding the sectoral policies, the following policies are mentioned: the 4th National Action Plan has been issued the Energy Efficiency (no. DEPEA / G / oik. 171872 / 2.3.2018 decision of the Minister Environment and Energy - B '1001), in accordance with article 5 of law 4342/2015 (A' 143) with which has been incorporated in Greek legislation Directive 2012/27 / EU as well as the National Plan for Energy and Climate (no. 4 / 31.12.2019 decision of KYSOIP, B '4893), the National Strategy for the Circular Economy and the National Strategy for Sustainable Development. In addition, actions for GPP are included in the National Strategy for Public Procurement.

In this context, according to the approach adopted, Green Public Procurement is at the crossroads of the National Strategy for Public Procurement, the National Strategy for the Circular Economy and the National Action Plan for energy saving-energy upgrading of public buildings.

Ireland

Authorities in charge of GPP Policy: Department of Public Expenditure and Reform (Office of Government Procurement) Department of the Environment, Community and Local Government

[7] https://www.interregeurope.eu/circpro/news/news-article/10670/action-plan-for-the-promotion-of-gpp-in-greece/

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

(DECLG)

Status: A National Action Plan – 'Green Tenders' (Jan 2012) has been published by the Department of the Environment, who has the lead role in "greening" procurement across the Irish public sector. A Climate Action Plan was published in 2019 with new approaches to accelerate green procurement practice.

GPP Targets: National level- 50% of procurement by value or 50% by volume

At present there is no mandatory use of GPP (however, the EPA is developing new guidance for the mandatory use of green public procurement (GPP) in Ireland.)

Directives: The current EU Directives are (PP Guidelines Goods & Services P. 14):

1. Directive 2014/24/EU on public procurement (goods, services and works)

2. Directive 2014/25/EU on procurement by entities operating in the Utilities Sector, i.e., the water, energy, transport, and postal services sectors

3. Directive 2014/23/EU on the award of Concession contracts

The EU Procurement Directives were transposed into Irish Law in 2016 and 2017 by way of the following regulations:

- S.I. No. 284/2016 (the "2016 Regulations");
- S.I. No. 286/2016 (the "2016 Utilities Regulations") and
- S.I. No. 203/2017 (the "2017 Concessions Regulations").

Policy: Current Irish GPP policy includes:

- Climate Action Plan 2019- outlines various proposals to reduce Ireland's greenhouse gases including a number of GPP measures
- Guidance on Green Procurement- published by Environmental Protection Agency 2014
- Circular 20/2019: Promoting the use of Environmental and Social Considerations in Public Procurement- instructs Government Departments and bodies under their aegis to consider including green criteria in public procurement processes in certain circumstance and requires relevant green procurement measures to be incorporated into planning and reporting cycles
- National Action Plan – 'Green Tenders' (January 2012)- outlines examples of GPP best practice to assist public bodies in implementing GP

Framework

The National Public Procurement Policy Framework (NPPPF) 2019 sets out the procurement procedures to be followed by Government Departments and State Bodies under national and EU rules. It consists of five strands: (2019 NPPF, P. 1)

- Legislation (Directives, Regulations)
- Government Policy (Circulars etc.)

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Capital Works Management Framework for Public Works and Construction related Services
- General Procurement Guidelines for Goods and Services
- More detailed technical guidelines, template documentation and information notes as issued periodically by the Policy Unit of the Office of Government procurement (OGP)

The framework for implementing a GPP policy may be visualized as follows:

- Define Priorities & Set Targets

Green Tenders identified eight priority sectors for GPP implementation in Ireland, and adopts a target for 50% of procurement in these sectors (both by number of contracts and by value) to include at least core GPP criteria.

- Adapt procedures
- Monitor GPP implementation

E.g., at basic level, counting the number and value of contracts including GPP criteria.

- Drive continuous improvement

These steps are intended to provide a framework for introducing and managing GPP which is flexible enough to be used by any Irish public authority. (2014 EPA Green Procurement Guidance Criteria, p. 8).

Construction

The Capital Works Management Framework (CWMF) is Strand 3 of the National Public Procurement Policy Framework (NPPPF). In Ireland the public procurement of construction activities is controlled by the CWMF. The CWMF consists of a suite of best practice guidance, standard contracts and generic template documents that form the four pillars that support the framework as follows (2019 NPPPF, P. 16):

- Pillar 1 – Public Works Contracts
- Pillar 2 – Standard Conditions of Engagement
- Pillar 3 – Cost Planning & Control/Suitability Assessment
- Pillar 4 – Guidance Notes & Glossary

Green Tenders identifies six key aspects through which GPP can be embedded in the construction sector. These aspects are design, energy, refurbishment, materials, ecology and site utilities and specifications compatible with the Capital Works Management Framework (Green Public Procurement Guidance Criteria, P. 29).

The 2014 EPA Green Procurement Criteria outline proposed Irish GPP criteria relating to control of the working environment and address environmental impacts which arise during demolition and construction, including impacts with respect to local ecology, materials and transport, water, noise, waste management and emissions to air (2014 EPA Green Procurement Guidance Criteria, p. 29).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Comprehensive guidance and sets of criteria for construction procurement is currently being developed by the OPW. The OPW guidance will address site and property procurement, procurement of consultancy and contractor services, design, site ecology & services, energy materials and refurbishment (2014 EPA Green Procurement Guidance Criteria, p. 29).

SEAI has also published Energy Efficient Design (EED) guidelines to assist organizations to design, construct and manage projects to achieve minimum energy consumption. (2014 EPA Green Procurement Guidance Criteria, p. 29).

EU National Action Plans:
https://ec.europa.eu/environment/gpp/pdf/200311_GPP_NAPs_March_2020.pdf

2019 National Public Procurement Policy Framework: Office of Government Procurement – National Public Procurement Policy Framework (ogp.gov.ie)

2019 PP Guidelines for Goods & Services: Office of Government Procurement – Public Procurement Guidelines for Goods and Services (ogp.gov.ie)

2014 EPA Green Procurement Guidance for the Public Sector: Resources | Environmental Protection Agency (epa.ie)

Capital Works Management Framework: https://constructionprocurement.gov.ie/capital-works-management-framework/

Slovenia

In Slovenia, the Ministry of Public Administration[8] is responsible for GPP. Within this Ministry operates the Public Procurement Directorate.

This Directorate has three departments responsible for public procurement, namely:

- Department for Public Procurement System,
- Department of Public Procurement Procedures and,
- Department of eProcurement, Consulting and Analytics.

Compared to other EU countries, Slovenia is average in implementing GPP. It has various national frameworks and policies related to GPP.

The overarching document related to public procurement is the **Public Procurement Act (ZJN-3)**., which does not include GPP.

Then there is the **Decree on Green Public Procurement**. This document is all about green public procurement. The purpose of this decree is to reduce the negative impact on the environment through public procurement of less environmentally burdensome goods, services and works, to

[8] http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO7086, http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED7202

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

improve the environmental characteristics of the existing supply and to promote the development of environmental innovation and the circular economy. This document is all about green public procurement. The purpose of this regulation is to reduce the negative impact on the environment through public procurement of less environmentally burdensome goods, services and works, to improve the environmental characteristics of existing supply and to promote the development of environmental innovation and the circular economy.

This document contains a list of 22 items for which the application of GPP is mandatory. Ten of them are some more or some directly less related to construction:

1. 9water heaters, space heaters and their combinations and hot water storage tanks,
2. sanitary fittings,
3. flush toilets and urinal fittings,
4. wall panels,
5. design or construction of buildings,
6. design or implementation of road construction,
7. electric lamps and lamps and indoor lighting,
8. road lighting and traffic signals,
9. joinery,
10. noise barriers

The decree has 2 annexes: Annex 1: More detailed definition of the subjects for which green public procurement is mandatory, Annex 2: Methodology for estimating the operating costs over the lifetime of the vehicle.

The national GPP criteria are based on the EU GPP criteria.

2.2.3. Legislative framework, policies associated with GPP in National Level (including action plans, road maps). Specification in GPP for construction- building works.

France

The application of environmental award criteria is permitted if:

- they are not linked related to the subject matter of the contract
- they do not give the contracting authority unlimited freedom of choice
- they are clearly mentioned in the contract notice and the specifications
- they comply with the fundamental principles of EU law

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

The Public Procurement Code requires that sustainable development objectives be taken into account very early on, at the stage of defining the need. Thus, the contracting authority may introduce environmental considerations into the conditions of performance of the contract and refer to technical standards or benchmarks or to performance or functional requirements.

In the tender selection phase, the public contracting authority may use the criteria "technical merit" or "environmental performance" to select the most economically advantageous tender. The criteria can be formulated in a very general or very specific way, but must respect the criteria mentioned above.

Some contracts may require, in addition, an environmental statement (or environmental notice) and, for the "waste" criterion, the preparation of a waste management and organisation (SOGED)

With regard to the carbon footprint criterion, the project owner must act with caution. In order to use this criterion, he must specify its content and define the assessment methods. Otherwise, he would be failing in his advertising and competitive tendering obligations because of the uncertainties that would affect the selection of tenders.

The geographical proximity of a company, with the aim of reducing CO2 emissions, cannot as such be included as a criterion for the selection of tenders. This criterion would be discriminatory to the detriment of the most remote companies.

Life cycle costing is a concept that appeared in the directive of 26 February 2014 on public procurement and was transposed in article 63 of the decree of 25 March 2016 on public procurement.

It enables to take account of:

- costs incurred directly by the purchaser, or direct costs, which are the costs associated with acquisition, use, maintenance and end of life.
- indirect costs or external costs borne by the company as a wholes
- end-of-life costs such as decommissioning and disposal

Life cycle costing seeks to monetise the environmental impacts and externalities of purchasing a product, service or work at all stages of the life cycle.

Article 63 of the Decree of 25 March 2016 on public procurement states that "When a purchaser evaluates costs according to a life-cycle approach, he shall indicate in the consultation documents the data to be provided by tenderers and the method he will use to determine the life-cycle cost on the basis of these data ».

There is only one, but incomplete, officially recognised method for assessing life cycle cost. It is established by the directive of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles, and transposed into French law by the decree and order of 5 May 2011 on the consideration of the energy and environmental impact of motor vehicles in public procurement procedures.

Under Article 6 of the Public Procurement Code, the services of a contract may be defined by reference to an ecolabel.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Ecolabels are the best environmental guarantors of technical specifications, but they are quite expensive. There are different types of ecolabels: official ecolabels, self-declared environmental labels, eco-profiles and eco-labels.

Circular economy and public procurement

The law "on the fight against waste and the circular economy" n°2020-105 of 10 February 2020 was published in the Journal Official (Official Journal) on 11 February 2021. It concerns public purchasers in several ways. Many provisions concern waste.

Article 55 provides that "as of 1 January 2021, State services as well as local authorities and their groupings, when making public purchases and as soon as possible, must reduce the consumption of single-use plastics and the production of waste and give preference to goods that are reused or that incorporate recycled materials by including useful clauses and criteria in the specifications. When the good acquired is software, the administrations mentioned in the first paragraph of article L. 300-2 of the code of relations between the public and the administration shall promote the use of software whose design makes it possible to limit the energy consumption associated with its use. »

In terms of construction, Article 56 inserts a new Article L.2172-5 into the Public Procurement Code. It invites purchasers not to "exclude temporary constructions that have been reconditioned for re-use", a provision that encourages purchasers to take into account "the energy and environmental impact of the construction over its entire life cycle ».

Greece

The National Action Plan for Green Public Procurement highlights that the Green public procurements is a strategic tool for enabling the limited environmental impact of public buildings and public roads, with great contribution to fighting climate change.

Considering the significant environmental impact resulting from the operation of office buildings due to energy consumption (lighting, heating, cooling and ventilation systems, automations, etc.) and because of the building materials during their construction (floors, roofs, structure, exterior walls, etc.), green criteria related to the category "design of office buildings, construction and management" were added in the National Plan. Recycling and reuse of construction materials and products, as well as entire building blocks, can make a significant contribution in reducing the environmental impact of the built environment and in their development principles of the circular economy.

At the same time, the production of construction and demolition waste (CDW) is one of the most important categories of waste in terms of volume. According to the National Waste Action Plan, CDW production in the country amounts to 4.9 million tons in the year 2018, while for the years 2025 and 2030 it exceeds 5.5 million tons / year. For this reason, measures have already been provided in the National Waste Action Plan, in order to increase the volume of recycled CDW in public and other projects, with the aim of increasing its reuse and recycling at country level. Additionally, recovery and use recycled materials, such as aggregates from excavation waste,

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

construction and (CDW), contributes to the development of the secondary materials market, which is a key direction of the European Green Agreement, the new European Action Plan for the Circular Economy, as well as the national goals of Greece for the circular economy.

In this context, and in line with international trends and national commitments, it is crucial that aggregates used for public works and public buildings, to originate, up to a limited percentage initially (15%), from the recovered aggregates of CDW. This amount could be gradually being increased following the economic recovery. To achieve this goal it is necessary to establish the technical specifications of the aggregates, which come out of CDW treatment plants, at national level, so that CDW products to be treated as products of special specification.

At last, the National Action Plan for Green Public Procurement introduces the following guidelines to Contracting Authorities for the take up of GPP, when designing/ preparing a public bid:

- Contracting authorities must incorporate evaluation criteria (with high score) that characterize the product, service or project as "green".
- They are encouraged to adopt, in principle, as the award criteria the economically advantageous cost-based bid with cost-effectiveness analysis, such as life-cycle costing, or alternatively, the bid with best value for money, considering its environmental impact.
- They are encouraged to adopt conditions that promote the reuse and recycling of products. They must also ensure alternative waste management.
- Contracting authorities are encouraged to apply the principles of circular economy both as buyers and as consumers while using the products or providing the service.
- The public sector can implement respective principles of "circularity" in public procurement, such as leasing.
- Contracting authorities must take into account EU basic criteria for this category, as well as how to verify them.
- Contracting authorities are encouraged to adopt the proposed by the EU green criteria for all product and service categories (https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm) and register at Central Electronic Register of Public Procurement, for each product case, public works, in which they have applied these criteria.

Ireland

Policy: Current Irish GPP policy includes:

- National Action Plan – 'Green Tenders' (January 2012)- outlines examples of GPP best practice to assist public bodies in implementing GP
- Guidance on Green Procurement (2014)- published by Environmental Protection Agency EPA 2014
- Climate Action Plan (2019)- outlines various proposals to reduce Ireland's greenhouse

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

gases including a number of GPP measures

- Circular 20/2019: Promoting the use of Environmental and Social Considerations in Public Procurement- instructs Government Departments and bodies under their aegis to consider including green criteria in public procurement processes in certain circumstance and requires relevant green procurement measures to be incorporated into planning and reporting cycles

Nationally the publication of Green Tenders, An Action Plan on Green Public Procurement[9] (referred to as Green Tenders) and the National Framework for Sustainable Development in Ireland[10] –a Sustainable Future establish the clear vision and place of Green Public Procurement (GPP) in future national governance arrangements. GPP is a core strand of driving sustainability, promoting resource efficiency, and progressing circular economy ambitions.

Whilst the National Action Plan on Green Tenders was published in 2012 which sought to incorporate green procurement into 50% of the value of public contract, it did not achieve its intended impact.

The Guidance on Green Procurement published in 2014 by the EPA, set out legal, organizational and GPP criteria for each of the sectors. The document also includes a GPP toolkit designed to be inserted directly into tenders and contracts and are accompanied by notes on the relevant legislation, standards and labels in each sector and information on how the criteria can be evaluated and verified. Specific environmental obligations which must be taken into account in public procurement. These range from the requirement to conduct an environmental impact assessment in advance of certain construction projects, to minimum energy-efficiency standards which must be applied when buying office IT equipment, through to rules on the handling of hazardous substances and waste.

The GPP criteria for each sector also highlight the main applicable legislation and how it can be referenced in tenders.

The two most relevant to the construction industry include:

Construction works — Legislation applies in respect of Environmental Impact Assessment, Energy Performance of Buildings, Construction Products, Waste Management and many other areas. Ireland's implementation of the Energy Efficiency Directive will also create specific obligations for the renovation of existing buildings (2014 EPA Green Procurement Guidance, p. 5).

Energy — The generation and use of electricity is governed by a number of EU Directives and there is a Guarantee of Origin scheme for establishing that electricity has been produced from renewable sources. Energy-using products such as lighting and white goods are subject to mandatory labelling requirements, and public authorities are encouraged to buy only products in the most efficient categories.

9

http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/PublicationsDocuments/FileDownLoad,29208,en.pdf

10 http://www.environ.ie/en/Environment/SustainableDevelopment/PublicationsDocuments/FileDownLoad,30452,en.pdf

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

The majority of provisions within the GPP are all voluntary for contracting authorities to adopt, not mandatory. Although the target was to incorporate green procurement into 50% of the value of public contract, this was not achieved due to the lack of direction and enforcement.

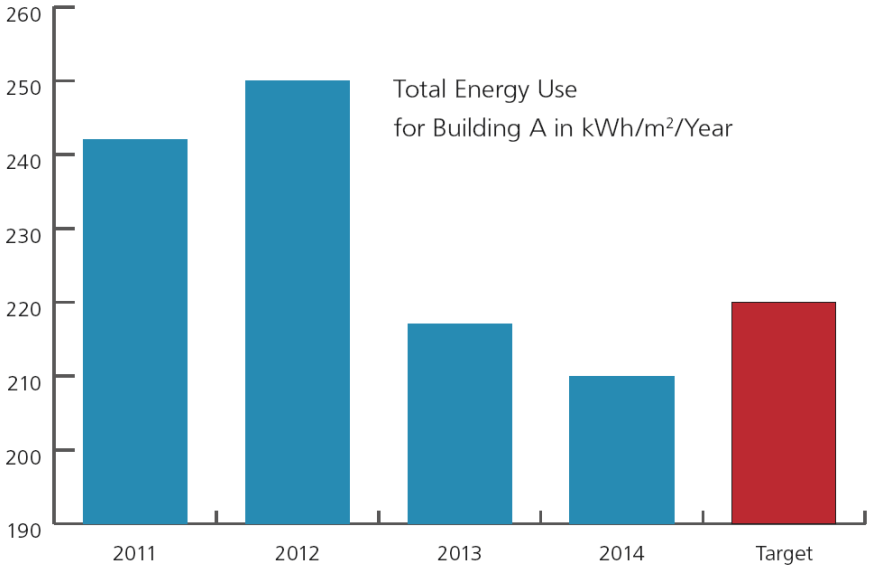


Figure 1: Graph showing progress towards targets (Source Guidelines GPP 2014-EPA)

The guidelines for the procurement Process for GPP is set out in detail in the Guidance on Green Procurement (2014). These following steps (figure 2) are intended to provide a framework for introducing and managing GPP which is flexible enough to be used by any Irish public authority. (Green Procurement Guidance Criteria, 2014, p. 8 - EPA).

The guidelines and criteria are known as a starter-kit for GPP as follows:

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

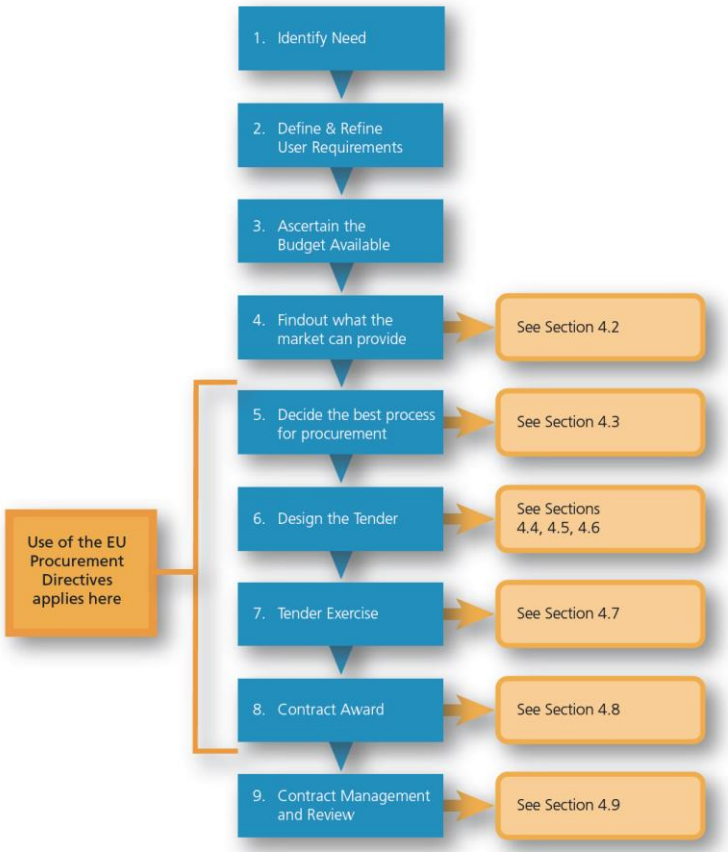


Figure 2: The Procurement Process and sections of the report relevant to GPP implementation

Construction

The following is a summary of actions proposed for the green procurement of construction products and services (Green Tenders 2012, P. 62):

- Provision of guidelines for public sector construction procurement. These guidelines are currently being prepared by the OPW.
- Integration of energy efficiency into construction projects in accordance with the three-part energy-efficient procurement programme (energy-using products, energy services and energy efficient design).
- Develop a target B.E.R. for all new construction projects (c.f. Action 9 of the National Energy Efficiency Action Plan).
- Public bodies will only purchase (or lease) buildings with a B.E.R. of B3 or higher with effect from 1 January 2012 and A3 or higher from 1 January 2015 in compliance with the European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009 (S.I. No. 542 of 2009).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Use innovative procurement initiatives such as Energy Service Company contracting to facilitate the aim of all public sector buildings over 1,000 square meters having their D.E.C. improved to D1 or higher by 2020 as envisaged in the National Energy Efficiency Action Plan 2009-2020.
- Implement the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan in Ireland (by 2011).
- Establish a system of Due Diligence for operators placing timber products on the market for the first time (commencing in 2013).
- By 2017, it will be mandatory that construction timber will be procured only from verified legally logged sources and from independently verified sustainable sources.
- Conduct research projects to broaden the criteria for evaluation in the GPP Guidance Document.
- Ensure continued updating of the guidance document for GPP in the construction sector, to reflect most recent data, research and standards.
- Develop database of relevant properties and evaluation criteria for the most common building materials and products.
- Expand database and evaluation criteria to cover all building materials and products
- Maintain the guidance document to include new materials, standards and evaluation methodologies.
- Explore the feasibility of developing a national methodology for life cycle analysis and life cycle costing for construction projects.
- Research long term ambitions for GPP for construction, by means of case study projects at design, occupancy and refurbishment stages.

The following table summarizes the core and comprehensive criteria for construction and energy service groups.

Product and Service Group	Sub-Groups	Core GPP Criteria	Comprehensive GPP Criteria
Construction	Buildings and civil engineering works (construction and demolition)†	Construction environmental management plan, Staff training, Management of fuel and hazardous substances, Use of secondary aggregate and recycled materials, Water Management, Waste Management	All core requirements plus contractors are required to prepare a surface water management plan and use misters for dampening where required
Energy	Electricity	Percentage of electricity from	Percentage of electricity from

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

		renewable sources (50%)	renewable sources (100%)
	Combined heat and power	Minimum overall efficiency of system	Same as core
	Energy-using products	Minimum energy label rating of A+	Highest available energy label rating for that category

As part of Climate Action Plan 2019, an amended approach was developed for the GPP and states that the following steps should be taken to accelerate green procurement practice: (Climate Action Plan, P. 127)

1 The phased introduction of green criteria across Government and Public Sectors targeting priority products and services

2 Building green criteria into OGP frameworks as they arise for renewal

3 Providing support to procurers in using GPP guidance Engaging with suppliers, especially SMEs regarding GPP opportunities

4 Working collaboratively to ensure an All of Government approach to the successful incorporation of green criteria and other social considerations into public procurement policy and practice

5 Developing clusters and networks for GPP

6 Using existing GPP frameworks in place from other Member States

7 Building monitoring and reporting into the public sector corporate governance model

8 Supporting further research work on quantifying costs/benefits of GPP in an Irish context

9 The OGP reporting annually on implementation of GPP.

Action 148: Mandate the inclusion of green criteria in procurements using public funds, introducing requirements on a phased basis and provide support to procurers as required (2019 Climate Action Plan, P. 129).

Framework

The National Public Procurement Policy Framework (NPPPF) 2019 sets out the procurement procedures to be followed by Government Departments and State Bodies under national and EU rules. It consists of five strands: (2019 NPPF, P. 1)

- Legislation (Directives, Regulations)
- Government Policy (Circulars etc.)
- Capital Works Management Framework for Public Works and Construction related

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Services

- General Procurement Guidelines for Goods and Services
- More detailed technical guidelines, template documentation and information notes as issued periodically by the Policy Unit of the Office of Government procurement (OGP)

The framework for implementing a GPP policy may be visualized as follows:

- Define Priorities & Set Targets

Green Tenders identified eight priority sectors for GPP implementation in Ireland and adopts a target for 50% of procurement in these sectors (both by number of contracts and by value) to include at least core GPP criteria.

- Adapt procedures
- Monitor GPP implementation

E.g., at basic level, counting the number and value of contracts including GPP criteria.

- Drive continuous improvement

There is currently a draft Green Procurement report being prepared to address GPP and considers some of the items documented in the Circular 20/2019: Promoting the use of Environmental and Social Considerations in Public Procurement [11]. The key factors in the consideration of environmental issues in public procurement are set out in the OGP's Information Note on Incorporating Social Considerations into Public Procurement and are broadly summarised in the Appendix to this Circular.

Support in implementing Green Public Procurement;

Training in the use of environmental considerations will be important in order for procurement officials to know how to consider and incorporate green procurement criteria appropriately.

Reporting and monitoring of Green Public Procurement:

The following Green Public Procurement reporting requirements apply to all Departments:

a) Each Department and contracting authority should state how it intends to incorporate green considerations in their Corporate Procurement Plan.

b) Starting with the 2020 Annual Report, each Department must report annually on progress in relation to Green Public Procurement. The Annual Report template with an accompanying guidance note will be made available in 2020 by the Department of Communications, Climate Action and Environment

Social Considerations

[11] https://ogp.gov.ie/circular-20-2019-promoting-the-use-of-environmental-and-social-considerations-in-public-procurement/

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

While procurement is primarily focused on enabling the delivery of public services in a sustainable manner by ensuring value for money and broad access to public procurement opportunities for businesses, there are also possibilities for public bodies to deliver wider social aims through their procurement processes. This can be achieved through the inclusion of social considerations as requirements throughout the process, from business case and specification stages through to the selection, award and contract management stages.

2020 National Action Plans-Ireland, p28:
https://ec.europa.eu/environment/gpp/pdf/200311_GPP_NAPs_March_2020.pdf

2019 Climate Action Plan: https://assets.gov.ie/25419/c97cdecddf8c49ab976e773d4e11e515.pdf

Circular 20/2019: Promoting the use of Environmental and Social Considerations in Public Procurement:
https://ogp.gov.ie/circular-20-2019-promoting-the-use-of-environmental-and-social-considerations-in-public-procurement/

2014 EPA Green Procurement Guidance for the Public Sector: Resources | Environmental Protection Agency (epa.ie)

2012 Green Tenders: gov.ie - Green Tenders - an Action Plan on Green Public Procurement (www.gov.ie)

Construction Legislations:

Directive 2010/31/EU as implemented by S.I. 542 of 2009

Regulation (EU) No 305/2011 20 Directive 2008/98/EC as implemented by S.I. 126 of 2011

Directives 85/337/EC and 2011/92/EU as implemented in a number of Irish statutory instruments.

Slovenia

On 23 July 2021, in the Official Gazette of the Republic of Slovenia no. 121/21 published Decree on Amendments to the Decree on Green Public Procurement, which is valid from 7 August 2021. In accordance with the valid regulation, green public procurement is mandatory for 22 subjects of public procurement. The Decree no longer sets mandatory environmental requirements as were known in the previous regulation, but in Article 6 it determines which environmental aspects the contracting authority should take into account when awarding public contracts and the objectives it must achieve in any public procurement procedure for articles referred to in Article 4. regulations. In accordance with Article 8 of the Decree, new examples of environmental requirements and criteria that the contracting authority may include in the public procurement procedure in order to achieve the objectives referred to in the second paragraph of Article 6 of this Decree have been prepared and are available on this website. Although these examples of environmental requirements and criteria for green public procurement are similar in content in several places to the basic and additional environmental requirements of the previous regime, the new examples are more flexible and non-binding for new, added green public procurement items. they give more choices as to how to achieve the required goal in a particular subject.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Slovenia has prepared examples of environmental requirements and criteria for various items for which GPP is mandatory.

The documents related to construction are described below. They contain an explanation of which items are subject to GPP, the main environmental impacts (how do these items harm the environment), the approach to GPP (what do you need to do to ensure more sustainability through GPP), the objectives of GPP Regulation (what specifically do you need to write in the GPP when ordering this item), the environmental requirements and criteria (this includes technical specifications, award criteria, contract provisions for the execution of the contract, etc.).

1. water heaters, space heaters and their combinations and hot water storage tanks,
2. sanitary fittings,
3. flush toilets and urinal fittings,
4. wall panels,
5. design or construction of buildings,
6. design or implementation of road construction,
7. electric lamps and lamps and indoor lighting,
8. road lighting and traffic signals,
9. joinery,
10. noise barriers

2.2.4. Identification of political/ institutional/ organisational barriers and challenges faced upon the take up of GPP in national context.

France

In 2018, in a parliamentary question, Senator Jean Pierre Corbez addressed the issue of taking environmental and social criteria into account in public contracts. According to him, only 6% of public contracts include environmental or social clauses and when this is the case they count for less than 10% in the final score. This reluctance of public buyers to include it more would come from their fear of seeing the market cancelled for obstructing free competition.

Public procurement procedures can prove to be relatively long and complex in practice depending on the nature and volume of the contract, especially if the life cycle of the product or service is taken into account. Market departments may be tempted to reproduce their usual practices without seeking to introduce innovations for fear of future litigation or procedural flaws. Citizen mobilization can be an important trigger in order to bring a public authority to develop a sustainable purchasing strategy.

Training and purchasing services structure at national and local levels are very disparate according the territories.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Greece

Some crucial political/ institutional/ organisational challenges faced upon the take up of GPP in Greece are considered to be the following[12]:

- Green products are more expensive
- Lack of environmental knowledge
- Lack of managerial and political support
- Lack of tools and information
- Lack of training
- The uptake of EU GPP criteria varies significantly across the EU.
- The uptake of EU core GPP criteria does not vary only across countries, but also across product groups.
- Governance-related problems

Ireland

Some of the concerns and barriers to the implementation of green public procurement raised by the members of the public sector include:

- the perception that GPP costs more,
- annual budget constraints,
- lack of support for GPP from senior management,
- risk of legal challenges,
- complexity of verification,
- the effect of central procurement frameworks, and
- lack of resources. ((EPA Green Procurement Guidance, p. 1)

2014 EPA Green Procurement Guidance for the Public Sector: Resources | Environmental Protection Agency (epa.ie)

Slovenia

Some important political/ institutional/ organisational barriers and challenges to the implementation of GPP in Slovenia are:

- Green products and green processes are generally more expensive.

12 https://ec.europa.eu/environment/gpp/pdf/take_5.pdf

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Lack of environmental knowledge among public investors.
- Lack of management and policy support.
- Lack of tools and information, and lack of training.
- Adoption of EU GPP criteria varies widely across the EU.
- Limited choice of green indicators required by the decree.
- Limited choice of buildings for which green public procurement is required in the decree.
- Lack of requirements to subsidise green products and processes when renovating or constructing a building through environmental funds.
- No examples of green public procurement tender (only guidelines and general possibilities).

Overview for latest public available report:

Contracting authorities may include environmental requirements in the public procurement procedure in several ways: as technical specifications, reason for exclusion, condition for participation, award criterion or as a special contractual provision. Contracting authorities may include environmental requirements for an individual contract in the manner or in the manner specified above.

In 2019, as in the previous three years, contracting authorities placed the most orders for goods, followed by contracts for services and the least for construction contracts, and in terms of value, in 2019, as in 2018, the highest value of awarded contracts was least of all the service. According to the subject of procurement, the largest share of green contracts by number is in the case of goods contracts, and in terms of value in the case of construction contracts. Contracting authorities included at least one environmental aspect in 5,712 lots, which represents 32.9 percent of all orders in 2019 (source: https://www.gov.si/assets/ministrstva/MJU/DJN/Statisticna-porocila/Statisticno-porocilo-o-javnih-narocilih-oddanih-v-letu-2019.pdf)

2.2.5. Identification of specific barriers and challenges faced upon the take up of GPP in national context particularly in construction- building-building renovation works.

France

Barriers and challenges of the PP in national context:

- Multidimensional regulatory context
- Multiple stakeholders requiring the implementation of a strict management
- High formalized procurement thresholds and often high financial stakes
- Specific contractual mechanisms

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- A professional sector under economic strain and often singled out
- Compliance with the European Directives on public procurement
- Environmental and social clauses are mostly excluded in public procurements
- Potential lack of training by territory
- The cost advantages of traditional materials encourage traditional approach and interfere with new material application and innovative approaches and practices.
- Better measuring the sustainable global impact : Life cycle assessment and CD waste management.
- Considering Corporate Social Responsibility (CSR)
- Life-cycle costing tools (LCC)

Greece

The barriers and challenges of the GPP uptake in Greece, are considered to be the following[13][14]:

- Enable GPP by offering adequate information in the national language
- Create training programs designed to increase GPP know-how, accompanied by a GPP communication plan.
- Ensure strong political and managerial support and synchronize this support with concrete measures in the form of target setting.
- Stimulate the implementation of Environmental Management System by purchasing authorities, as this will stimulate and facilitate the uptake of green purchasing practices.
- Perform national and European GPP benchmarking on the basis of analysing random tender documents
- Develop a national action or implementation plan on GPP that can be easily monitored.
- Ensure compliance with the European Directives on public procurement
- Exploit GPP networks. Significant difference between the theory and the practice of green purchasing - 'knowing green' versus 'doing green'.
- Strive for a standard structure in the procurement/tender documentation with selection criteria, product specifications, award criteria and contract clauses, each with appropriate green aspects/information
- Life Cycle Costing (LCC) and Total Cost of Ownership (TCO) methods are not frequently

13 https://ec.europa.eu/environment/gpp/pdf/take_5.pdf]

14 http://www.unpcdc.org/media/408472/ceps-coe-gpp_main_report.pdf]

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

used by public authorities.

- Value for money approach.
- Many authorities face difficulties in including green criteria in public procurement.
- Different practices of the inclusion of green criteria are often applied.
- Further harmonization of terminologies, taxonomies, targets, and overall scope of national GPP policies.
- Awareness-raising and training initiatives should be promoted in all the EU27, with specific reference to those countries that appear to be lagging behind in terms of GPP uptake.

Greek legislation includes the following and are applied at public works procurement[15]:

- e-procurement systems
- Fairness (Non-discrimination, Equal treatment, Transparency, Proportionality)
- Choosing the procedure (open, restricted, competitive procedure with negotiation and competitive dialogue, innovation partnership)
- Consulting the market
- Joint procurement
- Framework agreements

Ireland

Specific barriers and challenges faced upon the take up of GPP in national context particularly in construction/ building/ building renovation works:

- Higher upfront capital costs of greener products and services.
- Poor choice of environmentally friendly products and services and lack of methods to compare environmental credentials of greener goods and services.
- Resistance to change procurement procedures. (Barriers 2 & 3 were revealed by local authorities and state bodies).

Key barriers also include the perception that greener products or services result in increased costs, lack of resources, lack of training and lack of support from higher authorities.

- Construction companies put slow return on investment high on barrier list, while local authorities did not.

15 https://ec.europa.eu/environment/gpp/buying_handbook_en.htm

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Resistance to change was high on the list of local authorities & state bodies, but low on the list of construction companies. This demonstrates how flexible and more eager the private sector is than the public sector when it comes to introducing new methods.
- The least influential barriers to GPP from local authorities & state bodies were lack of government support, slow return on investment and lack of training and educational programmes on GPP.

(Information taken from TUDublin Research paper 2014- An Analysis of the Barriers to and Drivers of Green Public Procurement in Achieving a More Sustainable Construction Industry)

2014 Analysis of Barriers & drivers of GPP: https://arrow.tudublin.ie/cgi/viewcontent.cgi?article=1098&context=beschreccon

Slovenia

The barriers and challenges to the implementation of GPP in Slovenia are:

- Creating training programs to increase GPP, accompanied by a GPP communication plan (we currently only have trainings for PP).
- Exploiting GPP networks. Significant difference between green purchasing theory and practice –('knowing green' versus 'doing green').
- Value for money approach.
- Further harmonization of terminologies, taxonomies, objectives, and overall scope of national GPP policies.
- Awareness raising and training initiatives should be more encouraged.
- The current decree on green public procurement is loose and has few indicators. The last decree on green public procurement left out some types of public buildings, a typical example being multi-apartment buildings owned by public housing funds.
- There are not enough public and freely available details examples of green public procurement tender documentation.
- Combining theory and practice.
- Lack of database for green construction products and materials.

2.2.6. Identification of the key environmental areas in construction/ building works that should be considered for the take up of GPP in construction/ building works.

France

The key environmental areas in construction/building works that should be considered in GPP :

- CD waste (amount, transportation, recycling, etc…)
- Energy performance (technical standards, performance-based requirements, …)
- Life-cycle costing approach
- GPP networks building
- Difficult application of green clauses in PP

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Environmental performance clause

Greece

The key environmental areas of the GPP uptake in Greece, are considered to be the following[16]:

- Minimum energy performance standards apply to public buildings (Directive 2010/31/EU).
- Energy performance contracting (EPC)
- The environmental impact of materials used to make the product (e.g. are the raw materials from renewable sources?)
- The energy and water consumption
- Green title for the contract
- Environmental technical capacity
- Environmental management systems - organisation-related tools, aimed at improving overall environmental performance of the committing organisation. They allow organisations to have a clear picture of their environmental impacts, 'Eco-management and audit scheme' (EMAS).

Additional areas are[17]:

- Recycling facilities
- Waste management system
- Water saving
- Indoor environmental quality (quality of the office environment).
- Incorporation of recycling content, product types that commonly offer higher levels of recycled content tend to include:
    - Bulk aggregates (sub-base, pipe bedding, fill, etc.)
    - Pre-cast concrete (paving, slabs)
    - Ready mix concrete
    - Concrete tiles
    - Dense blocks
    - Lightweight blocks
    - Bricks
    - Insulation materials (floor, wall and roof)
    - Plasterboard
    - Floor coverings (carpet, underlays, etc.)
    - Wooden floor coverings

16 https://ec.europa.eu/environment/gpp/buying_handbook_en.htm

17 https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/green-public-procurement-criteria-office-building-design-construction-and-management-0

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Paint and varnishes
- Requiring a minimum of 10 to 15% recycled content by value for the project overall is broadly achievable

As well as[18]:

- Transportation of aggregates
- Lifespan of the building and its elements
- Service life
- Construction, use and demolition of the building

Along with the product life cycle: 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, are considered to be the most important ones.

Ireland

The following sections outline six key aspects through which GPP can be embedded in the construction sector. Guidance on these six aspects and the development of supporting material databases is further developed in the OPW guidance for GPP in the construction sector (Green Tenders 2012, P. 24).

Design: Effective energy efficient design strategies should be incorporated in all public sector projects at the early design stage. Passive design strategies should be incorporated and prioritized in all new build projects and, where practical, in existing building projects. The procurement procedures for consultants, including architectural and engineering design services, should include both qualitative and quantitative assessment criteria and demonstration of consultants' environmental design experience and/or qualifications. The assessment criteria should be proportionate to the nature, size and complexity of the project. All buildings shall be designed and constructed to comply with all Parts of the Building Regulations.

Energy: Energy efficiency should be integrated into public sector construction projects in accordance with the three-part energy efficiency procurement framework. The Building Energy Rating (B.E.R.) methodology should be used to assess new buildings. A B.E.R., which is effectively an energy label, is required at the point of sale or rental of a building. In addition, for public buildings, a further energy rating is documented in an annual Display Energy Certificate (D.E.C.). Since January 2009, public bodies occupying buildings over 1,000 m2 are obliged to exhibit a D.E.C., in a prominent place, clearly visible to the public. Regulation 15(1) of the European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009 (S.I. No. 542/2009) requires public bodies to only purchase or lease buildings with a B.E.R. of B3 or higher (from 1 January 2012) and A3 or higher (from 1 January 2015) unless specified exemptions are

18 https://ec.europa.eu/environment/gpp/pdf/swd_2016_180

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

invoked. In addition, the European Communities (Renewable Energy) Regulations 2011 require public bodies to fulfil an exemplary role (in the context of Directive 2009/28/EC on the promotion of the use of energy from renewable sources) when constructing or renovating public buildings after December 31st, 2011.

Refurbishment: Reusing existing buildings should be given priority over new-build construction. Available best practice should be utilized in respect of refurbishment projects. When retrofitting for energy efficiency, public bodies should consider using Energy Performance Contracting or similar models, if available, which may also be accompanied by third party finance to avoid up-front capital costs and any negative cash flow burden on the public body.

Materials (Waste): All materials used in construction should be assessed for environmental impacts over the appropriate appraisal period for the project. Pending further research, including at EU level, and stakeholder engagement on methodologies for doing so, public procurers should consider the manufacture, construction, maintenance and disposal impacts of the most commonly used materials, but should be satisfied that appropriate methodologies are used. These include embodied energy (and associated CO2 and other pollutants), resource use, responsible sourcing, construction wastage, durability, recyclability and disposal. Public procurers should ensure that the environmental advantages claimed by material suppliers can be verified.

Ecology and Site Utilities: Steps should be taken to protect or enhance site utilities, from site selection stage through to developing and maintaining landscaping design for the site. Guidance will be developed on the environmental criteria for the appropriate assessment and management of sites and to ensure efficient integration with utilities to optimize use.

Specification: Specific examples should be used of where the above ambitions have been successfully incorporated into a project's tender documentation, in a manner that is compatible with Public Works Contracts and general public procurement procedures.

The procurement of **wood** from sustainably managed sources is also a key component of Green Tenders, which sets the Irish public procurement policy for wood.

Green Tenders 2012: gov.ie - Green Tenders - an Action Plan on Green Public Procurement (www.gov.ie)

Slovenia

In Article 6 of the Decree on green public procurement, there are specific objectives that must be achieved. The targets in relation to construction are:

- The percentage of electricity generated from renewable sources or high-efficiency cogeneration is at least 50 %;
- the percentage of recycled or reused timber in the construction panel is at least 10 %;
- the percentage of wood or wood products in buildings is at least 30 % of the volume of the materials used (excluding interior fittings, ground floor panels and underlying structures), unless the regulation or the intended use prohibits or prevents this;

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- the percentage of wood may be one third lower if at least 10 % of construction products with the type I eco-label or III are used in the building;
- in the construction of the roadway, priority shall be given to the use of recycled asphalt granulate (milled) obtained from the renovation of this road or from another source, for the production of new bituminous mixtures, alternatively, in particular, for layers stabilized with hydraulic or bituminous binder, buffers (including embankments), bedding, embankments and backfills, in the required quantity;
- For interior lighting, the use of ballasts with the ability to dim at least 40 % of all lamps shall be allowed;
- when renovating street lighting, 30 % of the electricity consumption shall be saved.

2.2.7. Identification of Potential Green Criteria that could be integrated in a PP for construction- building- building renovations works as selection criteria: technical specifications, award criteria and contract performance clauses.

France

Potential Green criteria that could be integrated in a PP for construction building/building renovation works:

- Existing technical specifications as standards
- Technical specifications formulated by the contracting authority itself (performance, quantitative objectives, operational requirements, ecolabels)
- Integrating environmental considerations into public procurements conditions
- Integration of environmental clauses in applicant selection (know-how and professional skills of the applicants, professional specific certification)
- Inclusion of environmental clauses in the tender selection criteria (innovation, environmental performance)

Greece

The Potential Green Criteria that could be integrated in a PP in Greece, are considered to be the following[19] [20]:

- Standards include environmental characteristics such as material use, durability or

[19] https://ec.europa.eu/environment/gpp/buying_handbook_en.htm

[20] https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/green-public-procurement-criteria-office-building-design-construction-and-management-0

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

consumption of energy or water

- Reference to European, international or national standards and/or in terms of performance or functionality
- Evidence of compliance with an equivalent standard must be accepted. Such evidence may be in the form of a test report or certificate from a conformity assessment body.
- Specifying materials, purchasing be made from a specific material, or contain a certain percentage of recycled or reused content.
- Production processes and methods
- Selection criteria – Human, technical resources, Environmental management systems and schemes (e.g.EMAS, ISO 14001), Conformity assessment certificates
- Include measures to enhance and ensure high performance at each stage of the procurement process.
- When specifying materials, include criteria to reduce their embodied environmental impacts and resource use (these may be based on a life-cycle assessment);
- Give preference to designs which incorporate high efficiency or renewable energy systems
- Install physical and electronic systems to support the ongoing minimisation of energy use, water use and waste by facility managers and occupiers;
- Include contract clauses related to the installation and commissioning of energy systems, waste and materials management and the monitoring of indoor air quality;
- Give contractors responsibility within the contract for training users of the building on sustainable energy use and, where they have ongoing responsibilities, for monitoring and managing energy performance for several years after construction.
- Building Energy Management System (BEMS)
- Demolition waste audit and management plan

Ireland

Potential Green Criteria that could be integrated in a PP for construction/ building/ building renovations works:

The proposed Irish GPP Criteria for construction (includes construction or renovation of buildings and other physical infrastructure) are as follows:

Construction- general

Selection: Candidates must prove their technical and professional capability to perform the environmental aspects of the contract through:

➤ Operation of an environmental management system (such as EMAS, ISO 14001, or equivalent for the specific services which the contractor will be providing); OR

➤ An environmental policy for construction activities and / or services including work instructions and procedures which address key impacts;

➤ A training policy and procedure that will ensure that all staff utilized in the delivery of

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

the service are trained to a pre-ordained standard in all aspects of service delivery including the environmental aspects AND

➤ Evidence of previous experience in applying environmental management measures in similar contracts, with specific examples of how the main environmental impacts of the relevant services have been addressed.

N.B The above criteria may either be assessed on a pass/fail basis or may be suitably weighted for application as part of a shortlisting process.

Specification: Construction Environmental Management Plan: The contractor is required to develop an outline Construction Environmental Management Plan (CEMP) and to submit this with their tender. The outline CEMP shall detail how the Contractor proposes to manage and mitigate any potential impact to the environment caused by the construction activity. An Environmental Management Plan shall form part of the outline CEMP. A more detailed CEMP will be required to be prepared prior to the commencement of works on site which shall be agreed with Contracting Authority. Verification: A copy of the outline CEMP must be included with the tender. Note: 1. Any Outline Project C&D Waste Management Plan, Environmental Impact Statement/Environmental Impact Reports prepared with respect to proposed developments tendered under the Capital Works Management Framework should be provided as part of the tender documentation. 2. The Contracting Authority should set out in its view the main areas that would need to be addressed in the CEMP, a number of which would tie in to the other criteria in this section e.g. watercourses, ecology, noise etc.

Specification: Construction staff must be trained in waste minimisation, management and selective waste collection as well as how to limit the main environmental impacts of the construction activities. The contractor will present a training plan once the contract is awarded and, at the end of the contract, a certificate stating the training undertaken by both new and permanent staff will be submitted to the contracting authority.

Construction-Ecology

Selection: Candidates must demonstrate experience of working on sites in environmentally sensitive areas and of applying appropriate controls in order to mitigate any potential impact on the surrounding environment. In particular the following headings must be considered:

➤ Habitats ➤ Emissions to air and water ➤ Noise Control.

Verification: Candidates must provide examples of similar works undertaken with appropriate references. For works tendered under the Capital Works Management Framework this evidence shall be provided on the standard B2 form.

N.B The above criteria may either be assessed on a pass/fail basis or may be suitably weighted for application as part of a shortlisting process.

Construction- Material & Materials Transport

Specification: Where appropriate secondary aggregate and recycled materials shall be used in place of virgin engineering materials. The use of such materials shall be agreed in advance with

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

the contracting authority. It shall be demonstrated that the secondary aggregate or recycled material meets all the engineering parameters of the specified material, is compliant with the relevant CEN standard and furthermore that the use of such materials will not have any adverse effect on the environment or human health. The use of recycled material shall be in accordance with all relevant waste management legislation with particular reference to the Waste Management Act 1996 as amended, and the European Communities (Waste Directive) Regulations 2011. With respect to article 27 of the latter, where proposed material is deemed to be by-product and therefore outside of the scope of waste legislation, it shall be demonstrated that the material has been notified accordingly to the EPA. Verification: Technical data sheets showing the composition and origin of the materials to be used, together with evidence of conformity with any relevant standards and legislation.

Specification: The management of fuel or any other hazardous substance required on site as part of the construction works shall meet the requirements of their safety data sheets. Verification: A list of all fuels and hazardous substances to be used on site accompanied by their safety data sheets is to be provided.

Award: Additional marks will be awarded if the vehicles to be used in carrying out the service (if applicable) at least fulfil the exhaust emission requirements of EURO 4 or IV. [5-10%] of the total available marks will be allocated for offers which propose the use of vehicles, in accordance with the above requirements. Verification: Suppliers must provide a list of the vehicles to be used in carrying out the service and the respective technical sheets of these vehicles which state the relevant emission levels.

Construction- Water

Specification: Water Management- Where possible the Contractor shall implement rain water harvesting measures on site and grey water harvested as part of this activity shall be used to supply welfare facilities on site. The contractor shall employ measures to reduce the amount of potable water used as part of the construction works. Verification: A copy of the water management plan and procedures covering rain water harvesting measures must be included with the tender.

Comprehensive criteria: Where dampening down of the works area is required from a dust suppression perspective the Contractor shall employ the use of misters in order to reduce the quantity of water used. Where possible grey water shall be used as part of this misting process. Where possible water which has been used as part of the works shall be collected and re-used as part of the dampening down. Where wheel washers are required as part of the works the Wheel wash unit shall be a closed loop wash water recycling unit.

Specification: Surface Water Management- The Contractor shall ensure that no harmful material is allowed to enter any of the watercourses or water bodies on or around the development site. In particular, no discharge of contaminated surface water into watercourses shall be allowed. The Contractor shall ensure that the water quality within all watercourses and bodies within the site and its environs are not impacted and do not deteriorate for the duration of the works. All

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

discharges to surface water and groundwater shall be in compliance with the Water Framework Directive 2000/60/EC(WFD) and the European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010). Regular sampling of discharge from site and possible sampling of water courses must be carried out by the Contractor. Verification: A copy of the surface water management measures must be included with the tender.

Comprehensive Criteria: The Contractor is required to develop an outline surface water management plan which shall form part of the construction management plan and to submit this with their tender. A more detailed surface water management plan will be required to be prepared prior to the commencement of works on site which shall be agreed with Contracting Authority and shall be reviewed on an ongoing basis for the duration of the works.

Construction- Noise

Contract management: The maximum permissible noise levels at sensitive receptors during construction shall not exceed the levels shown in the table below

Day and Times	LAeq(1 hr) dB[2]	LpA(max) dB[3]
Mon – Fri 7.00-19.00 hrs	70	80
Mon-Fri 19.00-22.00hrs*	60	65
Sat 8.00-16.30hrs	65	75
Sun & Bank Holidays 8.00-16.30*	60	65

*Work at these times will require the permission of the local authority. Note: These levels are indicative only and it may be more appropriate to apply more stringent limits in areas where pre-existing noise levels are low.

Comprehensive Criteria: The contractor shall prepare a detailed noise management plan which shall form part of the construction management plan. The noise management plan shall be agreed in advance of the commencement of works and shall be reviewed on an ongoing basis for the duration of the works. Note: Section 7.3.7 NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan (2007) provides examples of environmental control measures which can be included in the noise management plan.

Construction- Dust

Contract management: The Contractor shall employ measures to minimize the generation of dust from the construction activity.

Comprehensive Criteria: The Contractor shall prepare a dust minimisation plan. The dust minimisation plan will be based upon the industry guidelines in the Building Research Establishment document entitled “Control of Dust from Construction and Demolition Activities”, Building Research Establishment (BRE, 2003). The dust minimisation plan shall form part of the Construction Management Plan and shall be agreed with the contracting authority in advance of the construction works.

Construction- Waste Management

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Specification: The Contractor must apply appropriate measures in order to reduce and recover waste that is produced during the construction activity. The Contractor shall prepare and submit a waste management plan with its tender which shall form part of the Construction Management Plan to be agreed with the Contracting Authority in advance of the commencement of works. The waste management plan must be prepared in accordance with the Department of Environment, Community and Local Government Best practice guidelines on the preparation of waste management plans for construction and demolition projects (2006).

Contract management: Contractors are responsible for disposing of all waste generated under the contract in accordance with the Waste Management Act 1996 as amended. The Contractor must have full use of, or access to, waste disposal facilities with appropriate licenses and permits. The Contractor must provide copies of valid EPA Waste licenses and Local Authority Waste Permits (including those relating to their subcontractors or brokers, where applicable) for collection and waste treatment/ disposal/ export facilities. Note: Section 7.3.12 of the NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan (2007) provides an overview of the allocation of responsibilities and provides a list of reference documents.

The above outline proposed Irish GPP criteria relate to control of the working environment and address environmental impacts which arise during demolition and construction, including impacts with respect to local ecology, materials and transport, water, noise, waste management and emissions to air (2014 EPA Green Procurement Guidance Criteria, p. 29).

Comprehensive guidance and sets of criteria for construction procurement is currently being developed by the OPW. The OPW guidance will address site and property procurement, procurement of consultancy and contractor services, design, site ecology & services, energy materials and refurbishment.

The EU GPP Criteria for the procurement of construction works (including the supply of related services such as cooling, heating and ventilation services and the provision of electricity) cover the design, construction, use and disposal phase of buildings such as public service and office buildings. They address energy consumption, the use of renewable energy sources (RES), construction materials and products, waste and water management as well as other aspects influencing the environmental impacts of construction: architects' experience, monitoring and user aspects. (2014 EPA Green Procurement Guidance p. 32).

2014 EPA Green Procurement Guidance for the Public Sector: Resources | Environmental Protection Agency (epa.ie)

Slovenia

Identification of Potential Green Criteria that could be integrated in a PP for construction-building- building renovations works as selection criteria: technical specifications, award criteria and contract performance clauses.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Possible new Green Criteria, which could be integrated into a PP as selection criteria, are technical specifications, award criteria and contract performance clauses.

GPP criteria could be considered from the perspective of the following aspects/ pillars:

Construction technology and methods applied – obligatory use of BIM7 AND BIM 8

Recycled materials and products for use in construction. (establish an e-platform or database of construction products, where various data will be collected: Key indicators of the environmental impact of a single construction product. It would be useful to include data on the content of recycled material)

- Construction project Financial Evaluation (value for money/ cost benefit analysis)

Special focus on GPP requirements will be placed on key environmental areas in construction and renovation works related to the following:

- Primary energy consumption and associated greenhouse gas emissions.
- Waste generation, target service life, upgradeability, adaptability and recyclability.
- Design performance, such as energy and water consumption.
- Material specifications with limited environmental impact.
- Execution of the contract, including site waste management.

2.2.8. Identification of the benefits of the integration of Building Information Modelling (BIM) in public procurements in construction/ building works upon the take up of GPP.

France

The integration of BIM in public procurement is constantly increasing in France.

The BIM 2022 Plan aims to mobilise and support the building industry, since 1 January 2019, to provide professionals with the methods and concrete tools to massively increase the use of digital technology around two priorities and 8 actions.

- Axis 1: Generalising the use of BIM throughout the building industry by making practices more reliable and by reassuring all those involved through clear and balanced definitions of the expectations and responsibilities of each party
  - Action 1 : Making BIM orders and contracts more reliable and secure
  - Action 2 : Simplifying project monitoring and self-monitoring
  - Action 3 : Defining and ensuring that the needs of the construction industry are taken into account

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Action 4 : Creating a BIM observatory

- Axis 2 : Deploying BIM in the territories and for all with the right tools.
  - Action 5 : Developing the skills of engineers, architects and other building experts
  - Action 6 : Evaluating your BIM skills and have them recognized by all
  - Action 7 : Consulting a dynamic ecosystem allowing BIM actors to exchange locally
  - Action 8 : Enabling multi-stakeholder collaboration through the public KROQI platform

This BIM 2022 plan is strongly encouraged by the public authorities, which have allocated a budget of 10 million euros for the period 2019-2021. It is led by construction experts.

The generalisation of BIM will have many advantages, particularly in terms of construction costs, site organisation, anticipation of difficulties and optimisation of the price study. However, a major training effort is needed among professionals in the building sector.

Greece

In a nutshell, BIM is a pragmatic database-centered working for interdisciplinary collaboration and communication that allows the user - client and the professionals involved to actively participate in the study and design of a project, from its very beginning. Stakeholders can monitor the cost process, consider design strategies - options and assess energy efficiency, very quickly and from the first stages of the study[21].

BIM covers all phases of the life-cycle of a construction project, from the first ideas of a client to those following the completion of the works: design, build, operate, facility management, renovation, change of use, demolition, recycling, efficient use of resources, with all information always accessible. BIM will become a standard requirement, at least in big public procurement projects covered by the EU procurement directives[22].

The integration of BIM in construction and building works has several benefits, including the sustainable use of resources, and the contribution to the circular economy. Significant benefits of the use of BIM in projects and therefore of its integration in public procurements are the following:

- Improved efficiency in design and construction due to the ease availability of information.
- Immediate renewal and greater accuracy of designs.

[21] Building Information Modeling (BIM):Ορισμός, τα οφέλη και οι εφαρμογές

[22] FIEC, European Construction Industry Federation, BIM Manifesto

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Higher Measurement accuracy, cost and better quality design.
- Energy efficiency study very quickly and very early in the design process.
- Faster project delivery.
- Construction control leading to risk and cost reduction.
- Enable the finding of strategies for saving resources (eg water, energy, materials, etc.) in order to achieve the "green goals" of the project and to optimize the design and systems.

According to Greek legislation, while BIM can be implemented in public construction project plans, there are no further requirements or guidance in place that ensure its application in practice. The same applies for the integration of BIM in public procurements.

Currently, the Greek Ministry of Environment and Energy is under preparation of an Action Plan related to BIM regarding the actions required at institutional and all other levels. The Plan will focus on all areas and target groups and will aim to prepare the public and private sectors to adopt the use of BIM, and to equip their constructions with all the necessary supplies. Therefore, it is expected that the Plan will also focus on the integration of BIM in public procurements.

Ireland

General benefits of BIM integration[23]:

- Greater productivity of the sector – delivering more built assets for the same or less expenditure
- Improved output quality of public built assets
- Adapting to a sustainable built environment – one that supports the challenges of climate change and the need for a circular economy
- Increased transparency of construction performance
- New opportunities for sector growth, through exports and additional service offerings

[23] (EU BUILD UP web page)

EU BIM Task Group Handbook for Introduction of BIM by the European public sector: http://www.eubim.eu/downloads/EU_BIM_Task_Group_Handbook_FINAL.PDF

EU Green Public Procurement Criteria for Office Building Design, Construction and Management: https://ec.europa.eu/environment/gpp/pdf/Guidance_Buildings%20final.pdf

BUILD UP: https://www.buildup.eu/en/news/overview-bim-enabling-energy-management-and-control-construction-sector

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- A stronger and digitally skilled sector attracting talent and investment (EU Handbook for introduction of BIM, P. 19).

GPP

The GPP criteria provide contracting authorities and their procurers with the opportunity to set requirements that address the most significant opportunities for environmental improvements along the life cycle of Buildings. They provide procurers with a basis for selecting tenderers according to their competencies, set technical specifications at different levels of ambition, as well as encouraging tenderers to bring forward innovative design solutions (EU GPP Criteria for office building, P. 1).

Environmental benefits of BIM adoption:

- ✓ Construction Sector: Resource efficiency, Circular economy
- ✓ Digital Sector: Data infrastructure, Resource efficiency (EU Handbook for introduction of BIM, P. 19)

BIM saves time, improves efficiency, enhances design, and reduces errors during each phase of the design and construction process, reducing the building's lifelong environmental impact:

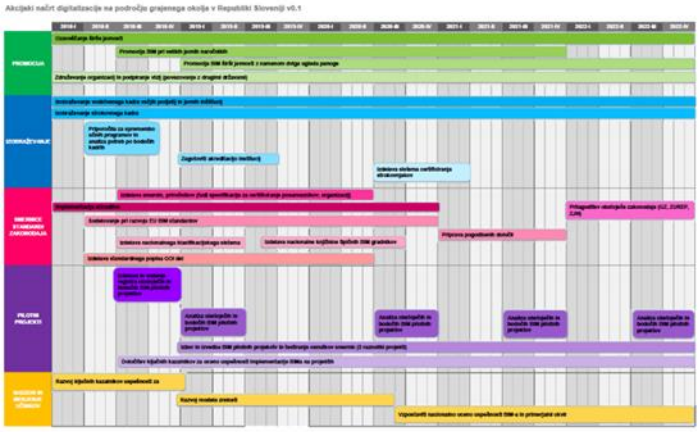
- Design stage: Energy savings are planned and targeted during the design phase. BIM tools are utilized to reduce the gap between predicted and actual building performance proactively. BIM can be used to model buildings and sequentially perform multiple analysis, enabling energy performance prediction that can be applied to compare design alternatives, allowing for an improved final decision.
- Construction stage: BIM is recognized as a tool to support the visualization of a building's energy performance, sequence and schedule of construction aimed towards the application of sustainable construction materials and techniques, with minimum waste of energy and materials.
- Operation stage: Energy savings achieved through the building operation stage are monitored and managed continually with lessons learned fed back to design teams for future projects. BIM assists performance management through effective data management in building operations by supporting the interlinking of data environments (BIM supported Energy Management System of Buildings). Effective energy management reduces energy consumed while maintaining an occupants' health, safety, and comfort conditions.
- End of life: Smart decisions made in the early design stage of construction, including the selection of materials and systems with high recyclability and least carbon footprint when demolished are part of not only reducing the embedded energy content of a building (construction), but makes buildings more sustainable (re-use of materials). BIM as a tool closing the loop of energy and materials in a building life cycle is the target.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Slovenia

Slovenia has not yet officially adopted BIM as a mandatory part of public procurement. But as it seem, at least BIM will beceme part of Building Act. There is the national BIM action plan[13] with a timetable for this legislative change to be made at national level in 2021. The ACTION PLAN has not yet been officially endorsed by the Slovenian government.



Some benefits are mentioned in the official national BIM action plan and some BIM events organized by Slovenian stakeholders every year.

There is no BIM mention in the GPP decree in Slovenia. This needs to be addressed in the coming years. BIM is a tool that enables collaboration and communication between users and professionals.

BIM covers all phases of a construction project, from the idea to the completion of the works (design, construction, operation, facility management, renovation, change of use, demolition, recycling, efficient use of resources, with all information accessible at all times).

Benefits of the integrating of Building Information Modeling in public procurements:

- Improved efficiency in design and construction due to easy availability of information.
- Immediate renewal and greater accuracy of designs.
- Investigation of energy efficiency very quickly and very early in the design process.
- Enable the finding of strategies for saving resources (eg water, energy, materials, etc.) to achieve the "green goals" of the project and to optimize the design and systems.
- Increased transparency of construction performance.

2.2.9. Existing training provision in relative areas/ State-of-the-art training programmes in GPP.

France

At national level, the Direction des Achats de l'Etat- State Purchasing Department (DAE) offers a professionalization program for the consultancy function with State services and its public establishments to help define their purchasing and organizational strategies of their purchasing function.

There are many training courses on public procurement and in particular on the integration of sustainable development in calls for tender and public procurement.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

A common training structure seems to be emerging in this area:

- Knowledge of the legal framework for sustainable public procurement and the stakeholders:
- Main European and national texts
- National strategy for sustainable development
- National action plan for sustainable public purchasing
- Main provisions of the Public Procurement Code for including Sustainable Development in procurement
- Management of sustainability
- Indicators for a responsible purchasing
- Introduction of sustainable development clauses in public procurement.
- Use of existing standards.

In terms of BIM, training is also available in specialised schools (architecture schools, engineering schools, etc.), universities and various types of training (remote learning, work/study courses, etc.).

Organisations such as AFPA, GRETA, FFB and others offer this type of training.

Greece

The recently launched National Action Plan for Green Public Procurement foresees measures and actions aiming to bridge the GPP skills gaps of the parties involved in Public Procurements.

Therefore, these capacity building and raise awareness actions, namely include: Training, info days, raise awareness events, workshops, delivery of disseminations material and best practices handbooks, forums etc.

The main target groups addressed are Public and local government bodies, businesses and key stakeholders.

In this context, it is foreseen that interested parties will be invited to participate at least to six thematic informative and educational seminars related to GPP and Circular Procurements during the next three years. In addition, relevant educational and informative material will be developed and delivered to all interested parties in the public and private sector.

In particular for the staff of public and contracting authorities, it is predicted that they will receive specific to GPP training which will be provided by the Training Institute (INEP) of the National Center for Public Administration and Local Government (E.K.D.D.A.). The aforementioned training program entitled “Green Public Procurement: Principles and Framework of Implementation” is delivered by EKDA in the framework of the Operational Program “Public Sector Reform”, co-funded by the European Union, European Social Fund.

Presentation of the “Green Public Procurement: Principles and Framework of Implementation”

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

training program[24]

Target Group: It addresses to the staff of public and contracting authorities that is involved in PP processes.

Duration: 28 hours

Scope: Its purpose is to provide participants with a comprehensive information on the principles and institutional framework for the implementation of Green Public Contracts, the presentation of green and circular criteria and other tools for the implementation of the GPP, as well as the presentation of good practices in European and national level. Also the purpose of the training program is the detailed presentation of the National Action Plan for Green Public Procurement. The program aims to develop their core competencies, knowledge and skills as well as provide support, in order to be effective while designing, planning and executing green public procurement contracts, services and public works. It also aims to understand the importance of adopting green criteria and conditions of the circular economy in public procurement, as well as the encouragement of trainees to implement the national strategy in this area.

Structure:

- Introduction - General Presentation of the "O.P. Public Sector Reform»
- Definitions and institutional framework of Green public procurement
- European Green Procurement Policy - Guidance Tools - Good practices at European level
- Green criteria of the European Union
- Green public procurement and circular economy
- National Green Procurement Policy - Good practices at national level- National action plan for the promotion of Green public procurement
- Categories of Green Public Procurement with mandatory application - Green Criteria -Good practices
- Categories of Green Public Procurement with non mandatory application – Green Criteria - Good practices
- Circular criteria in Green public procurement
- Eco-labels in Green public procurements
- Life cycle costs and calculation tools
- Practice design of a Green public procurement and application of green criteria
- Assessment of Knowledge and Skills of Trainees

Ireland[25]

Ireland's GPP4Growth Action plan is designed to increase the awareness and inclusion of GPP in

[24] https://www.ekdd.gr/ekdda/custom/seminars/pdf/163_1_2021.pdf

[25] (2014 EPA GP Criteria)

https://ec.europa.eu/environment/gpp/pdf/200311_GPP_NAPs_March_2020.pdf

2014 EPA Green Procurement Guidance for the Public Sector:

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

public procurements. A national training plan was developed which commenced in October 2020 and ran online until January 2021. There has been considerable interest in the trainings which provide GPP training to procurers across the public sector (GPP4Growth web page).

The Commercial Skills Academy at the Office of Government Procurement was established in 2019 to provide training for public service managers to gain an understanding of key issues, commercial skills, and best practice approaches for effective project delivery throughout the entire lifecycle of the project. The initial focus of the Commercial Skills Academy is to provide the necessary commercial skills training pertaining to the planning, procurement and management of public works projects.

The Commercial Skills Academy, with input from Construction Policy and staff across the Public Service, have developed a suite of Training suitable for staff involved at all levels. The Training is organized on a Tiered system, from Foundation level to Experienced. (OGP web page)

- Tier Zero: Introduction to Public Procurement
- Tier 1: Practitioner Training, Commercial Skills for Public Capital Works Projects
- Tier 2: Masterclasses
- Tier 3: Conference

Greenville Academy also have a GPP training programme which was developed in association with the Environmental Protection Agency (EPA). The training offers a comprehensive grounding on the context and legal requirements for green public procurement and provides practical guidance on implementing GPP for government and public bodies.

EU

The EU GPP Training Toolkit is designed for use by public purchasers and by GPP trainers, or integration in general public procurement training courses and workshops. It was finalized in 2019 and comprises 7 modules, covering both:

- General aspects of GPP, such as legal considerations, the role of GPP in the Circular Economy, market engagement etc.; and
- Advice related to good GPP practice in specific sectors, such as construction, road transport, furniture, cleaning services etc.

Since the launch of the toolkit, ICLEI (the International Council for Local Environmental Initiatives)

http://www.epa.ie/pubs/reports/other/corporate/olg/GreenPublicProcurementfinalwebv2.pdf

ICLEI Sustainable Procurement platform: https://sustainable-procurement.org/trainingservices/

GPP4Growth- Ireland: https://www.interregeurope.eu/gpp4growth/news/news-article/10663/gpp4growth-ireland/

Office of Government Procurement Training (OGP): https://ogp.gov.ie/commercial-skills-academy/

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

has supported the delivery of training sessions in 11 EU member states, helping to build capacity on GPP among public procurers and policy-makers throughout the EU. The original training material (accessible in 11 languages) can be accessed freely online.

The material has also been adapted by some of ICLEA's GPP training partners when necessary to reflect procurement practices or legislation in their Member States. The national updates of the training material are also available on the Toolkit website. This list will be continuously updated as more training sessions are delivered across partner countries (ICLEI web page).

Training within organizations

GPP policy can link GPP to an organization's training program. Each of the GPP criteria sets includes a number of clauses which can be inserted into contracts to assist with the on-going management of GPP commitments and to drive continuous improvement. For example, the Irish GPP criteria for Catering Services include contract management provisions relating to waste management, transport and staff training in order to minimize the environmental impact of the service. Examples are:

- Transport: All vehicle operators are required to undertake an approved driver training course which includes a module on cyclist awareness and safety. The contractor must provide for appropriate refresher training at least every 24 months.
- Construction: Construction staff must be trained in waste minimization, management and selective waste collection as well as how to limit the main environmental impacts of the construction activities. The contractor will present a training plan once the contract is awarded and, at the end of the contract, a certificate stating the training undertaken by both new and permanent staff will be submitted to the contracting authority.
- Catering staff must be trained in waste minimization, management and selective waste collection as well as in product information (origin, environmental and social quality of the products). The contractor will present a training plan once the contract is awarded and, at the end of the contract, a certificate stating the training undertaken by both new and permanent staff will be submitted to the contracting authority
- Cleaning: All staff employed in carrying out the service must be regularly trained for their various tasks. This training should cover cleaning agents, methods, equipment and machines used; waste and water management and aspects of health, safety and the environment.
- Textiles: Within the first six months after award of contract, the Contractor will have structured and documented environmental procedures for at least the following areas:…Training of staff.
- IT: User instructions and/or training courses for IT support on green management of IT products shall be supplied.

Slovenia

In Slovenia, various trainings for PP and GPP are organized by different public organizers or offered within EU projects.

One of the EU projects is the Slovenian LIFE+ (national project) project **Care4Climate**, an eight-year project that will promote the implementation of measures that will help Slovenia effectively

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

achieve its greenhouse gas emission reduction targets by 2030 and enable a faster transition to a low-carbon society, by raising awareness, educating and training key stakeholders.

Some of the trainings they have already organized:

- Webinar for contracting authorities: Green public procurement of office paper and hygienic paper products.
- Online training on green public procurement.
- Webinar for bidders on green public procurement and energy labelling.
- Green public procurement opportunities for tenderers.
- Public procurement for the preparation of an analysis of environmental statements on the market of construction products in the Republic of Slovenia.
- Green public procurement – support.

In the future, more trainings will be organised for key stakeholders.

In Slovenia there are also Public Procurement Practice events. There are different organisers who have organized some thematic events/webinars:

- REVJIA PRAVNA PRAKSA: https://praksajn.uradni-list.si/
- AGENCIJA ZA MANAGEMENT: https://agencija-management.si/Aktualni-Program
- Instituto za javno-zasebno partnerstvo: https://www.pppforum.si/vprasanja
- GV ZALOŽBA http://vkjn.gvzalozba.si/
- URADNI LIST: https://dgp.uradni-list.si/
- ZVEZA POTROŠNIKOV SLOVENIJE: https://www.zps.si/dom-in-vrt-topmenu-331/nova-energijska-nalepka/10603-predavanje-energijska-nalepka
- MINISTRSTVO ZA OKOLJE IN PROSTOR in framework of *LIFE IP CARE4CLIMATE.*

Various training courses are held within the Ministry Public Administration[26]. Currently, there are only trainings on the topics of public procurement.

2.2.10. Identification of skills needs of the PP staff and PP occupants for Greening PP.

France

Skills for contracting authority:

- Market research
- Implementation of consultations (criteria, procedures)
- Contracting
- Diplomacy
- Legal and business expertise

[26] https://ua.gov.si/aktivnosti/?Tag=459&category=e2b8aa94-8b97-e711-8382-00155d010a0f

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Skills for PP staff:

- Communication (oral and written)
- Regulation on the relevant areas
- Purchase negotiation
- Team management
- E-commerce knowledge
- Relationship skills

Skills for construction contractor and specialist contractor:

- CAD/CAM technology
- Urbanism and construction regulations
- Call for tender
- Hygiene, prevention and safety, quality and environment rules
- Project management skills
- Knowledge of project management tools

Greece

Appropriate and necessary skills needs in Greece, are considered to be the following competences for each PP occupant and staff group[27] [28]:

Competences of the Contracting Authority

- Defining Priorities and Targets
- Adapting procedures
- Monitoring GPP implementation
- Driving continuous improvement
- The Procurement Process
- Consulting the Market
- Choosing the contract Scope and Procedure
- Advertising
- Setting and evaluating GPP criteria.
    - Selection
    - Technical specifications
    - Award criteria (incl. LCC)
    - Contract Management

[27] http://www.epa.ie/pubs/reports/other/corporate/olg/GreenPublicProcurementweb.pdf

[28] https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/green-public-procurement-criteria-office-building-design-construction-and-management-0]

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Contract performance clauses
- Understanding the different types of evidence.

Competences of the project manager

The project manager shall have relevant competencies and experience in each of the following areas for which they would be responsible under the contract (select as relevant to the specific contract):

- The project management of building contracts that have met or exceeded the environmental performance requirements set by clients;
- The successful identification and management of the delivery of a range of environmental technologies and design innovations required to deliver improved environmental performance and quality;
- Involvement in the financial appraisal of environmental technologies and design innovations as part of the delivery of projects.

Competences of the design team

The architect, consultant and/or design team consortium shall have relevant competencies and experience in each of the following areas for which they would be responsible under the contract (select as relevant to the specific contract):

- The management of building contracts that have delivered improved environmental performance that goes beyond minimum building-code requirements (specify if national, regional, local or other) regarding the following aspects (to be completed with element
- Energy efficient building fabric and services design for new-build or renovation projects (select as appropriate), including if available measured energy performance data per m2 from completed projects including heating, cooling, lighting, hot water and
- Installation of Building Energy Monitoring Systems (BEMS), communication of how they work to building managers and their use to diagnose energy use patterns in buildings;
- Water efficient services design, including measured water demand per employee from completed projects;
- The specification, procurement and installation of low environmental impact construction materials. To include reference to EPDs in compliance with ISO 14025 or EN 15804;
- The development and implementation of staff travel plans, including infrastructure for low emission vehicles and bicycles.
- Project experience and Continuous Professional Development (CPD) of relevance to these areas shall be highlighted.
- The contracting authority may require a minimum number of contracts according to the nature of the project.
- Competences of the main **construction contractor and specialist contractors**

In the case of design and build contracts, relevant areas of experience shall include (as appropriate to the project and the selected GPP criteria):

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Energy efficient building fabric and services design for new-build or renovation projects (select as appropriate), including if available measured energy demand per m2 from completed projects including heating, cooling, lighting, hot water and auxiliary equipment. This will have been applied in the context of new-build and/or renovation projects (select as appropriate);
- The installation of Building Energy Monitoring Systems (BEMS) and communication of how they work to building managers;
- The installation of water efficient services, including if available measured water demand per employee from completed projects;
- The procurement, installation and verification of low environmental impact construction materials.
- The successful implementation of demolition and site waste management plans in order to minimise waste arisings. Selection and knowledge of off-site treatment options.

Competences of Design-Build-Operate (DBO) contractors and property developers

These criteria may form part of a pre-selection procedure for the DBO contractor or property developer that will operate the building.

The contractor shall have relevant competencies and experience in managing the construction and operation of office buildings that have been shown to have delivered improved environmental performance. Criterion A1 will also be relevant to the design team employed.

Relevant areas of experience shall include (as appropriate to the project and the selected GPP criteria):

- The management of design teams to achieve the permitting and construction of office buildings that met client performance requirements, including under DBO arrangements;
- The management of main contractors for the construction of office buildings that have environmentally improved performance, including under DBO arrangements;
- Ongoing facilities management in order to optimise the performance of office buildings, including the use of systems such as BEMS, the contracting of energy managers and the ongoing monitoring/reporting on performance;

Ireland[29]

Training of all key procurement personnel is essential for the Action Plan (Green Tenders 2012) to

[29] 2019 Office of Government Procurement Corporate Procurement Plan: Office of Government Procurement – Information Note – Corporate Procurement Plan – December 2020 (ogp.gov.ie)

Green Tenders 2012: gov.ie - Green Tenders - an Action Plan on Green Public Procurement (www.gov.ie)

National Action Plans: https://ec.europa.eu/environment/gpp/pdf/200311_GPP_NAPs_March_2020.pdf

GPP4GROWTH: https://www.interregeurope.eu/gpp4growth/news/news-article/10663/gpp4growth-

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

achieve its goals and for GPP to achieve its potential. This training effort should especially focus on: Policy makers; Managers; Legal, financial and procurement officers (Green Tenders 2012, P. 59).

Training involves working with the Office of Government Procurement and local government procurement specialists to provide training for those working in procurement as well as local elected representatives. (National Action Plans P. 28).

Corporate Procurement Plans should set out how any GPP skills gap will be identified and dealt with through education, training, awareness raising and/ or dissemination of information. Those bodies with a significant procurement function should include these actions in their Training and Development Strategy/ Plan (Green Tenders 2012 P. 60).

Roles and responsibilities should be defined of procurement practitioners or delegated authorities involved in the procurement process. Their procurement responsibilities should be documented, including corporate and project procurement activities. The owner of the plan should be named, with the line of accountability clearly established. This section of the plan should be used to identify areas for improving the organization's procurement capacity in training, promoting best practice procurement or internal communications. It is important to ensure that staff have the required skills to develop and run procurement processes. This may include having the necessary technical expertise to develop specification of requirements (2019 Corporate Procurement Plan, P. 9).

Public procurement professionals have expressed a clear need for accurate GPP guidance that they can refer to with confidence. The current GPP guidance was originally published in 2014 and required updating. The new GPP guidance is now at final draft stage and is now undergoing a period of targeted consultation before final publication in 2021. The revised guidelines will greatly assist procurers to include GPP criteria in a wide variety of procurement campaigns (GPP4Growth web page).

Slovenia

Contracting authorities in the field of green public procurement lack useful knowledge and understanding of technical specifications and environmental criteria when preparing tender documentation. The application of sustainable construction criteria is not automatic, the selection and application depend on several factors (type of subject of public procurement, type of public procurement procedure (innovation or open negotiated procedure or competitive dialogue), construction site and local climatic conditions). Consequently, contracting authorities must have more expertise in setting the environmental objectives of the project, in preparing the technical specifications, criteria, conditions for participation and the reasons for exclusion. It is necessary to encourage contracting authorities to avoid the prevailing criterion of the lowest price. The competent contracting authority will use the price aspect, cost and other criteria for the most

ireland/

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

economically advantageous tender.

Despite efforts to implement the Green Procurement Regulation consistently, this is hampered by implementation gaps:

- the monitoring of GPP implementation,
- the lack of qualified staff,
- the lack of relevant knowledge,
- the negligible role of green procurement as an opportunity to reduce GHG emissions.

There are probably too few concrete examples of the application of green public procurement for the required criteria and their monitoring by the contracting authority controls them.

M**issing Competences in the construction sector:**

- Lack of previous/ past experiences does not generate knowledge.
- Lack of professional staff with appropriate GPP knowledge.
- Lack of professional criteria and concrete examples of good practices, fragmentation of sectoral objectives.
- What time of year and what capacity training periods are appropriate for which group of construction workers (company staff).
- Some good, freely available examples and a national database of good practice.

2.3. Transnational key findings

In general terms, partner countries have adopted (integrated in National contexts/ legal frameworks) the definition of “Green Public Procurement (GPP)” provided by the European Commission. In particular: "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.”

Concerning the **State of the art of the National framework and policies related with GPP**, **partner countries indicate different levels of maturity and progress**. In particular, **Ireland points out the most significant progress in GPP**, with its National Action Plan for ‘Green Tenders’ having been established since 2012. **Significant progress in the appliance of GPP regulatory frameworks has been highlighted by French partners** too, through the establishment of their first national action plan for sustainable public procurement for the period 2007-2010 and its revision for the period between 2015-2020. **Slovenia shares an average progress on GPP**, compared to other EU countries in implementation of GPP, having different national framework and policies related with GPP. Finally, **the take up of GPP lags significantly behind in Greece**, compared to the rest EU. Up to March 2020, Greece was among the five (5) EU countries (along with Estonia, Hungary, Luxembourg and Romania) which had not issued a Strategic National plan on GPP, while the rest 23 countries had already adopted their respective National Plan, with many of them having already made significant progress in the inclusion of GPP (such as Denmark, Finland, Netherlands, Germany, Austria, Sweden). The Greek strategy for GPP has been approved by the beginning of 2021.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Within this ground, **several political/ institutional/ organisational barriers and challenges faced upon the take up of GPP** were highlighted by partner countries with the most significant to be:

- Risk of legal challenges
- Complexity of verification
- Lack of resources
- Increased costs of green products and green processes (more expensive)
- Lack of environmental knowledge from public investors
- Lack of managerial and political support
- Lack of tools and information and lack of training
- The uptake of EU GPP criteria varies significantly across the EU
- Lack of examples for green public procurement tender (only guidelines and listed general possibilities)

In parallel, **key environmental areas in construction/ building works that should be considered for the take up of GPP in construction/ building works** are:

- Design: Effective energy efficient design strategies should be incorporated in all public sector projects at the early design stage
- Energy performance, energy efficiency
- Refurbishment: Reusing existing buildings should be given priority over new-build construction
- Materials (Waste plus CDW): All materials used in construction should be assessed for environmental impacts over the appropriate appraisal period for the project.
- Ecology and Site Utilities: Steps should be taken to protect or enhance site utilities, from site selection stage through to developing and maintaining landscaping design for the site.
- Life-cycle costing approach

As regards the **existing training provision in relative areas/ state-of-the-art training programmes in GPP, the most significant training provided by partner countires is as follows:**

France:

- At national level, the Direction des Achats de l'Etat- State Purchasing Department (DAE) offers a professionalization program for training in PP for public bodies.
- There are many training courses on PP and in particular on the integration of sustainable development in calls for tender and PP.

Greece:

- The recently launched National Action Plan for Green Public Procurement foresees measures and actions aiming to bridge the GPP skills gaps of the parties involved in Public Procurements.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- For the staff of public and contracting authorities, it is predicted that they will receive specific to GPP training

Ireland:

- The Commercial Skills Academy at the Office of Government Procurement provides the necessary commercial skills training pertaining to the planning, procurement and management of public works projects
- Greenville Academy GPP training programme, developed in association with the Environmental Protection Agency (EPA), provides practical guidance on implementing GPP for government and public bodies

Slovenia:

- Different trainings for PP and GPP are organized by different public organizers or they are provided as part of the EU projects

Within this ground, **key skills needs of the PP staff and PP occupants for Greening PP highlighted by partner countries:**

- Regulation on the relevant areas
- Monitoring GPP implementation
- Setting and evaluating GPP criteria. (Selection, Technical specifications, Award criteria (incl. LCC), Contract Management, Contract performance clauses.
- Technical specifications and environmental criteria in the preparation of tender documentation
- Setting the environmental objectives of the project, in preparing the technical specifications, criteria, conditions for participation and the reasons for exclusion
- Lack of professional criteria and a database of good practice, fragmentation of sectoral objectives
- Roles and responsibilities should be defined of procurement practitioners or delegated authorities involved in the procurement process.
- Contracting procedures
- Legal and business expertise

First priority target group with skills needs for GPP capacity building and raise awareness include:

- Policy makers
- Managers
- Legal, financial and procurement officers
- Contracting Authorities

Overall, it has been strongly highlighted **that there is an emerging need** in the above-mentioned

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

target groups **for raised awareness** on the subject matter, as well as **for specific guidance**, including specifications on GPP criteria in procurement processes, along with the need for freely accessible **examples and national good practices databases for GPP inclusion**.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

3. GUPP Best Practice Compendium

3.1. Content/ Aim

The aim of the current activity was to **gather experience from past and ongoing EU projects and initiatives** and provide concrete examples related to effective GPP implementation in construction works in project partner countries.

All partners were requested to identify and provide **best practices** coming from their local/ regional/ national context with, and offering lessons for developing, implementing and sustaining an effective GPP system, preferably enabling the inclusion of GPP criteria in construction works.

Information on the best practices has been gathered via desk research and stakeholder outreach.

The provided best practices have been fine-tuned based on the special characteristics and conditionalities of the subject matter.

Criteria adopted for Best Practice selection were:

- Effective and successful,
- Technically feasible,
- Inherently participatory,
- Replicable and adaptable

3.2. Best Practice Compendium

3.2.1. France

BEST PRACTICE NO 1 Labels environnementaux (environmental labels)	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Labels environnementaux (environmental labels)
Best Practice Type	☐ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector ☐ Energy efficient sector ☐ Waste Management Sector ☒ Other (please specify): environmental labels

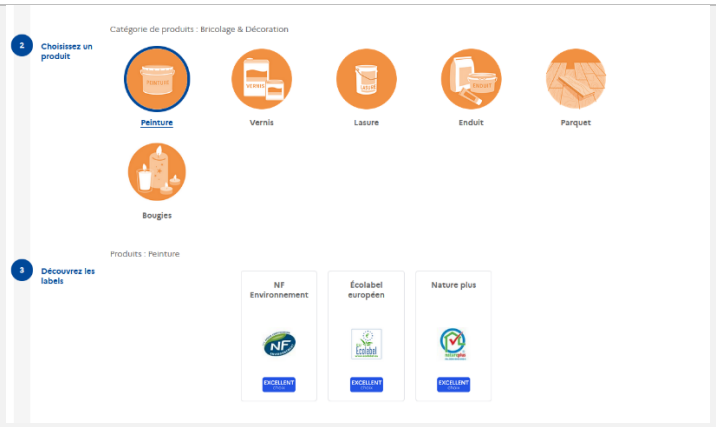
Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Period during which the practice has been carried out (timeframe)	November 2019
Financial Sources	
Name of promoter organization	ADEME
Countries/ Regions (if applicable) in the initiative	France
Contact details	ADEME https://www.ademe.fr/content/contacter
URL of the practice	https://agirpourlatransition.ademe.fr/particuliers/labels-environnementaux
Best Practice Description	After a study carried out in November 2019, ADEME has identified 100 environmental labels affixed to 13 categories of everyday products: food, maintenance and cleaning, hygiene and beauty, clothing and shoes, furniture, bedding, home textiles, DIY and decoration, stationery and supplies, multimedia, games and toy and accommodation. For each category of products ADEME recommends between 1 and 6 labels that it has identified. 

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	
Best Practice Methodology	ADEME selected environmental labels based on a reference framework and certified by a third party independent of the manufacturer, but also the labels affixed to everyday consumer products and those most familiar to consumers. Then ADEME conducted a two-stage analysis: - an analysis of the structural reliability of the label by ensuring that the label complies with 7 main requirements of the ISO 14024 standard. - an environmental analysis of the label
Critical Success Factors	This analysis makes it possible to recommend 100 environmental labels. For each product category, ADEME recommends between 1 and 6 labels. It highlights labels that are qualified as "excellent choice" or "very good choice". It allows public purchasers and consumers in general to be guided in their choice of more environmentally friendly products.
Constraints	The study does not cover all environmental labels. Labels not selected by ADEME should not automatically be considered as bad labels. The methodology is based on a literature search and not on a field verification of the declared elements.

BEST PRACTICE NO 2 La Clause verte (The green clause)	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	La Clause Verte (the Green Clause)

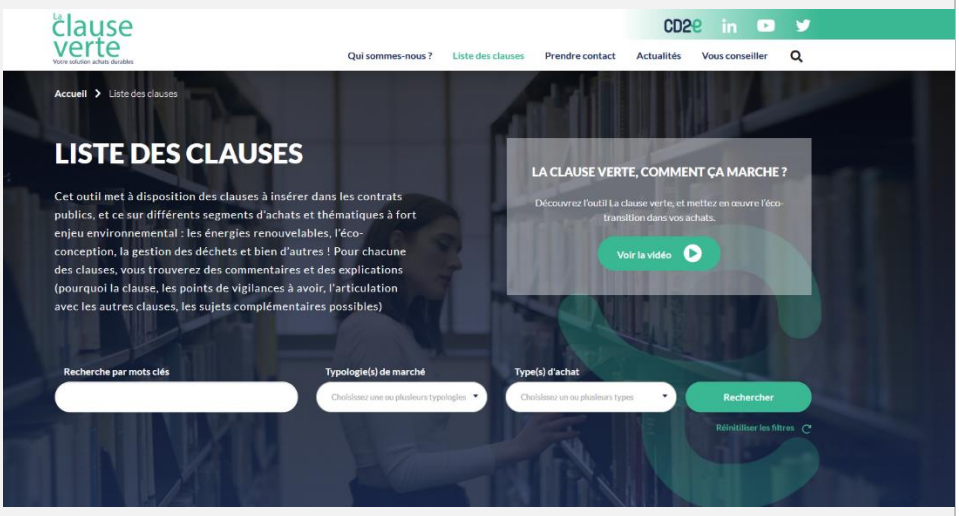
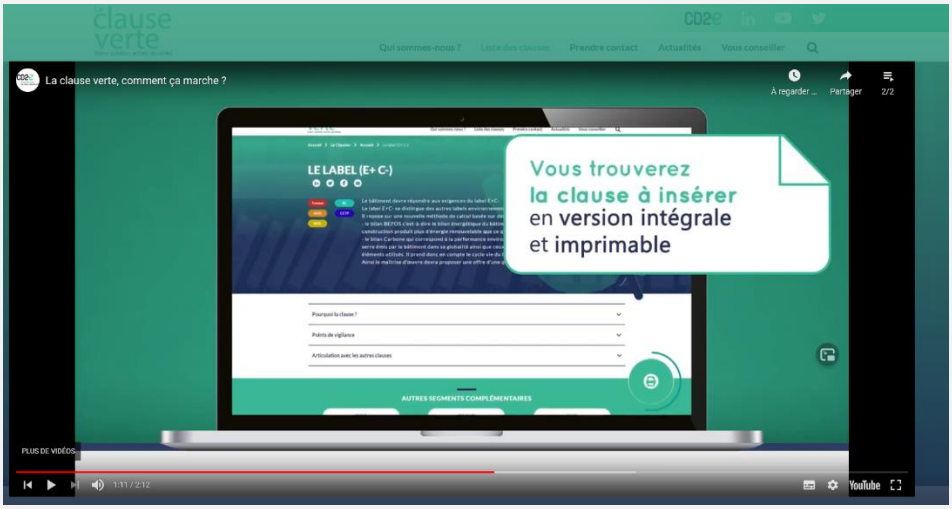
Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Type	☒National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☒Construction sector ☒Building Sector ☒Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	launched the 17th November 2020.
Financial Sources	Specify the funding programme (if applicable)
Name of promoter organization	Le Centre de déploiement de l'éco-transition dans les entreprises et les territoires-CD2E
Countries/ Regions (if applicable) in the initiative	FRANCE
Contact details	CD2E, Rue de Bourgogne – Base du 11/19 62750 Loos-en-Gohelle – FRANCE 03 21 13 06 80 **Anthony Delabroy**, Consultant responsable Achats Publics Durables laclauseverte@cd2e.com 06 01 99 96 33 https://laclauseverte.fr/prendre-contact/
URL of the practice	https://laclauseverte.fr/

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Description	The "green clause" is a simple, user-friendly tool, free of charge and accessible to all, without registration. The website gathers "ready-to-use" clauses and explains the interest of these clauses, the links to be made with other clauses and the points to be aware of when using them. The clauses are classified by purchasing segments such as renewable energy, bio-sourced materials, BIM, eco-design, etc., but also by purchasing type such as new works, rehabilitation works, roads, supplies and services. The "Green Clause" is also a participatory tool and invites public purchasers to share their experience and propose environmental clauses that are already used and efficient. These contributions allow the website to be enriched and to evolve in order to respond to the needs of public procurement actors.  
Best Practice Methodology	During a regional analysis of purchasing practices, a number of obstacles to the implementation of eco-transition in purchasing were identified: - The insertion of "green" clauses in contracts is not always easy for some buyers, who fear the legal risk or the failure of their consultations.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	- A constantly changing legislative context - A lack of time among the stakeholders The objectives of the green clause: - Supporting and providing public purchasers with the tools in the drafting of their public contracts in order to integrate environmental considerations more quickly - Proposing reliable, operational and transposable clauses in a public contract - Offering a free, no-registration tool that will eventually become a tool for daily use by buyers
Critical Success Factors	Since the release of the tool, 40 new clauses are available. Many local, regional and other authorities are using and getting involved in the project. The Green Clause is always willing to integrate other clauses and thus make the tool as complete as possible.
Constraints	Requires the contribution of partners to make the tool more complete and to enrich its database.

BEST PRACTICE NO 3 Guide de l'achat public (guide for public procurement)	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Guide de l'achat public (Guide for public procurement)
Best Practice Type	☒ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☒ Construction sector ☒ Building Sector ☒ Energy efficient sector ☒ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	March 2019
Financial Sources	
Name of promoter	Direction des achats de l'État (DAE)

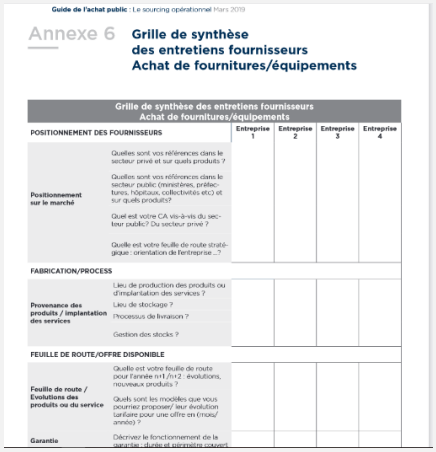
Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

organization	
Countries/ Regions (if applicable) in the initiative	FRANCE
Contact details	**Contact** Direction des achats de l'Etat 59 Bd Vincent Auriol 75013 Paris Télédoc 033 Tél : +33 1 44 97 34 61 communication.dae[@]finances.gouv.fr
URL of the practice	https://www.economie.gouv.fr/files/files/directions_services/fininfra/Guide_sourcing.pdf
Best Practice Description	The public procurement guide dedicated to operational sourcing was drawn up by a multidisciplinary team made up of actors from the civil service of the State and its public establishments; it is intended to constitute a common reference framework for public purchasers in terms of "sourcing ». The practice of sourcing has been enshrined since 2016 in the public procurement regulations. This document, whose development was conducted by the DAE, was therefore produced with a view to reassuring and supporting buyers in this approach. Far from being yet another theoretical handbook, it answers the concrete questions that a buyer who takes up his or her duties or any person who has to carry out a sourcing operation may have. The structure of the guide is articulated towards three axes : · Identifying stakeholders to associate with · Organisation of supplier exchanges · Use of sourcing results

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.



Guide de l'achat public : Le sourcing opérationnel Mars 2019

Annexe 6 **Grille de synthèse des entretiens fournisseurs Achat de fournitures/équipements**

Grille de synthèse des entretiens fournisseurs Achat de fournitures/équipements					
POSITIONNEMENT DES FOURNISSEURS		Entreprise 1	Entreprise 2	Entreprise 3	Entreprise 4
Positionnement sur le marché	Quelles sont vos références dans le secteur privé et sur quels produits ?				
	Quelles sont vos références dans le secteur public (ministères, préfectures, hôpitaux, collectivités etc) et sur quels produits?				
	Quel est votre CA vis-à-vis du secteur public? Du secteur privé ?				
	Quelle est votre feuille de route stratégique : orientation de l'entreprise ...?				
FABRICATION/PROCESS					
Provenance des produits / implantation des services	Lieu de production des produits ou d'implantation des services ?				
	Lieu de stockage ?				
	Processus de livraison ?				
	Gestion des stocks ?				
FEUILLE DE ROUTE/OFFRE DISPONIBLE					
Feuille de route / Evolutions des produits ou du service	Quelle est votre feuille de route pour l'année n+1 /n+2 : évolutions, nouveaux produits ?				
	Quels sont les modèles que vous pourriez proposer/ leur évolution tarifaire pour une offre en (mois/année) ?				
Garantie	Décrivez le fonctionnement de la garantie : durée et périmètre couvert				

Best Practice Methodology	This guide was developed under the was drawn up under the supervision of the DAE by a multidisciplinary team made up of players from the public service (State, public establishments and local authorities) and is intended to constitute a common reference framework for public purchasers in terms of sourcing. The guide includes a "toolbox" with standard documents that can be used directly and adapted to the procurement project. The participation of the State Intangible Heritage Agency (APIE) and the DAE's LAB purchasing mission has also enabled the content to be enriched with essential methodological elements on how to approach the subjects of intellectual property and innovation in the context of sourcing. Memo sheets and specific interview grids are dedicated to these topics.
Critical Success Factors	Today, all the conditions are gathered to put an end to the era of the public purchasing culture marked by decades of securing procedures, to give way to the search for optimisation of the overall performance of purchasing. Public purchasers can and, above all, should meet suppliers before consultations. Knowledge of the supplier market through sourcing is essential to better define needs and adapt purchasing strategies accordingly.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	It is also a monitoring process to discover innovative products or services, to improve the performance of public authorities. Finally, sourcing enables the buyer to communicate its requirements to economic operators upstream and thus "sell the need", to compare it with suppliers' offers and potentially with their capacity to innovate, while measuring the competitiveness of costs.
Constraints	

BEST PRACTICE NO 4 Former des agents des collectivités dans des réseaux existants (Training of community agents in existing networks)	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Former des agents des collectivités dans des réseaux existants (Training of community agents in existing networks)
Best Practice Type	☒ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☒ Construction sector ☒ Building Sector ☒ Energy efficient sector ☒ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	Launched in 2011
Financial Sources	European Union (FEDER funds), AOC Certification
Name of promoter organization	**ASSOCIATION BOIS DES ALPES ™**
Countries/ Regions (if applicable) in the initiative	FRANCE
Contact details	**Association Bois des Alpes** **La Ruche**

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	256 rue de la République **73 000 Chambéry** **04 79 96 14 67** **bda@boisdesalpes.net**
URL of the practice	https://www.cipra.org/fr/cipra/france/bonnes-pratiques/construction-habitat/bois-des-alpes/dateien/guide-juridique-boisdesalpes.pdf/@@download/file/guide-juridique-boisdesalpes.pdf?inline=true
Best Practice Description	Bois des Alpes ™ is a brand reflecting the commitment of an entire sector that wishes to optimize its practices for the environment and for local development. The affixing of this mark provides concrete guarantees to the user of the wood products concerned: origin, action for sustainable development, technical quality, maintenance of alpine jobs, etc. The certification gives them the right to use the mark if they ensure compliance with strict specifications, called standards, accredited by COFRAC.
Best Practice Methodology	Beyond the simple provenance of the wood, the Bois des Alpes certification makes it possible to verify that the wood used meets specific technical or environmental requirements: • a 100% guaranteed wood origin traceability system: product traceability from harvest to final processing in order to guarantee the origin of the product by defining the information needed at each stage of the process; • sustainable management of the forest where the products come from (for example management of PEFC type or equivalent); • the characterization of the woods and their compliance with current standards, in particular in terms of drying meeting DTU, CE marking and characterization structural.
Critical Success Factors	The system set up is designed to avoid abuse: > The company is responsible for the good respect of the requirements in its production chain, and must set up the necessary actions for that. > The certifying organization, an independent entity, audits all certified companies every year, in particular during an on-site visit which allows it to verify the documentary and operational follow-up of the certification in the company. If the auditor finds any non-conformities, the company must correct or justify them within a period of time, after which sanctions may be taken, up to and including termination of the certificate. This procedure is done in compliance with the international standard NF EN ISO 17 065 on product and service certification processes.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	> COFRAC, the French accreditation organization, checks the certifying companies every year to ensure that they are complying with the Bois des Alpes standard, and conducts their audits according to the rules of the ISO 17 065 standard.
Constraints	

BEST PRACTICE NO 5 Le système de participation de garantie (The guarantee participation system)	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Le système de participation de garantie (The guarantee participation system)
Best Practice Type	☒ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☒ Construction sector ☒ Building Sector ☒ Energy efficient sector ☒ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	Launched in 2003
Financial Sources	Interreg, ADEME, DréalPACA, Région Sud
Name of promoter organization	EnvirobatBDM
Countries/ Regions (if applicable) in the initiative	FRANCE
Contact details	EnvirobatBDM Le Phocéen, Bâtiment C 32 rue de Crimée - 13003 Marseille 04 95 043 044 contact@envirobatbdm.eu

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

URL of the practice	http://docplayer.fr/202791702-Rapport-d-activite-rapport-d-activite-septembre-2020.html
Best Practice Description	Within the framework of a grouping of operators, the interest is to privilege a collective contribution to the environmental objectives of the specifications, rather than an analysis of the capacity of each company to respect these criteria. Hence the interest of a participatory guarantee system, which makes it possible to develop a collective approach to the environmental challenge and to define the right role for each service provider according to its capacity and its margins for progress. User focus, sustainability, territorial contextualization, comparability, massification, simplicity of use, open data, co-construction and transparency are the foundations of the assessment. EnvirobatBDM is a non-profit association that brings together inter-professional actors in the building and development industry in the Provence-Alpes-Côte d'Azur region. It has nearly 300 member structures: public or private project owners, designers, architects, engineers, control offices, environmental consultants, construction companies, distributors of materials, or federations and chambers representing trades.
Best Practice Methodology	Its purpose is to integrate the requirements of sustainable development into the acts of building, renovating and developing in the South Provence-Alpes-Côte d'Azur region. Its resources include: • an assessment center, • a resource center, • an accredited training center, • dissemination tools.
Critical Success Factors	The choice of governance of the association meets the principles of transparency, trust and representativeness of all the building and planning trades, principles that form the basis of Participatory Appraisal Systems (PAS), i.e. participatory and local evaluation by professionals in the field, of which the BDM approach is an example.
Constraints	

3.2.2. Greece

BEST PRACTICE NO 1	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	GRASPINNO

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Type	■ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ■ Building Sector ■ Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	2016-2019
Financial Sources	Interreg MED programme 2014-2020
Name of promoter organization	University of Patras, Greece (Lead partner)
Countries/ Regions (if applicable) in the initiative	7 participating countries: - Greece - Cyprus - Slovenia - Italy - Bosnia and Herzegovina - Spain - France
Contact details	Contact form is provided through the project's website, in the following link: http://www.graspinno.eu/index.php/contacts Contact details: graspinno@gmail.com | +30 6983129434
URL of the practice	http://www.graspinno.eu/index.php https://graspinno.interreg-med.eu/
Best Practice Description	GRASPINNO provides innovative green procurement solutions for energy savings/efficient refurbishment of public buildings, focusing on smart cities and communities. Its goals: (a) Improve the capacity of Public Authorities (PAs) to manage the energy efficiency of buildings, moving towards nearly zero energy building; (b) Strengthen SMEs to enter the green energy market.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	The overall objective of GRASPINNO is to promote a green and sustainable growth model for Med area: - by supporting green energy and eco-innovation networks/clusters increase their business and R&I capacities and reinforce transnational cooperation, and - by supporting Public Administrations (PAs) adopt green public procurement through knowledge bases, decision support tools, and validated state-of-the-art e-procurement systems.
Best Practice Methodology	GRASPINNO partnership aims to produce: - GRASPINNO Transnational Mediterranean Network (TMN) - Unified eGPP platform - Cooperation and networking facilities with transnational scope - GRASPINNO Living Labs - Transfer Seminar for SMEs Expected Results: - Increased PAs and green energy actors capacities through pilot testing with validation of green e-tenders and integration of upgraded eGPP platform - Tailored mentoring/financing schemes for green growth sectors SMEs/clusters/networks, through MED Mentors Network and MED BAN - Effective policy recommendations to competent public authorities and support to green energy market demand-supply sides - Cooperation and networking facilities with transnational scope - Systematized project knowledge, mainstreaming of results transferred beyond consortium
Critical Success Factors	GRASPINNO ensured the transfer of smart, low-cost and sustainable solutions to public authorities and SMEs in the entire MED region. Working together with public and private stakeholders, the project tested its methodology on 13 pilots within 28 public buildings located in 5 countries. The pilots achieved a total reduction in energy consumption of approximately 10%. GRASPINNO also created an online platform to centralise the information needed by both public authorities when preparing a public procurement process and for SMEs to showcase their green energy products and solutions. This platform comprises three tools for green public procurement: - A database that assists public authorities in setting green energy requirements within their procurements and allows SMEs to propose solutions to meet these targets;

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	- An electronic Green Public Procurement (eGPP) Support Tool that offers public authorities an easy way to collect green specifications that can inform the tender preparation process; - A Life Cycle Cost (LCC) Calculating Tool, which attributes an economic value to products and services relevant to the circular economy in the public sector. The platform supports public authorities in planning and managing the green public procurement process, and in publishing and awarding calls for tenders according to the rules of each country. SMEs can also search for tenders and insert their green products and services into the eGPP platform. GRASPINNO also launched 7 "living labs" in 6 countries to train around 60 public institutions, 20 SMEs and business support organisations on green public procurement and energy management. It is noteworthy that GRASPINNO'S methodology is replicable to other kinds of buildings, and not only public ones.
Constraints	Cooperation of several stakeholders coming both form the private and public sector.

BEST PRACTICE NO 2	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	GPP4Growth- Green public procurement for resource-efficient regional growth
Best Practice Type	☐ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector ☐ Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	2017-2021

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Financial Sources	Interreg Europe
Name of promoter organization	University of Patras, Greece
Countries/ Regions (if applicable) in the initiative	9 participating countries: - Greece - Spain - Malta - Bulgaria - Portugal - Belgium - Ireland - Poland - Latvia
Contact details	Christos Bouras 302 610 996 951 Send me an email
URL of the practice	https://www.interregeurope.eu/gpp4growth/
Best Practice Description	GPP4GROWTH aims to address the challenges and exploit the opportunities related to the adoption of the EU public procurement system. GPP4Growth aims to support public authorities to seize new opportunities for using their purchase power to stimulate eco-innovation, resource efficiency and green growth, mostly by using new award criteria in calls and tenders that pay particular attention to environmental considerations. More specifically the project aims to: - Increase the capacity of regional administrations to effectively implement resource efficiency policies, applying green public procurement. - Improve the implementation of national/regional resource efficiency policies, providing incentives to businesses to integrate environmental factors and costs when producing goods and/or providing supplies, services and works. - Unlock regional/national investments on green public procurement to promote the development of new green products and services.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	- Improve regional actors' readiness and create knowledge awareness on the influence of green public procurement on the adoption of sustainable consumption and production patterns by businesses operating in the region.
Best Practice Methodology	Main activities and outputs: - Analysis of the factors that influence businesses to participate in green tenders and contracts - Evaluation of existing regional and national policies that promote eco-innovation and green growth through GPP. - Identification of good practices on GPP methods that led to the implementation of green contracts. - Development of a digital lifecycle costing (LCC) method and resources for all EU public administrations to allow harmonised application of LCC. - Promotion of interregional learning and capacity building through 3 interregional workshops, 2 existing experience visits, and policy learning events. - 14 policy briefs to transfer GPP4Growth lessons learnt to public authorities beyond the partnership. - Joint development of 9 regional action plans to improve the addressed policy instruments.
Critical Success Factors	- Expected changes: - Over 7% increase in the number of businesses in partners' regions, integrating environmental factors and costs when producing goods and/or providing supplies, services and works. - Increased capacity of 200 staff of public administrations to effectively implement resource efficiency policies, applying GPP. - 10 million Euros of investments unlocked to promote new green products and services development. - Increased knowledge awareness of over 1000 stakeholders on the influence of GPP on the adoption of sustainable consumption and production patterns by businesses.
Constraints	-

BEST PRACTICE NO 3	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	CircPro (Smart Circular Procurement)

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Type	■ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector ■ Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	2018-2023
Financial Sources	Interreg Europe
Name of promoter organization	Kouvola Innovation (lead partner, Finland)
Countries/ Regions (if applicable) in the initiative	Finland, Spain, Italy, Greece, Portugal, Bulgaria, Croatia, Lithuania, Norway, Estonia
Contact details	Kouvola Innovation Marina Sorokina +358206159176
URL of the practice	https://www.interregeurope.eu/circpro/
Best Practice Description	CircPro's main objective is to increase the implementation of circular procurement under the targeted policy instruments so that the circular economy principles and criteria are incorporated into them or taken into account as a horizontal principle. CircPro targets the circular procurement from different approaches that have different complexity: all of which facilitate closed loops, but where the focus shifts from better quality products to new and innovative products and new business concepts. Ultimate goal after the project is to get circular procurement as an established practice of the procurement procedures within the partnership regions' municipalities and towns.
Best Practice Methodology	Project covers two phases: Phase 1 from June 2018 to May 2021 and Phase 2 from June 2021 to May 2023. Phase 1 is devoted to inter-regional learning process – identifying, analyzing and exchanging knowledge and practices on circular procurement. Phase 2 is dedicated to implementing the Action Plans and evaluating their impact.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	Project Activities: - Interregional Partner Meetings and Study Visits - Regional Stakeholder Meetings - High-level Final Conference - 10 Regional Action Plans - Produce supporting material for the regional decision-makers, procurers and suppliers on circular procurement procedures and practices: - 10 Regional Guidebooks with region-specific overviews and 20 selected good practice cases among the partnership regions on circular procurements - 10 Regional Policy Briefs - Joint Method for involving companies in the circular procurement process
Critical Success Factors	- Increasing partner regions' know-how on circular procurement and recycled materials. - Identifying, assessing, exchanging and disseminating the existing national/regional initiatives, good practices, supporting measures, pilots and initiatives, main actors, organisations and networks that could boost the implementation of the circular procurement in the regions. - Identifying the procedural and legal barriers experienced by procurers and suppliers when implementing procurements with circular elements. - Providing a meeting place and enhancing dialogue between procurers and suppliers (both groups are represented in the partnership and stakeholders' groups).
Constraints	There are barriers that hinder the systematic implementation of the circular procurement: - General lack of knowledge and expertise related to circular procurement - Procedural and legal barriers - Procurers´ preconceptions about using, as well as lack of, recycled materials.

3.2.3. Ireland

BEST PRACTICE NO 1	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	**LIFELevels Project**

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Type	**X** National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	X Construction sector X Building Sector X Energy efficient sector X Waste Management Sector X Other (LCA):
Period during which the practice has been carried out (timeframe)	Nov 2019 – October 2022
Financial Sources	Life Programme of the European Union
Name of promoter organization	Coordinator: Spanish Green Building Council Irish Rep: Irish Green Building Council
Countries/ Regions (if applicable) in the initiative	Ireland, Croatia, Netherlands, Finland, Germany, France, Spain, Italy
Contact details	web–www.gbce.es; e-mail– info@gbce.es web – www.igbc.ie; e-mail – info@igbc.ie
URL of the practice	https://lifelevels.eu/
Best Practice Description	Tis to mainstream sustainable buildings in Europe through greater awareness and use of the specified indicators within the framework of Level(s), such are Life cycle assessment (LCA), Life cycle costing (LCC) and Indoor air quality (IAQ). Level(s) is a tool for designing and constructing sustainable buildings. The acquirement of goals such asre raising the awareness on the necessity of Level(s), aligning Green Public Procurement criteria with Level(s), building the capacities of stakeholders across the whole sector to apply the Level(s) indicators and aligning Europe's leading green building certification schemes with Level(s), will become the first step in creating the needed conditions which will enable European construction sector stakeholders to mainstream Level(s). In line with the Paris Agreement and the European Green Deal targeting climate neutrality, LIFE Level(s) project action regarding the public procurement practices looks to strengthen those processes by understanding the necessities of procurers, identifying the most suitable approaches, and committing public procurers toon using Level(s) indicators as means to integrate sustainable buildings principles Europe-wide.
Best Practice Methodology	Level(s) is a voluntary reporting framework to improve the sustainability of buildings. Using existing standards, Level(s) provides a common EU approach to the assessment of environmental performance in the built environment. It looks at the full lifecycle of buildings to address their huge potential for emissions reductions, efficient and circular resource

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	flows, and supporting the health and wellbeing of those they are built to serve. A survey was also carried out ***LIFE Level(s) survey on the state of public procurement in Europe***, to determine the level of practice in each country, followed by a number of workshops focused on several areas; stakeholder identification, a preview of main obstacles to the integration of Level(s) indicators into public procurement, and highlighting best practices already being implemented. This will lead towards the development of a **best practice guide in integrating Level(s) framework indicators** into national public procurement practices.
Critical Success Factors	• To mainstream sustainable buildings in Europe through greater awareness and use of the indicators within the Level(s) framework. • To work with stakeholders from the public, private and certification schemes to explore how the mentioned key Level(s) indicators can be implemented on a pan-European scale. • **Encourage the main actors in the industry and government** on the necessity of Level(s) and a **lifecycle approach framework** in addressing climate environmental risk. • Alignment of Europe's leading green building certification schemes with Level(s) would be possible through building the capacities of stakeholders across the whole sector, **integrating the public authorities in order to align Green Public Procurement (GPP) criteria with Level(s) and identifying necessary administrative and data requirements.**
Constraints	Current status: Lack of data and good practices along with financial challenges as the main barriers.

BEST PRACTICE NO 2	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	GPP4growth - Green Public Procurement to achieve Green Growth
Best Practice Type	X National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) X Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector X Energy efficient sector

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	X Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	Jan 2017-Dec 2021
Financial Sources	Interreg Europe €1,704,769.00
Name of promoter organization	University of Patras - Greece
Countries/ Regions (if applicable) in the initiative	Ireland, Greece, Italy, Poland, Belgium, Spain, Latvia, Bulgaria, Malta
Contact details	Bernie Kiely - Communications, Climate Action and Environment https://www.gov.ie/en/publication/efa12-green-public-procurement-gpp/
URL of the practice	https://www.interregeurope.eu/policylearning/good-practices/item/2965/ireland-s-green-government-initiative/
Best Practice Description	This project brings together partners from nine countries, to exchange experiences and practices, and improve their capacities on implementing resource efficiency policies that promote eco-innovation and green growth through GPP. GPP4GROWTH aims to address the challenges and exploit the opportunities related to the adoption of the new EU public procurement system, effective since April 2016. Europe's public authorities consume 14% of the EU GDP on goods, services and works of a total estimated value of EUR 1.8 trillion annually. This purchasing power is now anticipated to promote environmentally friendly and resource–efficient goods and services.
Best Practice Methodology	The project aims to: ● Increase the capacity of regional administrations to effectively implement resource efficiency policies, applying green public procurement. ● Improve the implementation of national/regional resource efficiency policies, providing incentives to businesses to integrate environmental factors and costs when producing goods and/or providing supplies, services and works. ● Unlock regional/national investments on green public procurement to promote the development of new green products and services.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	● Improve regional actors' readiness and create knowledge awareness on the influence of green public procurement on the adoption of sustainable consumption and production patterns by businesses operating in the region.
Critical Success Factors	Border, Midland and western Regional Operational Programme 2014-1020 in Ireland aim at supporting sustainable and green development and resource efficient economy in the region. The relevant investment priorities are: 6e - Taking action to improve the urban environment, to revitalise cities, regenerate and decontaminate, reduce air pollution and promote noise reduction. 4c - Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings and in the housing sector. <u>Reasons for improvement</u> Improvements on the management of BMW ROP are envisaged through the more systematic use of GPP in tenders and contracts supported by the ROP, especially in relation to sustainable construction and renovation works of the urban environment, transport, housing and public buildings. This will be achieved through the improvement of bids' evaluation criteria and relative weightings, and processes that take into account life cycle cost efficiency. The establishment of a system of certification and eco-labelling as regards resource efficiency is also foreseen to enable the managing authority to integrate eco-labels as requirement for projects' approval.
Constraints	TBC

BEST PRACTICE NO 3	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	GreenStart
Best Practice Type	X National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) X Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector X Energy efficient sector X Waste Management Sector ☐ Other (please specify):

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Period during which the practice has been carried out (timeframe)	Oongoing
Financial Sources	Enterprise Ireland Grant
Name of promoter organization	Enterprise Ireland
Countries/ Regions (if applicable) in the initiative	Ireland
Contact details	green@enterprise-ireland.com
URL of the practice	https://www.enterprise-ireland.com/en/Productivity/Build-a-green-sustainable-Business/GreenStart/
Best Practice Description	The aim of the GreenStart assignment is to improve environmental performance through greater resource efficiency helping companies achieve competitive advantage and greater market share through enhanced credentials and cost savings. Projects may vary in scope from guidance with Environmental (/resource) management system to guidance with developing an Environmental Sustainable Strategy to Life Cycle or Circular Economy thinking. Companies can apply for a grant support towards the cost of hiring a Green consultant/trainer to undertake a short in-company assignment.
Best Practice Methodology	GreenStart is a training/advisory project of up to 7 days carried out by an external Green Service Provider directly with an eligible company. The Service Provider provides training, advice and guidance to the company green project team on one or more of the following activities: 4.1 Environmental Management System 4.2 Energy Management System 4.3 Water Stewardship 4.4 Product Environmental Footprinting and Organisation Environmental Footprinting 4.5 Corporate Sustainable Strategy 4.6 Circular Economy thinking **4.7 Green Procurement/Tenders** 4.8 Climate Adaptation 4.9 Sustainable Packaging 4.10 Sustainable Logistics 4.11 Ecodesign 4.12 Communications 4.13 Employee & Customer Engagement 4.14 Sustainability Benchmarking
Critical Success Factors	
Constraints	

BEST PRACTICE NO 4	
Elements to be answered	**Answers/ Brief Explanation**

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Title	Office of Government Procurement Commercial Skills Academy.
Best Practice Type	☐ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) X Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	X Construction sector X Building Sector X Energy efficient sector X Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	Established in 2019, with training to commence in 2021
Financial Sources	Government programme
Name of promoter organization	Office of Government Procurement
Countries/ Regions (if applicable) in the initiative	Ireland
Contact details	csacademy@ogp.gov.ie
URL of the practice	OGP Training
Best Practice Description	The training programme is the latest of a range of measures that government is introducing to support the work of the public service in delivering publicly funded projects. The aim of the Academy is to provide public servants an understanding of key issues, commercial skills, and best practice approaches for effective project delivery throughout the lifecycle of the project.
Best Practice Methodology	The National Development Plan 2018 – 2027 sets out the significant level of investment, almost €116 billion, which will underpin the National Planning Framework and drive its implementation over the coming years. Approximately 80% of this investment will be invested in works projects/delivered through the Capital Works Management Framework. Accordingly, the initial focus of the Commercial Skills Academy is to provide the necessary commercial skills training pertaining to the planning, procurement and management of public works projects. The Commercial Skills Academy, with input from Construction Policy and staff across the Public Service, have developed a suite of Training suitable for staff involved at all levels. The Training is organised on a Tiered system, from Foundation level to Experienced. 1. Tier Zero: Introduction to Public Procurement 2. Tier 1: Practitioner Training, Commercial Skills for Public Capital Works Projects 3. Tier 2: Masterclasses 4. Tier 3: Conference
Critical Success Factors	The Commercial Skills Academy will drive the successful delivery of the National Development Plan & Project Ireland 2040. The training will assist in raising standards across the public sector in

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	the delivery of public assets and will support the Programme for Government commitment of transforming its approach to infrastructure development.
Constraints	

BEST PRACTICE NO5	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Installation of solar photovoltaic panels and associated works in public buildings in Co. Tipperary
Best Practice Type	X National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector X Building Sector X Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	2014
Financial Sources	50% BEC Grant Funding
Name of promoter organization	Tipperary County Council
Countries/ Regions (if applicable) in the initiative	Tipperary
Contact details	Contact: Paul Kenny, Chief Executive, Tipperary Energy Agency, email: pkenny@tea.ie
URL of the practice	Case Study Tipperary
Best Practice Description	Prior to 2014 Tipperary Energy Agency (TEA) had successfully improved the energy efficiency of all public buildings in Co. Tipperary on behalf of Tipperary Local Authorities. To take energy efficiency upgrades a step further, they launched a restricted procurement procedure for photovoltaic (PV) solar panels for up to 12 public buildings in Co. Tipperary. TEA carried out market research to investigate if there were suppliers on the market who could install PV panels and **in 2014 they published a works contract to procure them.**
Best Practice Methodology	TEA recognised that without making significant changes to the trading structure and introducing a renewable energy feed in tariff, it would not be economically viable to export renewable electricity from its buildings. Therefore, it was deemed appropriate that an installation, at its maximum output, would meet the minimum day time energy consumption of the building, without any excess

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	energy consumption being produced. In Ireland it is currently not economically viable to feed this excess back into the grid. To fulfil the monitoring and verification requirements, each PV system was required to have a display on the inverter (located on the side of each building) demonstrating the minimum kWh being generated. In addition to this, a public display was included as part of the project to increase the educational value of the project with a display of real time production, cumulative total kWh, annual cost and co2 impact of the panels. For larger installations a data log was also required. The energy requirements of each building were defined. Bidders were required to maximise energy generation and efficiency and calculate this based on their site visit. The minimum efficiency specifications were developed but this did not determine the actual efficiency as the award criteria encouraged bidders to offer the highest efficiency PV solar panels possible. The inverters were required to have a number of minimum specifications. The PV modules were required to be of the mono or poly-crystalline type and comply with a number of criteria. The contract was awarded to the most economically advantageous offer. The price offer was calculated based on a number of aspects for each individual location. The award criteria for this procurement procedure were then divided- 75% for the Overall Capital Cost per kWh, & 25% for the electricity produced. A 25% award criteria allotted to the electricity produced prevented bidders from only specifying projects for the larger buildings and ensured that the efficient use of the roof spaces was maximised.
Critical Success Factors	This procurement is the largest project for PV solar panels in Ireland to date and has increased Ireland's total PV capacity by 44%. Additionally, this procurement was used as an example to roll out a similar project in Dublin, Ireland as part of the SMART Cities project. This investment in renewable energy results in average savings of 11% on electricity costs for the buildings in question in Tipperary County Council. The total value of this procurement was €325,000. The use of PV solar panels instead of traditional non-renewable energy sources meant that this project will offset a total of 91 tonnes of CO^2 emissions. It also will have a longer lasting impact as it will demonstrate to the wider public and private sector how PV is now a cost effective option in the Irish climate.
Constraints	Tipperary Energy Agency recognised from their market research that the market for PV solar panels in Ireland is still quite immature in comparison to other European countries. Many of the companies' who were in a position to supply PV solar panels, were not familiar with the process of applying to a public tender and many of the companies that were familiar with public tendering did not have the relevant expertise in PV solar panels to submit an offer.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

BEST PRACTICE NO 6	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Procurement of wooden furniture by the Office of Public Works
Best Practice Type	X National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	X Construction sector ☐ Building Sector ☐ Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	2007-2010
Financial Sources	
Name of promoter organization	Office of Public Works (OPW)
Countries/ Regions (if applicable) in the initiative	Ireland
Contact details	Robert Guihen, Director of Furniture Services, The Office of Public Works, Tel: +353 46 942 6000
URL of the practice	Ireland Makes Sustainable Furniture Purchasing Work
Best Practice Description	The Irish Government's policy of decentralisation of Government Departments has led to the construction and fitting-out of several new offices outside of Dublin. For this reason, public sector procurement of furniture has significantly increased in recent years. Such procurement is largely the responsibility of the Furniture Division of the Office of Public Works (OPW), which has concluded approximately 200 contracts in the years 2007-2010. The value of these contracts is up to 10 million Euros a year. The OPW has been working to increase the sustainability of its furniture and other purchases over several years. Since 2003 tendering processes have included the possibility of additional points for contractors who can demonstrate that their goods and processes are environmentally preferable.
Best Practice Methodology	Criteria used: Technical specifications: Baseboard: Chipboard used must be Furniture E1 Grade. Glues and resins used must give rise to low formaldehyde emissions only, and must be consistent with emission class E1, as per European Norm BS EN 312:2003 or similar standard. Finishes: Veneers must have been manufactured without the use of biocides or emissions of biocides to waters. All panels are to be balanced with approved backing veneer. All edge lippings must be

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	2.5mm minimum solid wood lippings. Lacquers and Varnishes: Acid-curing lacquers are to be avoided, unless they are low volatile organic compound (VOC) and low formaldehyde emitting. UV curing lacquers and water-based lacquers are to be used where possible. All finishes must be in accordance with FIRA Standard 6250, or equivalent. Adhesives: Glues must have low VOC content (approximately 10% or less); must not give rise to formaldehyde emissions. In addition, contractors are required to demonstrate their compliance with the OPW's timber sustainability requirements. All wood used must come from legal and sustainable sources. Contractors must avoid sourcing illegally logged timber in accordance with the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT). Endangered species covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) must not be used. Contractors are required to demonstrate their compliance with these timber sustainability requirements. Award criteria: A number of points are awarded under the general heading of 'Sustainability', with the supplier invited to indicate the precise steps they will take to reduce the environmental impact associated with delivery of the requirements. Contract Performance Clauses: Contractors must employ good environmental practices on site with regard to waste reduction, waste recovery, minimisation of packaging, use of recoverable packaging materials, control of environmental emissions, and the efficient use of materials and transport. Contractors must also take adequate measures to limit occupational exposure to hazardous substances.
Critical Success Factors	The Furniture Division has experienced no increase in costs as a result of their GPP policies. Overall, suppliers themselves have saved money through enhancing the environmental profile of their products and activities, and some of these savings have been passed on to the buyers. Overall, it is felt that suppliers have reacted well to the use of a "carrot rather than stick" approach, where specific proposals for ways in which the environmental impact of furniture supply can be reduced have been encouraged progressively, rather than restrictive or difficult-to-comply-with specifications being adopted without consultation. The inclusion of sustainability considerations in the tender process has lead to a number of improved environmental practices amongst suppliers – some of which now extend beyond the specific contracts awarded. Lesson learned: Like the other GPP elements of the Furniture Division's procurement practices, requirements with respect to legal and sustainable timber are constantly evolving. In 2003, additional points could be allocated to suppliers using FSC or equivalent certification. Today, the OPW accepts several of the

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	existing commercial certification systems for verification purposes – namely: CSA; FSC; PEFC; and SFI. Other sources and forms of proof and verification may also be submitted. Such sources or forms of verification should take the form of "verification of source" under EU public procurement rules and include an appropriate chain of custody standard; the requirements for the protection of endangered species; and independent assurances of sustainable forestry practices.
Constraints	

BEST PRACTICE NO 7	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Design, Awareness, Research & Technology (DART) in school design
Best Practice Type	X National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	X-Construction sector X Building Sector X Energy efficient sector ☐ Waste Management Sector ☐ Other (please specify):
Period during which the practice has been carried out (timeframe)	DART is **ongoing** since its conception in 1997
Financial Sources	
Name of promoter organization	Department of Education & Skills
Countries/ Regions (if applicable) in the initiative	Ireland
Contact details	Phone: 057- 9324300 (Department of Education planning and building unit)
URL of the practice	-https://passivehouseplus.ie/articles/case-studies/work-of-dart -https://www.education.ie/en/School-Design/
Best Practice Description	The energy policy in school design of the Department of Education and Skills has evolved since conception in 1997, through a well-defined research and demonstration programme with currently 39 different research strands. The Department's programme is referred to as Design, Awareness, Research & Technology (DART) in school design. As part of its ongoing research, the Department has constructed schools to "passive school" energy efficiency standards. For existing schools, the Department has also run a devolved attic and cavity wall insulation programme and a water conservation programme.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Best Practice Methodology	Schools present limitations from the point of view of energy conservation. They have short operational hours and a lack of building management specialists on site. Energy conservation is simply not a core function. This means that systems must be robust, reliable and relatively simple and automated. The Planning & Building Unit have taken a holistic approach and have developed their technical guidance on energy efficiency in school designs as an integral part of their suite of Technical Guidance Documents, which can be seen at www.education.ie These guidelines are developed not just for the building services engineers but also the other members of the design team. A complete design team approach from project conception is encouraged. There is particular emphasis on the elimination of over-design, improved thermal envelopes and improved passive solar design, natural ventilation and day lighting. The Planning and Building Unit has developed a primary school design for new 8, 12 & 16 classroom schools which is generic in nature and can be repeated on various sites and in different locations. This is called the Generic Repeat Design (GRD) project and the first of these schools was completed in 2005. The GRD design was developed in compliance with the Department of Education & Science's own technical guidance documents. The objective of the generic repeat design process was to develop an off the shelf solution to pre-tender stage for a template primary school design package that can be given to design teams. The design team then deals with site specific issues, the planning process and tendering and construction. A key advantage of this is savings in significant design time and costs as the generic design emphasis means that new permanent primary school accommodation can be provided in approximately fifteen months from need identification, site procurement and design team appointment.
Critical Success Factors	As a result of pursuing this policy, schools built in accordance with the Department's own technical guidance documents are capable of performing twice as well as best international practice. The first project to feature the comprehensive DART process was Gaelscoil an Eiscir Riada in 2004. This school, developed by the Planning & Building Unit's professional staff, is located on a green field site on the Portarlington road in Tullamore, County Offaly. The objectives for the 8-classroom school building were to provide a quality educational facility appropriate to its users' requirements and to encompass low energy design. Feedback had to be provided to the Planning and Building Unit technical staff on the operation of the school and its systems. The building needed to be a life learning tool, enabling it to become an active learning resource for energy conservation and sustainability for the pupils and teachers. One of the main design aims was to create a building with energy consumption approaching 20% of the energy used by a similar

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	school built to current good practice standards, which would generate zero co2 in the operation of its services. Indications were that this was not only achieved but surpassed. The Planning and Building Unit then developed a primary school design for new 8, 12 & 16 classroom schools which is generic in nature and can be repeated on various sites and in different locations. This is called the Generic Repeat Design (GRD) project and the first of these schools was completed in 2005.
Constraints	

3.2.4. Slovenia

BEST PRACTICE NO 1	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Care4climate Full name of the project: Boosting greenhouse gas emissions reduction by 2020 with a view to 2030 – promoting sustainable transport, energy efficiency, renewable energies and sustainable, climate protecting land use in the transition to low carbon society
Best Practice Type	☐ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☒ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☒ Construction sector ☒ Building Sector ☒ Energy efficient sector ☐ Waste Management Sector ☒ Other (please specify):
Period during which the practice has been carried out (timeframe)	Project duration 1. 1. 2019–31. 12. 2026

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Financial Sources	Life project (EU funding) and Slovenian Ministry of the Environment and Spatial Planning
Name of promoter organization	Care4Climate - Slovenian Ministry of the Environment and Spatial Planning
Countries / Regions (if applicable) in the initiative	Slovenia
Contact details	life-klima.mop@gov.si
URL of the practice	https://www.care4climate.si/en/contact
Best Practice Description	In the frame of LIFE IP CARE4CLIMATE project, the project partners will address the gaps in the implementation of measures for greenhouse gas emissions reduction in sectors with the highest potential for the reduction of emissions (e.g. energy use in buildings) and in sectors where emissions are still not being reduced. The project will contribute to the implementation of the complementary activities. Project activity in the field of GPP 1. Capacity building for public procurers on GPP 2. Reinforcement of a helpdesk for public procurers and other stakeholders on environmental aspects in GPP 3. Analysis of effects of green public procurement 4. Analysis of the product market for green public procurement and the development of databases 5. Promotion of green public procurement 6. Preparation of model (demonstration) tender documentation for different product groups https://www.care4climate.si/en/project/project-areas-and-activities/green-public-procurement Project objectives: • The project is based on the connections between sustainable mobility, energy efficiency, sustainable land use and practices for the transition to a low-carbon economy. It strives to help solve one of the most pressing issues of modern societies — the climate crisis. • upgrading the monitoring system of the OP GHG implementation, especially in the following segments: establishing monitoring of CO2

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	sinks, establishing the systematic monitoring of effects achieved though information activities, awareness-raising and training courses, and establishing monitoring of the effects of green public procurement;
Best Practice Methodology	Lectures, publications, they also offer help with GPP. Past lectures https://www.care4climate.si/sl/novice/zeleno-javno-narocanje: • Webinar for contracting authorities: Green public procurement of office paper and hygienic paper products • Online education on green public procurement - General module for public procurement I. • Webinar for contracting authorities on the topic of green public procurement and energy labels • Webinar for bidders on the topic of green public procurement and energy labels • Green public procurement opportunities for tenderers from the field of construction. PP in the field of green public procurement: • The Ministry of the Environment and Spatial Planning of the Republic of Slovenia has published a Public Procurement for the analysis of the effects of green public procurement in the Republic of Slovenia with a preliminary pilot analysis. • The Ministry of the Environment and Spatial Planning of the Republic of Slovenia has published a public procurement for the preparation of an analysis of environmental statements on the market of construction products in the Republic of Slovenia Publication: • Analysis of the market of providers and cost benefits of green public procurement in the republic of Slovenia (in Slovene) https://www.care4climate.si/_files/1332/Analiza_trga_in_stroskovnih_koristi_21.12.2020_final.pdf They offer a support in the field of Green public procurement zejn.mop@gov.si
Critical Success Factors	They are organizing different lectures that are useful for all sectors.
Constraints	The project is still on going.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

BEST PRACTICE NO 2	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	GPP 2020 project
Best Practice Type	☒ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☐ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector ☐ Energy efficient sector ☐ Waste Management Sector ☒ Other (please specify): general
Period during which the practice has been carried out (timeframe)	2013-2016
Financial Sources	Intelligent Energy Europe Programme of the European Union
Name of promoter organization	ICLEI – Local Governments for Sustainability
Countries/ Regions (if applicable) in the initiative	Germany, Austria, Croatia, Italy, Netherlands, Portugal, Slovenia, Spain and Sweden.
Contact details	Philipp Tepper, Project Coordinator ICLEI – Local Governments for Sustainability European Secretariat Leopoldring 3 D-79098 Freiburg Germany Phone: +49 761 368 920 Fax: +49 761 368 92 49 Email: info@gpp2020.eu
URL of the practice	https://gpp2020.eu/home/
Best Practice Description	GPP 2020 aims to mainstream low-carbon procurement across Europe through the following activities: • Project partners will implement more than 100 low-carbon tenders to achieve a significant amount of CO_2 emission reductions immediately.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	• Training and networking events - both for procurers and procurement training providers in partner countries. • Enhancing permanent GPP support structures such as helpdesks. For each tender that was published within the GPP 2020 project, savings were measured in the form of CO2e and tonnes of oil equivalent (t_{oe}).
Best Practice Methodology	The GPP 2020 approach was to take energy and CO_2 reductions into account right from the start of the procurement process. An initial calculation showed decision makers and procurers the level of savings that could be achieved with a low carbon tender. • Replicable tender models detailing what procurement approaches were used and how savings were calculated. • A series of practical fact sheets giving hints and tips on implementing low carbon tenders within selected sectors. • Comprehensive tutorial videos providing step by step guidance on how to use the GPP 2020 calculators. • Training materials both for procurers and trainers in eight languages. They organized events and trainings. GPP 2020 offered two forms of training activity: • Direct training for procurers on low-carbon procurement • Train-the-trainer seminars for procurement training providers to assist them in integrating low-carbon procurement into regular procurement training programmes. Training material https://gpp2020.eu/events-and-training/training-materials/. The materials are available in 9 different languages. On their website you can find a short summary of their previous trainings. https://gpp2020.eu/events-and-training/training-seminars/ They organized GPP web series (how to best do low carbon procurement). https://gpp2020.eu/events-and-training/webinar-series/. There are also presentations available. A list of previous EU events is published with the short descriptions https://gpp2020.eu/events-and-training/european-events/previous-european-events/.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	And a list of previous national events with summaries is published. https://gpp2020.eu/events-and-training/national-events/past-events/. Best practice examples of low carbon tenders https://gpp2020.eu/low-carbon-tenders/
Critical Success Factors	More than 100 low-carbon tenders were implemented by over 40 public authorities in eight countries, resulting in calculated savings of over 900,000 tonnes CO2e and 140,000 toe (tonnes of oil equivalent).
Constraints	Not actual and up-date, referring to not valid GPP legislation. But the concept can be used and update and presented in a bit more user friendly web site and teaching/ learning materials.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

BEST PRACTICE NO 3	
Elements to be answered	**Answers/ Brief Explanation**
Best Practice Title	Special and useful web site for PP portal by Ministry of public administration
Best Practice Type	☐ National programs, initiatives and tools to promote GPP (preferably associated with GPP in the construction/ building sector) ☒ Relative to GPP training and capacity building projects
Specify the sector where the initiative is applied	☐ Construction sector ☐ Building Sector ☐ Energy efficient sector ☐ Waste Management Sector ☒ Other (please specify): all
Period during which the practice has been carried out (timeframe)	
Financial Sources	Ministry of public administration
Name of promoter organization	Ministry of public administration
Countries/ Regions (if applicable) in the initiative	Slovenia
Contact details	ekc@gov.si https://www.gov.si/drzavni-organi/ministrstva/ministrstvo-za-javno-upravo/ What is the address of the people or the project to contact if you want more information on the best practice?
URL of the practice	Instructions for the preparation and implementation of public procurement procedures https://ejn.gov.si/egradiva/#state=2 Lectures https://ejn.gov.si/direktorat/izobrazevanja.html
Best Practice Description	Proactive web - site approach
Best Practice Methodology	Lectures: • Presentation of Guidelines for public procurement of works with examples of practice • Free presentations of the new Public Procurement Act in Slovenia • Presentation of the Guidelines for Public Procurement of Architectural and Engineering Services

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

	• Presentation of the Single European Procurement Document • Presentation of the amendment to the Legal Protection in Public Procurement Procedures Act • Presentation of the Green Public Procurement Regulation • Seminar on improving public procurement practice • presentation of essential substantive and technical innovations of the public procurement system • Online workshop - development of a competency model and training program for experts in the field of public procurement Useful information for public procurement which are in accordance with the Slovenian legislation https://ejn.gov.si/sistem/usmeritve-in-navodila/koristne-informacije.html All useful information about GPP in one place https://ejn.gov.si/sistem/zeleno-jn.html • Decree on green public procurement • The most frequently asked questions and answers regarding the Decree on green public procurement are available • Examples of environmental requirements and criteria for each subject are published and accessible by clicking on the individual subject of green public procurement • Single point of contact for providing professional assistance zejn.mop@gov.si • Useful information and manuals on green public procurement from the European Commission • Archive of the Ministry's views on green public procurement, based on prior arrangements • Promoting eco-innovation • Links to related sites
Critical Success Factors	Lectures are free and everyone can cooperate. The lectures have general content, so they are good for every sector.
Constraints	In the instructions for the preparation and implementation of public procurement procedures there is missing information (data) about green public procurement.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4. GUPP Training needs analysis

4.1. Content/ Aim

The aim of this task, which consisted of conducting field research activities, was to investigate skills gaps and training needs for ensuring efficient GPP application in construction works. This purpose was achieved through:

- Focus group(s)/ interviews with minimum 10 participants per country
- Online survey (at least 15 questionnaires per country)

In particular:

Target groups for field research activities included:

Online survey respondents derived from the training/educational sector. In particular, training/ VET/ Adult learning providers/ professionals.

Focus group(s)/ interview participants derived from the public sector, construction sector, the industry, including contracting authorities and contractors of public and private works, on the condition that they are relevant to procurement procedures. In particular:

- ✓ Public Procurement (PP) workforce, PP professionals, officials and staff of public authorities/ contracting authorities involved in PP processes.
- ✓ Key players & stakeholders in the construction industry involved in PP processes, including contractors of public and private works, managers, policy makers, procurement practitioners, contract managers and/or contract review committee members.

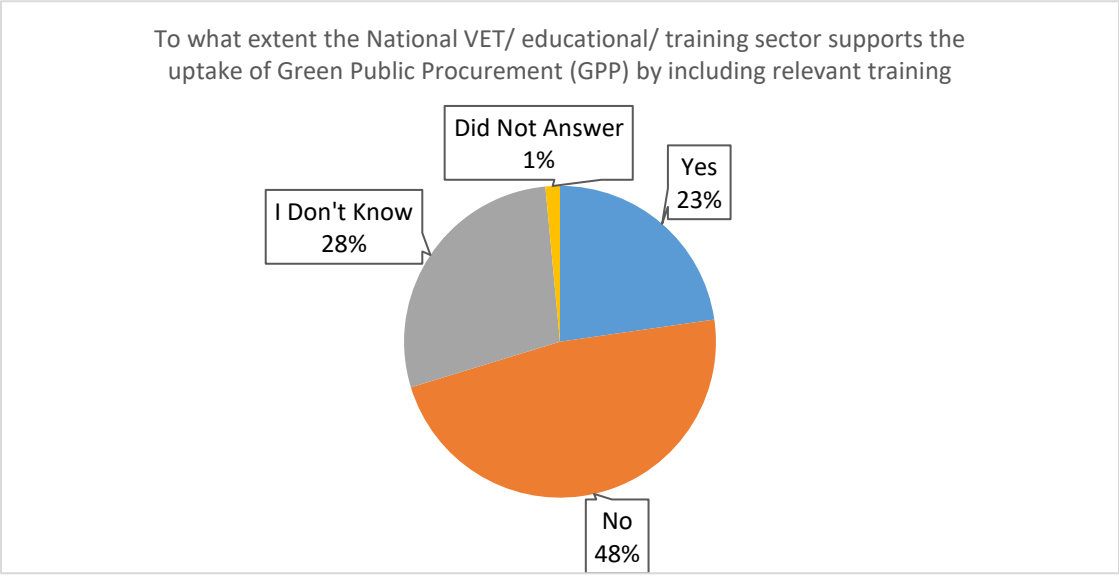
Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.2. Online Survey

4.2.1. Key conclusions reached on transnational level

The majority of respondents transitionally (48%) indicated that the VET/ educational/ training sector does not support the uptake of Green Public Procurement (GPP) by including relevant training. Only few of them (23%) claim that it does support training.



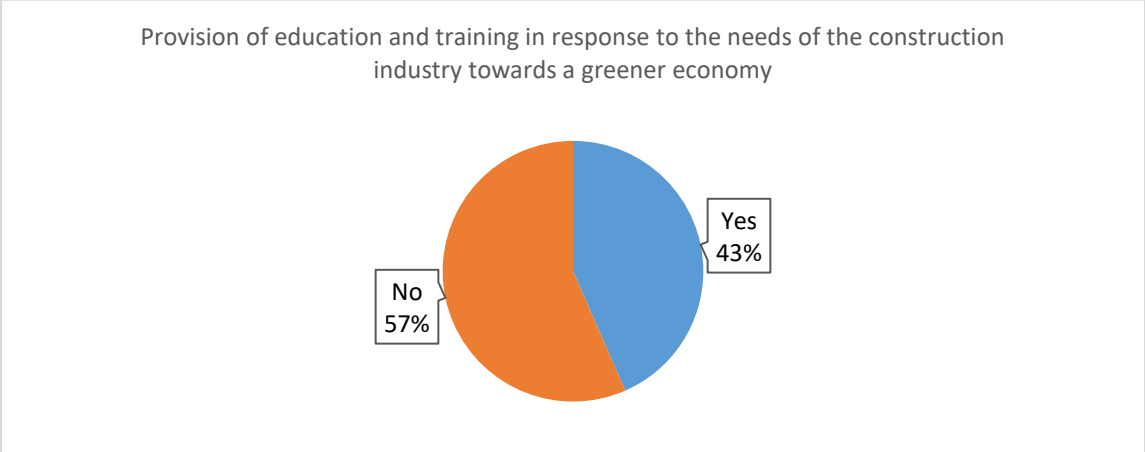
This status is expressed by all partner countries, showing a **rather limited readiness of the VET/ educational/ training sector to accommodate current needs of GPP training**. This inadequacy is more significant in Greece, where the respective responses of negative answers reached 80%. The only country that indicates a rather different status is Ireland, where the percentage of positive answers is higher than negative ones (33% compared to 19% respectively). Still, the majority of Irish respondents indicated they don't know (48%).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

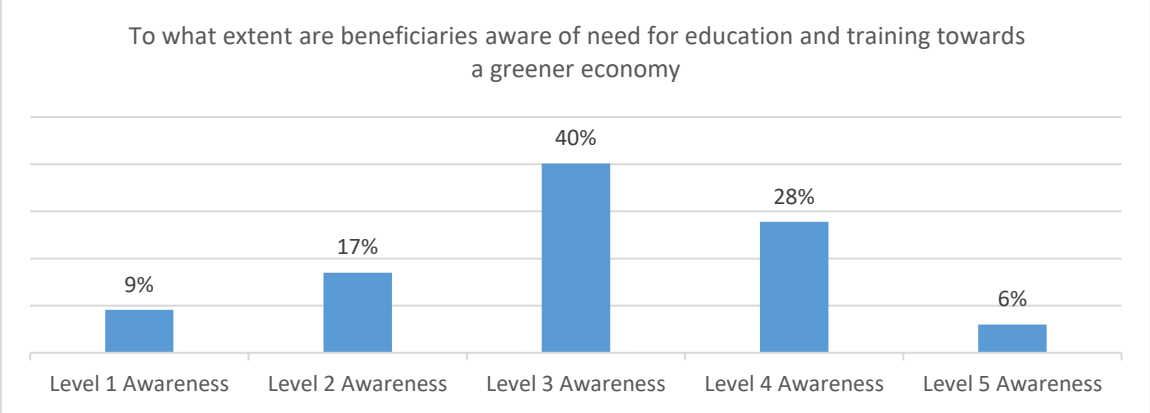
The majority of representatives of training related organisations (57%) indicated that they do not provide training in response to the needs of the construction industry towards a greener economy. Only (43%) of respondents declared that they provide such kind of training.

This status is reflected by all countries, except Ireland, where the majority of participants (61,9%)



indicate that their training settings provide training relative to green skills needs in the construction industry.

The majority of respondents (40%) declared that beneficiaries are in a medium level of awareness of need for education and training towards a greener economy.

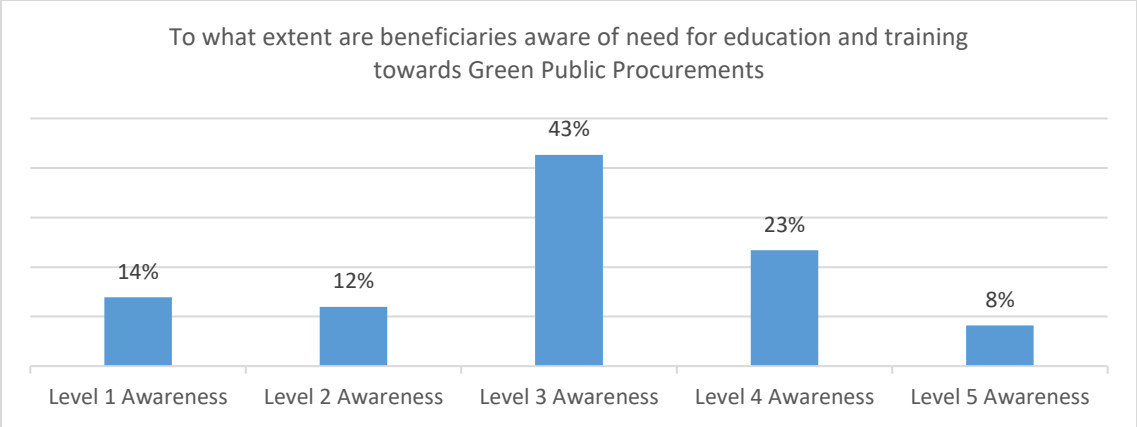


On the average, the same status applies in all countries. Medium level of awareness is predominant in all countries, except for Slovenia where the predominant level of awareness is a bit higher, in level 4 (53% of respondents indicated level 4 of awareness).

Co-funded by the Erasmus+ Programme of the European Union

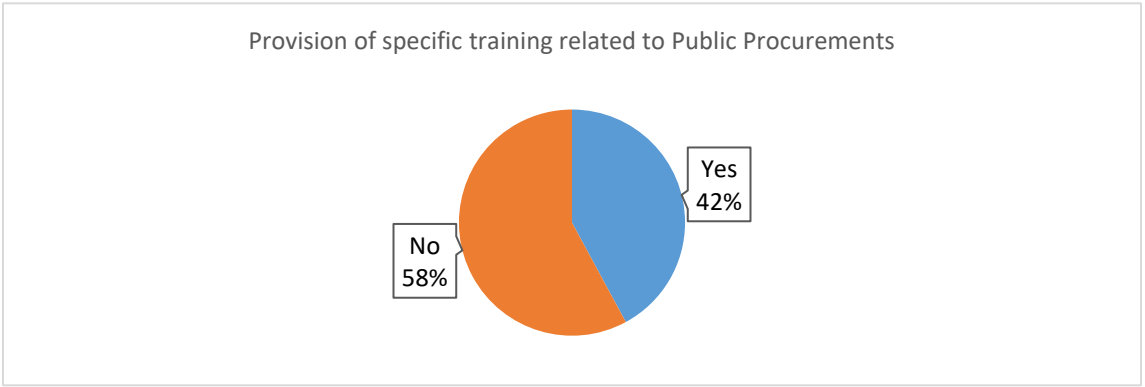
This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Within a similar ground, the majority of respondents (43%) declared that beneficiaries are in a medium level of awareness of need for education and training towards Green Public Procurements.



This reflection is similar to the identified in the previous area. With that said, on the average, medium level of awareness is reflected in all countries, except for Slovenia where the predominant level of awareness is a bit higher, in level 4 (41% of respondents indicated level 4 of awareness).

The majority of respondents (58%) declared that there is not provided training related to Public Procurements.

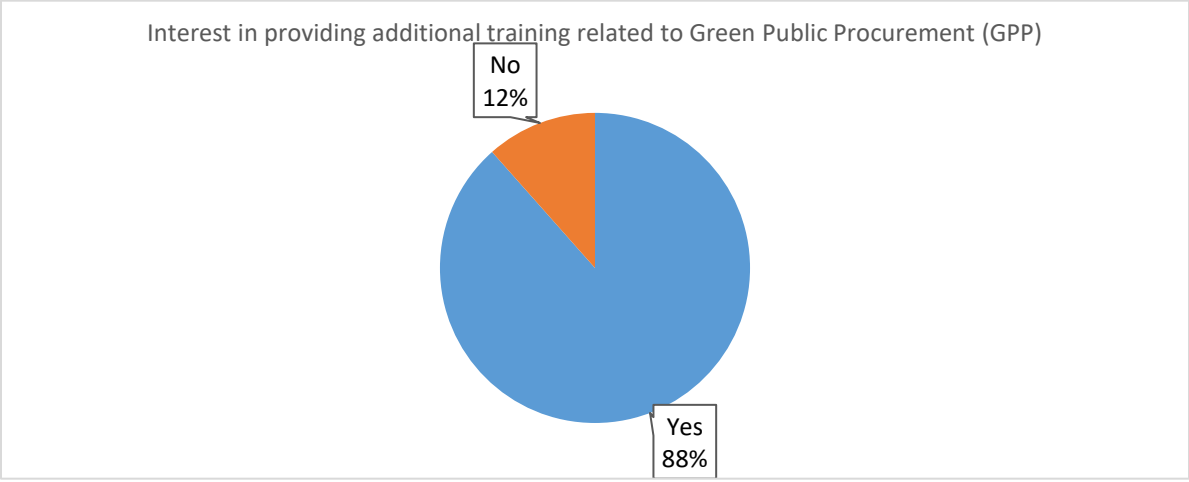


Lack of provision of such training is strongly highlighted from partner countries, apart from France where the majority of respondents (86%) declared that there is provided relevant training.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

The strong interest in providing additional training related to Green Public Procurement (GPP) was clearly declared and highlighted by all partner countries (average 88%).



The main common challenges identified when designing a GPP training program into a module/course/curricula are as follows:

- Limited policies and GPP criteria established at national level
- Public awareness, funding, design to actual needs
- Training funding and financing such a training program
- Attract trainees
- Design near to the participant's profile
- Appropriate duration of the program, relevant with the level of skills and competences provided
- Relevant experience of training providers
- Lack of experts/ trainers in knowledge about GPP
- The course needs to be constantly up to date with legislation and technology
- Content of training should include topics related to: Use of Renewable Energy Sources, Bioclimatic design, Use of BMS, developing a GPP policy, life-cycle costing 3. joint procurement, GPP and European Ecolabel.
- Motivation in the take up of green criteria and respectively to training in the GPP field. Green criteria in procurements are often seen as additional cost.
- Lack of clarity of a GPP program, due to the fact that there is lack of specifications on what GPP consists of.

The following challenges were identified and highlighted, upon integrating and providing a GPP training program into a course/curricula:

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Flexibility according to the profile and special needs of participants
- To adapt the program to the specific needs of construction companies and labour market needs
- Transfer of knowledge on the regulatory and policy framework and raise awareness on the topic, as well as in including waste management aspects and product life cycle aspects
- The cost of training should be considered
- Attract sponsors, inform members of the public
- Organizational considerations
- The course should provide both theoretical and practical knowledge
- Lack of competent teaching staff, lack of infrastructure and financial resources.
- The GPP approach is very new in Greece. There is no experience and no guaranteed outcome. It is important to have feedback, check the outcomes and be able to readapt to the needs
- The displacement of teachers at tertiary level

The following challenges were identified and highlighted, upon delivering a GPP training program:

- Collaborate with well experienced and communicative trainers
- Case studies and best practices on effective implementation of GPP could be integrated in the program as a form of practical knowledge transfer
- Monitoring the implementation
- Be effective and responding to labour market demands
- Persuade construction companies about the importance of a GPP program
- Raise awareness of human resources managers
- Increase familiarity and awareness in GPP
- Attract trainees

4.3. Focus group(s)/ interviews

4.3.1. Key areas of investigation in National context

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.1.1. Political/ institutional/ organisational challenges and barriers involved in the up-take of GPP in construction/ building works and how do companies/ organizations deal with them

France

The participants generally believe, there is a will from the operators and decision makers to introduce green clauses in Public Procurement and upgrade skills on the fields related to GPP. They underline a number of problems in this procedure.

The departments of contracting authority communities should, on one hand, work on the definition and moderation of such criteria and, on the other hand, be trained or supported in this process.

There is a lack of regulations in the renovation of existing buildings and they are not updated according to sustainable needs and opportunities.

When it comes to the cost, they mention that today, public actors are more inclined to save than to achieve environmental performance. Price often blocks the environmental process while markets are open to discussion. Institutions should be encouraged to select environmental quality by agreeing to review the market criteria and make the cost criteria less restrictive.

It should help nurturing a culture and provide benchmarks that allow environmental impact to be taken into account as a criterion in its own right.

There is a concern not to impose criteria that would be perceived as distorting competition: imposing environmental criteria or standards (such as HQE) that are too demanding can raise concerns among potential service providers who see them as a filter to limit proposals.

There is also a real concern of being accused of favoritism. Thus, local communities are often confronted with the difficulty of finding the right balance between their ambitions to take the environment into account and compliance with the law. However, in the current political and regulatory context, it is still relevant for local authorities to increase the use of Green Public Procurement.

Participants observe a lack of political incentive because short-term benefits are difficult to perceive, while barriers, in terms of cost, are immediately felt. The environmental impact of a new building can be assessed several years after its delivery and there is a lack of information collection that could justify the choice a posteriori.

In the design phase of public procurement concerning renovation contracts, there are still many failures to take environmental criteria into account. Too often, a rigid application of the standard is observed, which can lead to aberrations (in terms of costs, real environmental efficiency etc.)

Greece

The main Political/ institutional/ organisational challenges/ barriers identified are:

- There is no proper cooperation between the competent bodies.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- The political decision to make the relevant commitments.
- The lack of information on the existing legal framework and tools of the GPP
- The lack of guidelines and legislation on how to include criteria and evaluation of bids in tenders for the award of contracts for the construction of new projects and the purchase of equipment (heating / cooling, computer equipment and consumables, lighting) for the company's office building, is a serious obstacle.
- Changing the culture and philosophy for GPP. It needs a period of time for the construction authorities and contractors to realize the needs and the way to deal with. Then the administration will implement the changes through the legislative framework and trainings.
- Discontinuity in government policy incurs a political cost, which must be borne. Lack of alignment of 'green' requirements with economic activity related to public procurement.
- It is very important to adopt in the study and construction of large technical projects the use of materials that will reduce environmental pollution and will serve the construction result and life of the project as well as the materials used so far.
- The knowledge of the subject and the procedures required as well as the lack of appropriate staff that would contribute to the organization of the whole process.
- The services of the Region and the Municipalities should be assisted with both human resources and know-how.
- Publicity and information about GPP, intended goal, process, etc.

- In Greece, there has to be a clear legislative framework, which will take into account the side of the contractors as well. There is very limited knowledge and expertise on GPP.
- Creation of a complete "package" of Standard Technical Specifications for the whole construction cycle regarding sustainable solutions of construction structures and urban applications, of national scope, especially for innovative products, taking into account, respectively Harmonized European Standards (CE marking) and procedures Of Buildings "(LEED, BREEAM, DGNB, HQE, etc.) - development of relevant national standards ELOT o Formal Procedures for Standardization of building materials and systems.
- Development of Certification Schemes of Professional Specialization and Skills for construction product craftsmen o Promoting the domestic industry of sustainable construction products and services as a factor of a European market leader and strengthening the collaborations of the relevant industries with the academic and research field, as well as with other bodies (business, economic / development, insurance, etc.)
- Strengthen vertical partnerships between manufacturing companies and their suppliers, builders, engineers and architects, etc.
- Utilization of all relevant European and international programs and actions offered (indicatively mentioned: Horizon, Interreg, Renovation Wave, New European Bauhaus, Digital Loggbook etc.).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Maximizing the utilization of domestic raw materials for the production of construction products
- Utilization of accredited laboratories to provide reliable measurements and test results.
- Utilization of new technologies and the digitization of constructions throughout the life of the projects (from the conception of the idea to their demolition / deconstruction).
- Creating incentives for all stakeholders to adopt a new approach and practice on the subject.
- Promotion of the completion and updating of the institutional and regulatory framework at all levels (spatial, urban, urban, building) as well as for specific categories related to the architectural heritage, vulnerable users, climate, the commitments of the country etc.

Ireland

Generally, amongst the interviewees there is a feeling that there is no high level push for GPP. At present it is voluntary. There is some legislation such as the Energy performance of buildings directive, but there is no coordination or stimuli at looking at the whole life cycle of a building until recently.

The supply market will not be ready to respond if public bodies are not asking for high levels of performance. However public bodies are reluctant to ask for high levels of performance and to apply green criteria if they think they are not going to get a good response in their tenders. Because it isn't mandatory across Europe, there is no high level push within Ireland, the supply market is not ready to meet the high environmental standards.

There is a lack of understanding and a reluctance at a high level to take a big step forward. Criteria should be developed at a national level taking into account life cycle assessment. The OGP should take charge of pushing forward these changes. Quicker implementation measures are needed.

There is national guidance in terms of procurement and capital works contracts, but often individual local authorities do it their own way and ignore the national guidance documents. Some buyers within the local authority sector are great with innovative procurement, but there is a general lack of training across the sector.

There is a consensus amongst participants that there is a lack of awareness around GPP, especially around cost. There is a tendency to look at upfront costs instead of the overall value and savings. There's a lack of understanding in GPP, which is seen as an extra as long as it is not mandatory.

Much research and case studies are needed to push GPP and education in GPP. There are no tools to reliably measure true energy and cost savings and inform stakeholders. Therefore, research is needed up front to rationalise each decision that is made. Statistics are needed in terms of KPIs pre and post tender to see if promised energy savings are being achieved.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Slovenia

The first issue that the participants raised is the financial challenge. Sustainable/green building projects are more expensive and complex. Big real estate markets may find specific green certificate as an attractive lifelong investment whereas smaller investors do not recognize those green building certificate of having any values for them. Contractors should be financially capable of implementing such environmentally friendly construction projects, as well as informed and trained how to execute such with construction investment. Therefore, apart from basic competence training and having prepared sample tender documentation for a green public procurement for a construction service, the financial support /incentive should be given to public investors or investors who build in more green technology, product in terms of LCC. Due to the arbitrary rule on the type of building material, the profession points out that in practice, the starting points of the regulation are often adjusted in favour of cheaper construction from conventional materials.

The second issue is the specification of GPP criteria. EC is developing the LEVELs system and national adaptation and testing in order to integrate them soon is a big challenge for Slovenia and all European states. However, there is the problem of sharing responsibilities when it comes to the development of these areas, as well as the lack of analytical and in - depth insight into performance and the effectiveness of the implementation of the GPP Regulation to date. The available data indicates that both, the complexity of the arrangement and the qualifications of the contracting authorities, are problematic and that more effort is needed to invest in a dialogue between contracting authorities and potential tenderers, which will enable the procurement of more advanced ones.

Other problems that exist are the weak staff capabilities in municipalities and authorities and the absence of a method for compliance control. It should be a priority to raise awareness and capacity building because it is assumed by the participants that the level of skills of the staff is low in Slovenia and also develop a compliance control methodology that can be implemented upon acquisition of use permit. Right now there is no control over the compliance with the Regulation. It would be also useful to determine minimum threshold level of GPP criteria and an obligatory uptake in a specific percentage of the criteria that the contractors are obligated to meet. However, the setback is that it may distort competition in the free market and favour only a particular technology or service provider/construction product over others.

With regard to the materials that should be promoted in the service of sustainability, the current GPP regulation does not address this issue in a satisfying manner because a specific material, wood, is favoured. Wood sector is a very strong lobby in Slovenia and due to political decisions has its own Directorate at the Ministry of Economic Development and Technology specialized into activities aimed at increasing the competitiveness of the wood industry. As for the other materials that fulfil the requirements of GPP, we see an urgent need to promote them as well, with the idea that Wood Industry Directorate should be broadened into Construction directorate, which would entail also other materials.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

The financial aspect is one. Often enough sustainable/green buildings projects are more expensive, more complex, and not so attractive for investors. In big real estate markets specific green certificate might differentiate the market and outline such building as more attractive lifelong investment, on the other hand, all other smaller investors do not recognize those green building certificate of having any values for them.

EC is developing now alternative, the LEVEL(s), but the process is going slowly, and even the concept of LEVEL(s) is changing, so current testing period of 1st LEVEL(s) version will not bring any valuable results, since there is already 2nd version of LEVEL(S) concept being prepared by EC. National adaptation and testing process is slow, how to make it faster and integrate LEVEL(S) in each country, is a huge European challenge.

On one hand we can include specific or enlarge GPP criteria in the PP process covering specific construction services, on the other hand, public stakeholders should jointly support this approach and follow it. GPP criteria lacks minimum threshold level specification and obligatory uptake in specific % of the criteria, however all the above may distort competition in the free market and favour only a particular technology or service provider/construction product.

Contractors should be both, financially capable of implementing such environmentally friendly construction projects, as well as informed and trained how to execute such with construction investment. Therefore, apart from basic competence training and having prepared sample tender documentation for a green public procurement for a construction service, the financial support /incentive should be given to public investors or investors who build in more green technology, product in terms of LCC. Due to the arbitrary rule on the type of building material, the profession points out that in practice, the starting points of the regulation are often adjusted in favour of cheaper construction from conventional materials.

Additionally, our question should be, whether we have enough competent and skilled staff to lead and carry out such projects. We assume the municipal (local community) level staff capacities are weak in Slovenia. Raising awareness and capacity building for the transition to a low-carbon society should be our task priority no.1.

The current GPP Regulation does not address sustainability aspects holistically. Because a specific material (wood) is favoured. Recommendations of the profession arising from the assessment are taken into account as much as possible for each project separately, so it would make sense to provide for a mandatory share of certain construction materials (wood) to be replaced by a primary obligation to meet the requirements of the recognized construction systems and sustainable construction certification.

The state should define in more detail in the Regulation the method of compliance control in the field of construction. There is currently no control over the implementation of the regulation, it could be improved, e.g. with a requirement to prove compliance with the requirements upon acquisition use permit. The state should consider the higher quality of goods and services. It should have detailed criteria for the quality of the goods and services to be ordered.

We face the problem of “sharing” responsibilities for the development of this areas, as well as the lack of analytical and in - depth insight into performance and the effectiveness of the

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

implementation of the GPP Regulation to date. The available data indicates that both, the complexity of the arrangement and the qualifications of the contracting authorities, are problematic and that more effort is needed to invest in a dialogue between contracting authorities and potential tenderers, which will enable the procurement of more advanced ones.

Wood sector is very strong lobby in Slovenia and due to political decisions has its own Directorate at the Ministry of Economic Development and Technology, specialized into activities aimed at increasing the competitiveness of the wood industry, providing an appropriate and stable business environment, establishing and strengthening forestry–wood chains, increasing the consumption and processing of wood into products with the highest possible added value, and promoting the use of wood and wood products. As for the other materials that fulfil the requirements of GPP, we see an urgent need to promote them as well, with the idea that Wood Industry Directorate should be broadened into Construction directorate, which would entail also other materials. Wood industry is very important for Slovenia, but we have other materials that can be utilised in GPP system as well. Ministry of Economic Development and Technology should promote them as well. Collar workers have no saying in this decision about new or broadened Directorate since these are completely different levels of decision-making process.

4.3.1.2. Technical challenges and barriers facing the take up of GPP in construction/ building works and how do companies/ organizations deal with them

France

The participants think it should be useful to develop these notions of culture and awareness in the general training in order to make the trainee go beyond the regulation and become proactive.

Access to public procurement is very difficult for SME in a context of normative evolution. These latter are feeling «alienated» from public procurement. Its "very restrictive" regulations and cumbersome response procedures require significant efforts from candidates without ensuring that they will win the contracts.

The legal aspect in the public procurement is an important barrier for the operational phase of the green process. Purchasers are equipped with numerous decision support and normative tools (for example, the Green Manual fostering the modernization of public procurement) but the regulatory texts and the standards change sharply, requiring regular updates.

A Simplified Public Procurement (SPP) which has been authorized since April 2014; though several SME are not aware of these systems and are still reluctant to respond to calls for tender and other adapted procedures launched by public buyers.

Another difficulty is related to the "weight" to be given to the different awarding criteria in the analysis of the contracts. Compliance with green procurement criteria often generates additional costs for the contractors. If price criteria prevail, it will be difficult to take environmental criteria into account. The weighting between technical and financial criteria must be balanced (avoid a cost criterion evaluated at 60%).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Greece

The main technical challenges/barriers identified are summarized as follows:

- An important technical issue is the definition of specific selection and award criteria and their evaluation and grading. The specification in the tender documents of specific technical solutions and specifications that offer additional environmental advantages, may lead to discrimination in favor of some candidate contractors / suppliers. (So far there is no relevant experience of managing competitions with similar criteria.)
- Effective adaptation of new materials in construction. Several constraints, such as increased cost or lifespan of new materials should be considered.
- New market fields (Construction methods, raw materials, ISO)
- The sectors of water, gaseous pollutants, liquid and solid waste. They are defined by the contracting authority, are included in the tender documents and the environmental licensing. Supply contracts do not cover such areas.
- Lack of specifications - standards and project studies, which incorporate the requirements of a GPP.
- The lack of relevant forecasts in the studies and the time of adjustment to the GPP.
- The lack of relevant knowledge about the building materials and methods of the projects implemented with a GPP.
- Need for coordination and synergy of the remarkable potential that exists in the country and is active in the field of sustainable construction and urban applications.
- Cooperation of producers of construction products with accredited laboratories in various phases of production and utilization in their construction.
- Lack of sufficient data - Creation of secure and open databases (digital platforms).
- Lack of adequate consultation and participation schemes and procedures for civil society
- Lack of adequate stakeholder and public information and awareness-raising procedures.
- Lack of communication and dissemination of good practices, as well as their adoption through the institutional / regulatory framework.
-

Ireland

There was a resounding agreement amongst participants that more training is urgently needed at a high level and on the ground.

- There's a lack of expertise around the life cycle analysis of a building including amongst architects. They don't necessarily have a full grasp of every building material they're using

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

from extraction to end of life. Training is needed in LCA, LCC and the software to support it.

- Targeted education. Not all parts must have expertise about all technical issues as overtraining is waste of resources. There should be multidiscipline access to provide levels of information on a query basis rather than a wider consultation basis.
- Define the sustainable building. There needs to be a common language between procurement and assessment of buildings or there will always be a gap. Some suggestions on that matter by the interviewees were that the EU Levels methodology is ideal and that KPIs need to be based around the outcome.
- Updated documentation for procuring works is needed that complies with EU directives, and new guidance.

The building stock standard in Ireland and the UK is poor, and the cost of renovation-bringing it to passive house standard-is high.

Currently the data is fragmented and unclear. There's not enough data in the software so what you have is assumptions. More data and transparency is needed from suppliers so that there is a reliance on data and not assumptions.

GPP should be rolled out with larger projects first, rather than made mandatory for every tender. It is recommended that it is kept above the EU threshold. It must be done in a way that won't eliminate potential Irish companies. Contractors need to be trained to apply and get energy management certification etc., and that will take time.

Slovenia

Following the example of the rest of the world, the participants think it would make sense to consider introducing clear requirements for buildings that are subject of public investment. Systematic analysis of examples of good practice from markets that have a longer tradition of environmental certification, can speed up and simplify the preparation of such requirements for Slovenian market. In Germany, for example use the BNB scheme, which represents a simplified DGNB methodology with all key elements (eg LCA assessment, quality assessment) planning, long-term maintenance costs, etc.). With it, they ensure maximum economy and the most environmentally friendly construction of various types of construction projects (offices, schools, parks, etc.).

One important aspect is LCC analysis of buildings built from different types of materials. Normally this part is not mentioned in the PP, how much costs will public authorities have with wooden buildings, for instance. The problem is the usage of wooden elements by force, when there are criteria in the % of buildings to be built by wood. If the wood is used in the wrong place, wrong location or wrongly in the building, it can represent higher LCC than normally other materials would. In this way we do not use advantages of wood. Currently 30% of all PP is considered as green in Slovenia.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Each EU country should prepare action plan how to transform designers and contractors' practices into more green economy concept. Without state driven initiatives and incentives, no major changes in Slovenia are to be expected, obligatory update and training should be put in place and required in national Eco fund calls, for example.

Finally, SMEs cannot compete with large companies, research and technology and products development, so less and less green "players" seem to be on the EU market.

4.3.1.3. Adequacy of PP workforce, PP professionals and officials possess skills and competences to deal with the challenges and needs

France

The participants observe that the construction waste management and the consideration of materials lifecycle are often considered as constraints for some entrepreneurs because they significantly increase the work cost. In addition, companies lack relevant information and technical support appropriate to these themes.

The upstream drafting work and the introduction of environmental criteria that are both ambitious, realistic and compatible with the rules of public procurement require the reinforcement of the training of public procurement officers.

The proper functioning between the public procurement departments and the technical departments of a community depends on the clarity of the political order; the legal departments must work with the technical departments across the board and upstream of the order, under the impetus of the elected officials.

There is a real lack of training and tools that help, for example, to choose the suitable materials (costing of materials with regard to the life cycle, evaluation of the overall environmental impact, etc.) or the criteria for renovation (for example, relevant indicators of energy consumption). There is a lack of clear quantitative elements, easily appropriated by decision-makers to establish a logical balance and a pragmatic approach, for example between real and false energy savings.

Greece

The main opinion that was expressed almost by all participants is that PP workforce, PP professionals and officials do not have enough skills and competences to deal with the current challenges, especially in the local government.

It is important to make accessible relevant information and the creation of a reliable framework and network of collaborations and exchange of practices and know-how between all parties involved, as well as the creation of a channel for facilitating information transfer to and from the public administration.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Ireland

Among the participants it is generally agreed that there are not enough skilled workers in procurement or on the ground. There is plenty of PP training available, but it's not green. Much of this is due to lack of demand up to now.

- The lack of gender balance in the construction industry means that half of our workforce are excluded from the industry. We need a higher workforce and skill level to face our challenges.
- Everyone across the board in PP will need training. Award criteria need to be written intelligently with technical specifications based on life cycle costs that are achievable. To achieve GPP, industry standards for the products that are procured will have to be embedded as part of selection/award criteria. There is no proven formula or guidance.
- Training should be for public sector and private sector simultaneously, ideally with one learning from the other.

Training should be done continuously to improve tenders and frameworks going forward. Mistakes will be made but that is how we will improve-we just need to minimise the scale and frequency of mistakes through openness and sharing lessons learned.

One participant felt that life cycle costing is common sense, all that is needed is awareness and training around it. It's about the full solution. You must understand what the life cycle cost benefit is and how the benefit is calculated.

Slovenia

The participants underline the importance of technical support on GPP that should be given to designers, architects, civil engineers, SME contractors as well as local and regional investors/clients. They also believe that financial support for green transformation should be provided. Contractors should be also financially capable of constructing such environmentally friendly projects.

Legislation currently does not limit anybody to build according to /close to GPP. Legislation determines only what is now mandatory. The competencies of contractors should be elevated. The goal should be how to award such new green standing and practices, how to adopt those and make them internalized as the first choice. Development on new value chain and business models should be state priority to reach and implement successfully Green deal.

Education system should include green building concept in their curricula and courses. Informing policymakers, engaging at the national level and general audience (broad community) to enlarge GPP national decree with new or more strict green criteria to enable next generation to live greener and sustainable built, environment in Slovenia.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.1.4. Specific skills that are required from PP workforce, PP professionals and officials to engage with GPP and do companies/ organizations manage this need

France

There is a shortage of decision support and good practice transposition tools in the stakeholders chain of a construction project (architects, urban planner); for example, there is not knowledge on how to calculate the environmental impact of the use of insulating materials, there is only information on their characteristics or properties.

The participants think it would be relevant to design new awarding criteria enabling to properly estimate the weight of environmental criteria: for example, the definition of an average price corresponding to the expected "standard" and the measurement of deviations from this price.

There is a need to support the training of territorial technicians on a cost analysis that takes into account more criteria than just the gross cost of the work.

Officers should be trained to identify the tools and resources suitable to their needs and evaluate their relevance and quality.

Greece

Skills identified as being required from staff related to GPP are:

- Good knowledge of existing legislation, awareness of best practices, soft skills.
- Training in environmental policy at European and national level, including: Environmental parameters and measurable quantities, available products, methodologies etc in the market, information on innovations, preparation and conduct of a tender (selection of criteria, proper integration in the tender documents, information of the executives for the evaluation of the bids etc.)
- Construction methods
- Raw materials
- ISO
- New market fields
- Financial instruments- Budget – life cycle cost
- Ability to match existing knowledge about public procurement, within the GPP.
- Knowledge of environmental issues, sustainability, the circular economy and the international, European and national commitments related to the above, which create the corresponding obligations and conditionalities and therefore the manner of production of materials, construction, life cycle of works and materials, and from the point of view of the public sector of the respective declarations, approvals and receipt of studies and works related to the subject.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Required skills related to new technologies and smart applications related to the construction industry as well as reducing the waste of natural and energy resources.

Ireland

Raising awareness and training must be provided holistically, with all disciplines having the necessary knowledge and collaborating. Everyone needs to know their part- E.g., Architects need LCA, LCC, supporting software and BIM.

In the future, companies may need to be assessed on their green credentials. Asking them what types of 'green projects' they have delivered, whether they analyse materials, whether there's a plan for the end of life. The challenge is having tools to analyse this and getting training in it.

The respondents think that more data is necessary, especially robust business cases for each technology to be employed. There needs to be a checklist and streamlined process where new technology can be approved and make their way in specification.

Another point highlighted is the "Buying better" concept. The suppliers should be asked to exclude non sustainable products. "Buying better" means cost savings, energy inclusion, designing out waste, more functionality, collaborative early involvement from customer to supplier and the circularity of products and services we buy.

Slovenia

Participants believe that influence should be exercised on the institutions. (eg Eco Fund - adheres strictly to existing legislation, they do not pay much attention to possible innovations triggered upon their call or high quality service or waste manipulation on the work site). However, they think it is also important to include those employees in the process of PP in order to include certificates (ZKG, sustainable construction Levels), which speak of above-standard performance, which change the market and promote better training of contractors, in tenders. This should take place in an early stage and connection is needed.

Another important aspect that workforce dealing with PP and consequently with GPP should be more aware of, is specifics on construction materials (for instance which materials are more suitable for different uses – wood is not always the most sustainable choice) and technologies. Knowledge on the way materials and products are built in is important in order to improve the quality of the buildings.

They also pointed out that, in order to achieve easier and more sensible work, knowledge on specific building certificates is also an important aspect. In order to bring GPP process closer to end-users (e.g. engineers) sample tender documentation with evidences and practice how to implement it should be developed. It is important to inform companies of practical cases and solutions.

Public authorities should be made aware of financial instruments. GPP might also be specific energy purchase agreement document (if public entity does not have any own funds).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

It would be very useful for market to prepare national catalogue of GPP samples and practices, with clear guidance with step-by-step approach on how to perform GPP process.

4.3.1.5. Green criteria that could be added to a PP concerning construction/ building works

France

The participants make a distinction between regulation, which is the basis of any approach, and performance standards and targets.

The consideration of sustainability in public procurement is one aspect which is evoked for a long time in the Construction but still considered by the public communities much more as a constraint than a benefit.

Greece

Introduction of criteria in competitions could be considered as follows:

- Selection criteria: the experience in the construction of projects with corresponding environmental standards when we ask for something very specialized.
- award criteria: the terms of the contract include as mandatory the technical specifications and other provisions of the legislation on environmental issues and we are not yet familiar with proposing criteria and then evaluating and grading bids that exceed the required specifications.
- It should be considered whether the supply of equipment for use in construction (construction machinery) is certified with appropriate specifications (noise, fuel consumption, etc.) could be taken into account in the offer and the performance that exceeds the mandatory obligations / specifications should be graded in a predetermined manner.
- Conditions for the execution of the contract: better specification of terms and specifications already included in the construction contracts such as: integration in the project of materials certified with specific specifications (mainly equipment in buildings / technical rooms) for energy consumption, use of materials in their production environmentally friendly, parameters maintenance and replacement / disposal after the expiration of the service life, etc. The Terms are included as mandatory for the contractor and not as a selection criterion in the tender phase.
- The monitoring of the contractor's compliance with the contractual provisions and the way of dealing with the cases of non-compliance should also be organized accordingly and should be clearly recorded in the tender documents.
- Most public buildings such as administration buildings, ministries, school buildings, sports facilities, etc. can be converted into bioclimatic buildings with the appropriate repairs and

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

additions of materials. An example is the use of photovoltaics by placing them on the roof of buildings so that they become energy autonomous. Another example is green roofs etc.

- The introduction of an energy certificate for all categories of projects.
- The establishment of criteria, which compose a comparative evaluation between any alternatives for the implementation of a GPP.
- The cost-benefit analysis between the current and the future implementation of the projects, through the GPP.
- The criteria that are included in the EIA of a project,eg
- Criteria for drafting tender documents, specifications of materials, methods, equipment and services. Qualitative criteria for the selection of the most suitable contractor, indicators of the impact on the construction market, quantitative and qualitative criteria for the implementation of the contract, criteria for the evaluation of the value chain achieved.
- Criteria for the preparation of tender documents, specifications of materials, methods, equipment and services. Qualitative criteria for the implementation of the contract.
- the "green" criteria should be related to the whole cycle of construction, and in all sectors, ie in the construction industry and crafts, studies and projects, in the process of construction, operation and maintenance of constructions and infrastructures throughout their life, in the processes and the upgrade projects of the existing building stock and the existing structured environment as a whole. To this end, it is appropriate to intensify and resolve the issue of certification of construction materials and techniques, enhancing domestic demand for sustainable construction products and services, with proper design and management of state aid, with emphasis on innovation, production of Standards and the accredited certification procedures of products and services, "green" criteria in relation to contracts, assignments, as well as monitoring and measuring the environmental footprint in the long run. "Green" criteria in every type of project must be an obligation, private or public, large or small as a condition of funding.

Ireland

The participants made suggestions that can be categorized in the following topics:

EU Standards: New GPP criteria are going to be introduced regarding office buildings with provision to cover all types. They should be aligned with the EU Levels framework as it will make it easier for the supply market to respond. A working group is necessary in order to maintain the GPP criteria for Ireland, maintaining a dialogue with the supply market.

Requirements: Only sustainable products that comply with circle economy principles and meet EU standards for sustainability should be procured. Some participants think making this mandatory would help achieve many goals, as plans and guidance are not boosting enough.

The local authorities have signed a charter, and one of the items involved is procuring green and selecting companies that have proven green credentials.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Clauses: Contract performance clauses could include a training clause around upskilling the workforce. Penalty clauses were suggested for not meeting KPIs post tender, but figures need to be available.

All phases: Developing weighted criteria around sustainability at all phases. Start with the end of life, waste management, and work backwards to decide what the materials need to be.

Sustainability: It is felt that sustainability needs to be integrated into the regulations. Structure-but it's sustainable. Fire protection-but it's sustainable. All aspects of a project must be combined with sustainability. A lot of environmental assessment tools are ticking boxes, but it's important to understand the end goal. What is the best way to achieve what we're trying to achieve?

Innovation is important for circularity, sustainability. Much waste in construction demolition could be repurposed or reused back into construction or other industries.

A few participants pointed out that a standardized definition of what positive GPP would be helpful. It should be clear, and not open to interpretation/greenwash.

Slovenia

The participants generally believe that GPP criteria should be broadened to all kinds and variety of public buildings and to all public infrastructure objects. Now in the Regulation only very limited types/set of buildings are set.

In their opinion the new version of Levels is more suitable and feasible in Slovenia. This new system is more transparent and simpler, manageable, calculable, provable.

In Slovenia, steps should be taken in order to improve the capacity of stakeholders, and make better use of the existing one. This way the existing green PP system is going to be strengthened. Stakeholders' capacity should incorporate the principles of the circular economy as much as possible, encourage new business models in PP, as well as strengthen PP of services and products in the field of low-carbon circular solutions. Digitalization and usage of BIM system should also be promoted.

Furthermore, a wide group must be involved in developing the criteria. There is a problem with the installers that are called to implement the various green criteria since they do not know foreign languages and do not understand the instructions for a particular material. It is important to ask investors about their satisfaction with the result. The question of how to get these quality labels into the GPP.

In order to incorporate different materials, criteria on their usage must be developed. Currently in the Regulation wood is highly preferred. Wood should be properly integrated into the system and indicators of sustainable construction and green public procurement.

Sustainable usage of raw materials should also be promoted, in line with reused construction products and recycled products. However, this process is at an early stage and standards have not been developed yet. Current legislation in Slovenia for re-use of waste and materials in

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

construction sector is very limiting and complicated. Last change of the waste legislation narrowed possibilities of reuse of waste materials very much.

Finally, the participants think that continuous monitoring of improvements on the field of green technologies is necessary and should be implemented. GPP system should be expanded and upgraded, including the introduction of public procurement for innovation.

4.3.1.6. Key environmental areas in construction/ building works that should be considered for the adoption of GPP in construction/ building works and how they are addressed by companies/ organizations?

France

In the context of a consortium of operators, the aim is to promote a collective contribution to the environmental objectives of the specifications, rather than an analysis of the capacity of each company to meet these criteria. Hence the interest of a participatory Guarantee System enabling to develop a collective approach of the environmental challenge and to define the proper role of each service provider according to its capacity and room for improvement.

The consideration of environmental criteria in renovation markets is a critical challenge, renovation representing the most important market. Applying a restrictive normative framework to an intervention that starts from the existing and makes each building a particular object is challenging; therefore, the environmental regulation in this sector remains a great challenge.

Greece

The Key environmental areas that should be considered for the adoption of GPP in construction/ building works are:

- Construction phase: Waste management in the construction and operation of the project, land management in the project area (loan chambers-storage chambers), impact on climate change, and water quality Operation and maintenance phase: Energy consumption (heating / cooling, lighting, water consumption (toilets / surroundings), waste management, etc.
- Recycling materials first and then by using mild means of transport such as the train that in our country goes to abolition instead of being the first means of transport. The use of appropriate materials. Mainly in construction filling materials and installation materials (plumbing, electrical, etc.).
- The sectors of water, gaseous pollutants, liquid and solid waste. They are defined by the contracting authority, are included in the tender documents and the environmental licensing. Supply contracts do not cover such areas.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- The heat emission during the construction and operation of the project. The establishment of relevant specifications for the supply of materials, equipment and services.
- The electromagnetic radiation during the implementation and operation of the projects.
- The development of methods for the selection and implementation of waste reuse or recycling.
- Study of: Land cover, volume, Natural resources , RES, Waste minimization, Thermal, visual comfort of users
- Construction
- Accredited materials
- Accredited construction techniques
- Certified technicians and professionals
- Waste minimization
- Utilization of new technologies and innovations that enhance "sustainable" construction
- Use and maintenance
- Environmental footprint
- Energy consumption
- Waste of natural resources
- Recycling of natural resources and materials
- Reduction of time and costs
- Monitoring and repairing problems

Ireland

LCA: Life cycle assessment was a resounding answer amongst participants. The full life cycle assessment without picking and choosing different impacts. The EU Joint Research center do the technical work behind GPP criteria; they examine all academic LCA studies for each sector-the total life cycle impact on biodiversity, air, soil and water pollution, energy consumption, whether it can be recycled, reused etc. The whole environmental impact. This research and technical information must be translated into criteria that can be applied by people who are not experts. Stakeholders such as engineers should be trained in green Procurement and directed where to find accurate green Procurement information such as Environmental Product Declarations (EPD) and specifications.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Materials, **Circle Economy**: Materials need to be capable of being recycled and be uncontaminated. Processes for recycling need to be improved. E.g., plasters and plaster boards- 10-15% is wasted at the time of construction; we need to improve that and make sure those materials go back to the factory. Material passports are also needed urgently, as no architect will specify reusing existing material if it doesn't have warranty. Treating buildings as material banks is important. The use of BIM alongside with material passports should be very useful for checking the materials, their specifications and characteristics, used in each part of a construction.

EPDs should be developed. Calculation of the whole life carbon should be stated at the planning stage and become a compulsory element of the building's designing. The contractor would then have to prove it at tender stage. LCA and EPD documents demonstrate what you've done.

Slovenia

GPP criteria for roads and buildings are quite extensive and there are lots of guidelines encompassing lots of areas and works. The question that is being raised by the participants is how to put all this listed and proposed in practice.

As is stated also in Levels these are the environmental areas that should be considered for adoption of GPP in constructions/building works:

- energy (fuel use and CO2 emissions),
- water (problem in construction and in use),
- waste (in construction, use, decommissioning),
- indoor and outdoor air quality (not only air quality inside the building, but also the effects of location - for us the current Radon and other pollutants),
- materials (analysis of environmental impacts throughout the life cycle where we are tied to SPDs),
- lifelong costs.

Natural product and traditional form of construction should also be included. The problem that remains is standardization and evaluation with such interchangeable products and processes. Perhaps evaluation indicators could be prepared for such cases.

As part of the 7FP Open House project (goal to make an all-European open method of criteria for sustainable construction) over 500 indicators from all global and European methods for sustainable evaluation were reviewed. The project provided criteria that seemed logical and feasible in all countries but did not come to life. The participants believe that complexity is the reason why and suggest that the procedure should initiate with a small number of criteria that are going to be upgraded over time.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.1.7. Specific green criteria and standards related to the key environmental areas

France

Construction procurements remain rare within involved Corsican federations of municipalities, which do not justify a watch dedicated to the environmental standards of construction; the technical supports are not able now to integrate environmental criteria. The criteria should be presented to them more easily to allow them to analyze them, but especially to check them in the field (legally the absence of control corresponds to an offence of favouritism). In this context, it should be appropriate to systematize the implementation of a watch both for practical training and regulatory changes.

A green clause e-platform is available including 80 pre written clauses to integrate in public procurements (https://laclauseverte.fr).

Greece

There were stated the following green criteria:

- Criteria for the preparation of tender documents, specifications of materials, methods, equipment and services. Qualitative criteria for the selection of the most suitable contractor, indicators of the impact on the construction market, quantitative and qualitative criteria for the implementation of the contract, criteria for the evaluation of the value chain achieved.
- Bioclimatic and environmental design
- Sustainable construction (materials and techniques)
- Rational and sustainable use and maintenance
- Promotion and strengthening of "green" contracts and the corresponding assignments, receipts and approvals.
- Promotion and strengthening of the institutional framework with the necessary technical specifications, certifications and monitoring and evaluation mechanisms Strengthening vertical collaborations in the value added chain of constructions

Ireland

EU standards: Trying to align as much as possible with EU standards so manufacturers know what to expect. Where different policies exist, there should be appropriate instructions on how to apply them.

Legislation: One participant felt that building control is very focused around regulations, but not on standards and that bringing in legislation around quality would help (such as BREEAM, LEED).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Recyclability: One participant thinks we need recyclability but with recycled content in the context of how much it needs to be recycled. We shouldn't have a single base line-e.g., 50% recycled content of everything. It should be proportionate to the specific material.

Slovenia

In our opinion the great impact in the GPP can be made by infrastructure object and buildings.

Key environmental areas: USE OF WATER, EE, USE OF RESORUCES AND MATERIALS, WASTE MANAGEMENT, HEALTHY WORKPLACES, ENVIRONIMENTALLY FRIENDLY AND GREEN CONSTRUCTION PRODUCTS AND MATERIALS.

GPP Infrastructure criteria in Slovenia:

- Project documentation for road reconstruction must provide for the type and amount of materials that will be and are suitable for recycling or re-use, and the manner in which they are recovered recycling or reuse in individual elements of the road being rehabilitated;
- When renovating the road, the requirement that the asphalt road be recycled during the construction of the carriageway must be taken into account granulate (milled) formed during the renovation of this road or from another source shall be used as a priority for production of new bituminous mixtures, and in the alternative in particular for hydraulically stabilized layers or bituminous binder, buffer (including embankments), bedding, embankments and backfills, in the amount required;
- The bidder must provide technical assistance to the contracting authority at the latest when handing over the facility the manufacturer's documentation showing that the construction materials used comply the contracting authority's requirements for the proportion of artificial and recycled materials used;
- Buy high efficiency lamps;
- Buy efficient ballasts;
- Encourage the purchase of low-energy lighting systems for guaranteed light;
- Encourage the use of LEDs in traffic signals;
- Encourage the use of dimmable ballasts where circumstances permit;
- Encourage the use of lamps with a lower mercury content;
- Encourage the use of lamps that limit the emission of light above the horizon.

Key environmental areas for Business and administrative building design phase:

The bidder 's project team must be composed in such a way as to provide, inter alia, knowledge on field:

- efficient use of energy and renewable energy sources,

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- efficient use of water,
- waste management,
- ensuring healthy living and working conditions, and
- environmental properties of construction materials and products.

In addition to the requirements arising from the building regulations, the project documentation must also include solutions regarding:

- efficient use of water,
- waste management,
- ensuring healthy living and working conditions, and
- use of environmentally friendly building materials and products.

In the case of an office and administrative building (CC-SI 122), the proportion of wood or wood products, built into the building (excluding interior fittings, ground floor slabs and structures lying below) shall be at least 30% of the volume of installed materials, unless the regulation or the purpose of use prohibits it or disables. One third of the obligatory share of wood or wood products (10% of the volume of installed materials) may be replaced by construction products bearing the type I eco - label or the type III environment.

The tender for the design of the project for implementation must ensure that emissions of volatile organic compounds compounds in construction products to be used in construction may not exceed the value defined in European standards for determining emissions SIST EN ISO 16000-9, SIST EN ISO 16000-10 and SIST EN ISO 16000-11 or equivalent standards.

Bid to design a project for implementation that will have the lowest value of the annual primary energy consumption in the building (Qpmin) is evaluated with the most points within this criterion. Part of this criteria in relation to other criteria must be at least 10%. The share is determined by the contracting authority in the tender documentation.

Offer to design a project for implementation that will ensure that construction is used products based on renewable raw materials such as wood, pulp, hemp, wool, or recycled raw materials shall be scored with additional points under this criterion if renewable or recycled raw materials exceed the 30% share of wood in terms of the volume of materials used or wood materials incorporated into the building (excluding interior fittings, ground floor panels and structures, lying below). The share of this criterion in relation to other criteria must be at least 10%. Share determined by the contracting authority in the tender documentation.

Key environmental areas for Construction phase of the business and administrative building:

The following are not used in the construction:

a) products containing sulfur hexafluoride (SF6);

b) interior paints and varnishes containing volatile organic compounds with a boiling point not exceeding 250 ° C in values greater than:

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- 30 g / l, without water, for wall paints;
- 250 g / l, without water, for other paints with a flow rate of at least 15 m² / l at power
- 98% opacity coverage;
- 180 g / l, without water, for all other products, including paints with a spillage is less than 15m2/ l, varnishes, wood paints, floor coatings and floor paints;

c) wood-based materials for which formaldehyde emissions are higher than the emission requirements class E 1 as defined by standards SIST EN 300, SIST EN 312, SIST EN 622, SIST EN 636 and SIST EN 13986.

Emissions of volatile organic compounds contained in the construction products used shall not exceed values specified in the European standard for determining emissions SIST EN ISO 16000-9, SIST EN ISO 16000-10, SIST EN ISO 16000-11 or in an equivalent standard.

When during construction:

- load-bearing structures,
- roofs,
- Facade and interior wall and floor or ceiling coverings, and
- joinery,
- use of wood must come from legal sources.

Special provisions of the contract:

The bidder must create a program and method of training the building manager and deliver them to the client. Upon completion of construction or renovation works, the bidder shall train the building manager for energy efficient use of the building, thereby no later than two years from the date of use ensure that the planned energy and water consumption is achieved.

Prior to the handover of the facility, the bidder must perform an air permeability test to ensure that that the air permeability parameters provided for in the project documentation have been achieved, respectively regulations governing the efficient use of energy. The air permeability test shall be carried out in accordance with standard SIST EN 13829.

In the 8-year Care4Climate project, we consulted with users of the Levels certification scheme for the first two years. We have prepared the first version of the adjustment of its indicators. We are now putting them on a web application so that users can use them experimentally, comment (what they are missing, where are the problems), so that we can improve the system, update and take into account everything that may occur through trial use.

In the coming years, we expect the preparation of a beta version of the system for assessing sustainable construction. This means several indicators that we already know how to calculate, but not all of them are equally important. Therefore, through this project we want to determine the weights for these individual indicators, so that in addition to the evaluation of these individual

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

aspects, we will be able to obtain a complete assessment, a balanced assessment of the sustainability aspect of the building.

We plan to start pilot projects in two years. The plan is to evaluate these sustainable construction indicators and the overall assessment in a detailed system, or even earlier, according to the completed system. This is followed by promotion and integration into the GPP. Our tactic is to initially propose the evaluation of two or three criteria and then at a later stage more criteria. We are in agreement with the Eco Fund to gradually try to support the calculation of one or two indicators through subsidies to make things easier to grasp.

At the initiative of MGRT and GZS, ZKG was developed in the past for development and technological achievements, where we promoted and disseminated knowledge about innovative products. As part of this, the company SCT reported the implementation of cement-concrete pavement structures with recycled materials, one-sided innovative road fence, self-levelling concrete. Certain actions are also possible within the ZKG in order to encourage product development, the purchase of goods.

One important aspect is LCC analysis of buildings built from different types of materials. Normally this part is not mentioned in the PP, how much costs will public authorities have with wooden buildings, for instance. The problem is the usage of wooden elements by force, when there is criteria in the % of buildings to be built by wood. If the wood is built in the wrong place, wrong location or wrongly in the building, it can represent higher LCC than normally other materials would. In this way we do not use advantages of wood.

We can have a very wide range of these criteria, and then the question is where is that limit, the entry threshold, when we can say that something is “sustainable” or “green”. This was seen in the old Annex 7, where we had a lot of ideas, but they fell away for a variety of reasons. From legal-formal, to strategic economic. This is a very complex issue. Marketing schemes are intended for commercial buildings bound by specific standards, local regulations… to be transposed, but to a limited extent. Therefore, the arrival of Levels is welcome.

Energy use is the most obvious thing as a criterion. Later came the criterion of the use of materials, to which were added the provisions on wood and wood products. They are now Environmental Product Declarations (EPDs). There was something else about water use. Then it was over. If I subtract the provisions that the design team must have references and statements that the designer meets the criteria. This is where the matter ends in many places. You need more time, money, and more qualified collaborators or outside collaborators. Maybe there isn’t as much awareness or knowledge about these concrete things in the design sphere itself yet, or they don’t know how to achieve that.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.1.8. Integration of Building Information Modelling (BIM) in GPP in construction/ building works

France

The knowledge of the working group's institutional members on the building modelling tools are poor and moreover they are not trained to their use (there is a need to raise awareness of their existence, encourage members to use them).

As the trade of general contractors changes rapidly, the participants believe that modelling tools are essential. They make it possible to go further and faster in simulation, calculation, life cycle analysis etc. but they are only tools in the service of environmental quality. The modelling tools enable to include upstream the environmental requirements of a construction project but this is only the transposition of a greening will. The working group's members emphasize that these tools enable organizing the work but originally these are the needs and will that define an ecological project.

BIM is both a design and follow-up tool : the digital model enables the in-depth knowledge of the building, to generate a follow-up log, a monitoring and easily comparable quotations. The BIM tools include the appropriate clauses to the needs of a project and facilitate the operational implementation of what is stipulated in the clauses.

BIM is also a kind of "identity card" for the building that circulates between the various parties involved (companies for the project part, the owner for the management of the building equipment for 20-30 years). It helps to avoid many unforeseen events and missteps.

There are tools for calculating the ecological footprint of buildings that allow for good modeling, which we must know how to use.

In the renovation field, the players do not anticipate sufficiently and often work in a hurry (example of social housing), which does not leave time for reflection, for the use of tools, for a real price comparison.

Greece

Participants indicated the following:

- BIM will have a positive impact on the implementation of environmental policy as it will enable the monitoring of the specifications that have been set and the compliance / performance throughout the project life cycle (from design, supply of materials, construction, maintenance and operation, replacement / disposal / materials recycling etc)
- The integration of Building Information Modeling (BIM) in public procurement will help to improve the environment and reduce pollution and the greenhouse effect. It will also contribute to the better living of the users of the technical works, whether they are buildings or roads or anything else because they will work and live in an environment largely free from polluting materials and services.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Improvement in identifying alternative methods and materials and for building information on equivalent alternatives at each stage.
- BIM will help with management, maintenance and operation of a project implemented based on a GPP. Also for the forecast of waste streams that will occur in each phase of the project. The additional benefit is the possibility of designing a project, with a better approach to the terms of the circular economy.

BIM is already an important tool for professionals working in the field of design, architecture and construction. It is obvious that this model, with the amount of information it can now contain, can serve many more issues related to the Project, beyond the design process, ensuring better quality and reducing errors, disputes, of risks, costs and time, for the entire life cycle of the Project, obviously raising its value. In addition, its use ensures the saving of significant resources in terms of the final cost of the projects and the greatest possible saving of materials for the protection of the environment, while at the same time creating the possibility of good management and monitoring of the projects throughout their life.

Greece will have to face in time the institutional and business challenges related to the above. Already in several European countries, the use of BIM programs is a prerequisite for participation in Public Tenders.

Ireland

Generally, it is agreed amongst participants that the more data that is available the better, and BIM provides data. BIM makes managing and accessing information easier. Post occupancy evaluation and monitoring, automatic ordering of materials for less waste, timing, less unnecessary people on site and their transport to site. There are many possibilities.

BIM technology is also useful because the models are sources of information, and if shared as they should, everyone can learn and benefit from them. The problem with Ireland is there's no case studies because nobody is being asked to do LCA, for example. There has been no demand.

It is thought that it would also be useful to integrate BIM ISO procedures with GPP.

One participant believes we need a BIM mandate- once people are more upskilled- for public projects above a certain size, or it won't happen in Ireland.

Slovenia

BIM will be requested as obligatory in adoption of the novelty of the Construction law and the expectation is to be confirmed by the government by the end of autumn 2021. A two-year transitional period will enable all to uptake BIM while preparing/conception GPP based investment projects. BIM can be an important factor supporting GPP uptake and execution, BIM could be messenger, assistant, promoter and accelerator of the green approach.

The participants believe that BIM should be part of the System, otherwise development will not proceed quickly. It is very likely that BIM will also be part of GPP. BIM has indirect effects on the

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

sustainability of the project. Streamlining procedures, bringing together teams working on a project, etc., are qualities that contribute to sustainability.

Construction is one of the largest energy consumers, with the housing sector accounting for the largest share. More intensive use of business models such as BIM and other similar technologies can have a significant impact on energy efficiency of the entire construction sector. Additionally, it can contribute to the objectives of circular economy and efficient management of materials during their lifetime. It will also enable the creation of financial schemes to finance investments in energy efficiency construction of facilities.

An example of implementation of BIM technology is in advanced traffic and bridge management solutions that can save millions of public authority money, if such system is designed properly and regulated as well as it can identify object degradation and deterioration in timeline. It is the participant's view that technology set up to reach specific goals of public interest can effectively support sustainable society and reduce the costs of insufficiently or insufficiently controlled management of facilities and intercepts reckless and inappropriate investment.

4.3.1.9. Familiarity with the National and EU strategies related to GPP and how do companies/ organizations keep informed on with the evolutions of the GPP and the ever-changing trends

France

Heads of department do not always have the required resources to deal with this subject in depth. A quite general watch is performed but does not meet the technicians or purchasing departments needs. If the public procurement department focuses more on the legal watch, each department would be able to ensure its own watch regarding the different environmental criteria related to its field.

The participants have the opinion that a more targeted regulatory surveillance would be more efficient. It would be useful to implement some bridges between departments: the technical department would be more in charge of an in-depth watch on environmental criteria and the public procurement department would consider these criteria in the specifications development.

In order to set an environmental performance objective, the sensitivity and general culture of operators on sustainable development issues are essential (much more than the cost factor) and still constitute a challenge in France today. It is more likely that there is a lack of general knowledge of sustainable development issues than a lack of knowledge of the standard or the rule.

Greece

Different levels of familiarity with GPP were identified by participants. Many of the respondents stated that they are not familiar with GPP, either with the respective policies, so they are trying to get updated through reviewing relevant EU regulatory and legislation framework. In particular,

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

there is limited familiarity with the implementation of selection and award and evaluation buildings for tenders in public procurements. Other forms for knowledge transfer are provided though workshops organized by competent public bodies, but also through seminars on specific topics.

Though, central governmental bodies (such as the Ministry of Environment & Energy) and their managing authorities are more familiar with the National and EU strategies relative to GPP. Within this framework, the issues of sustainability are at the top of their priorities and therefore several actions are implemented in this ground. Within this effort, the institutional framework in the field of environment, energy and spatial planning / urban planning is constantly updated and supplemented. At the same time, programs, financial tools and actions are promoted through national and European funds (NSRF, Recovery Fund, PDE, etc.), for large scale projects, studies and local government projects (renovations, accessibility, e-mobility, etc. .) as well as programs and actions for citizens (indicative: I save, I maintain, I live, Electra, etc.).

Especially for BIM: The Ministry of Environment & Energy has taken an important initiative and action, by establishing an experts Committee consisting of the Secretaries General of 6 co-responsible Ministries, a Joint Working Group of staff and an experienced team European tool BIM (Building Information Modeling). From the cooperation of the 3 groups, the Strategic Action Plan (SAP) and the subsequently required actions will be finalized. The above working group focuses on all sectors and all target groups, and aims to prepare the public and private sector to adopt the use of BIM, and to provide the construction industry with all the necessary supplies (indicative: diffusion vision, institutional - regulatory framework, creation of appropriate tools for data entry and processing, creation of instructions, training of competent public staff, designers, manufacturers and suppliers, finding appropriate funding tools, supporting pilot projects, progress evaluation mechanisms and so on).

Ireland

Some members of the working group are very much familiar and involved with GPP as PP training providers and advisors.

It seems there is awareness at a high level in local authorities- an advisory section who receive training in PP and depend on the OGP (Office of Government Procurement) to give them information that they can circulate to the rest of the organisation. A new procurement liaison officer's role is to be brought into each department who would feed into the procurement office. But at present there is little awareness on the ground amongst the purchasers in local authorities or other design/planning organisations in GPP, as well as some reluctance and a lack of awareness as to how to keep alerted to new strategies as they come out. One participant's design office uses RIBA 2030 as a guide, as there is no equivalent in Ireland yet.

There needs to be a top-down approach, so people can be motivated to do it and know where it makes sense to make investments. It is thought that information needs to go to government departments-lists of technologies that can be considered and reasons why.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Slovenia

Without being part of the special consultancy and technical groups at EC bodies of course we are appointed by the state, we would never have so much information and opportunity to discuss topics on EU level, before the policy becomes official and obligatory for the whole EU area.

The GPP decree is evolving in Slovenia, and by the end of the year 2021 it is expected that novelty of the decree will be prepared and discussed with engaged community and stakeholders. There will be a need to follow new contents and regulation in the decree based on latest EU strategies and priorities.

The participants have a long-term involvement in European programs and European projects has brought them to the source of information. They exchange experiences with foreign colleagues, for example in the field of efficient energy use. They are part of the long-standing Concerted Action EPBD project, and represent Slovenia in this project on behalf of the Ministry of Infrastructure. This is the entire transposition of the European directive on the energy performance of buildings into Slovenian law. They have made amendments to three laws and all the change in regulations (ventilation, air conditioning, etc.) was based on this. Without these sources of information and integration into the European environment, this would not be possible. The participants also work closely and share tasks on projects together with colleagues from the Jožef Stefan Institute, the Center for Energy Efficiency and ZAG.

4.3.1.10. Main skills that PP staff, PP workforce, PP professionals and officials (both from the side of contractor and the contracting authority) should improve through further training related to GPP in construction/ building works

France

Training on environmental standards is provided for different stakeholders but this supply is still not much developed and sometimes companies have difficulty to comply with these standards.

The participants think it would be useful to train officials and technicians training to be able to anticipate the expected environmental impacts and costs.

They also think that a critical look could be taken at the role of APEL (accreditation of prior experiential learning) in training in this field; there seems to be a need to evaluate the orientation of training and the evolution of national programs.

The training of public officers in existing networks and the use of technicians from these networks, their technical assistance etc. must also be promoted.

The training must be completed with toolboxes to be used and updated, as for example the green clause, e-platform including 80 prewritten clauses to integrate in public procurements (https://laclauseverte.fr).

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

Greece

Participants strongly highlighted that there is emergent need of GPP training and awareness raising programmes. Moreover, the PP related staff needs to be trained in the following areas:

- In the development and implementation of Environmental management systems.
- In monitoring the compliance of contractual terms (specifications, obligations, etc.), and result measurements depending on the nature of each specification.
- Legal and applied legal knowledge, analysis of the institutional framework.
- constantly updating technology developments in the areas that affect GPP in relation with materials and construction methods.
- A configuration of Case Studies based on the contents of the GPP.

Last but not least a separation between the needs of private and public sector was made:

a) Private sector: continuous information / training in relation to new materials, techniques, best practices, new programs, digital tools, development of collaborations, research programs, etc.

b) Public Sector: Certification, evaluation/ monitoring, new standards and specifications, "green" contracts, secure data protection and management, cooperation and interoperability between different departments and services, etc.

Ireland

The Office of Government Procurement has an academy set up giving accredited training for all public sector workers and employees involved with works. Procurement should be professionalized, and public servants need to be upskilled. Many contracting authorities in Ireland don't have procurement professionals available to them. There is a huge gap in awareness about procurement, and a bigger gap in awareness about GPP- which is an extra layer to be added to a process that is already complicated.

The learning must be continuous, and the best training is practice. It was suggested that there be 1. training and then 2. management. An audit process to see if the training is working. A once off training will not work, you must keep cycling it, so it becomes embedded.

In Ireland, it is important to motivate the suppliers to participate in the process of GPP. For the public sector side there are trainings and guidance which will be carried on but there is a need for a training program aimed at the supply side so that everyone feels they can compete. Perhaps Enterprise Ireland could help fund it, also local enterprise boards.

With regard to the procurement staff, they need to be trained and taught to buy products and services having the final outcome in mind. They need to have the criteria to maximize the benefit and cost savings and minimize the risk.

The above involves a need for some training and understanding in:

- embodied carbon in products,

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- energy and where it comes from,
- financials and long terms cost benefits.

This knowledge needs to be supported by the correct measurement tools.

The idea of targeted/specific training for different groups was mentioned several times which could be done as well as overall awareness training for everyone.

Other practical skills were suggested like knowledge of Levels as a methodology, OneClick software, LCC, LCA. Also suggested was a Pilot project where a multidisciplinary team would start several projects and collect and compare data with the aim to design and build a net zero carbon building. From there would be procedures and lessons learned from which you could set up training.

Slovenia

The participants think it would be useful to establish a database of verified and updated data and information that would help in designing the project task for the intended implementation of the green public investment.

There was stressed the importance of:

- Defining the stakeholders, opinion makers, benchmarking experts
- Availability of contacts and information on GPP
- Drafting concrete tender documentation specifications for GPP.
- Mobilization of national construction industry toward more green construction product conception and market certification.
- Raising interest for GPP concept on the construction market and public sector on all levels.

The CCIS (Chamber of Commerce and Industry of Slovenia) could set up the creation of a database of products from recycled products. This is useful to make greater transparency with a bottom-up approach. If the CCIS mobilizes product providers who have greener products, they would integrate this information into the Levels indicator, respectively. With the development of these indicators of sustainable construction, emphasis will be placed in this area.

Training is also planned in this area. National strategic orientations derive from European ones and climate and energy plans are topics that are covered constantly. The experience of the Build Up Skills project is important and the role of CPI and CPU institutions in the context of it and in the field of professional classifications. However, there is a lot to be gained still, as the crisis 10 years ago created a big setback. A lot of companies went bankrupt and with that a part of contractors' knowledge was lot.

In the field of energy use the situation is simpler because there is the development of the Rules (on the efficient use of energy) and other similar regulations. When it comes to other kind of

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

criteria, indicators (water, air quality), even in everyday practice, even designers are not familiar with it, and investors probably are not concerned at all.

At the same time, the matter is tied to the use of certain tools (LCC analysis, LCA). Some things are chargeable, and all training must be paid for by someone.

It is a lack of knowledge of the full breadth of this topic. However, Slovenia is not the only country which would put this into practice more slowly. In other countries, too, there are declarative commitments, strategic documents, and the other is the daily work regime.

4.3.1.11. How do companies or/ and public authorities ensure that the training needs for GPP for PP staff, PP workforce, PP professionals and officials are up to date, and available trainings offer specializing in GPP suitable for PP staff, PP workforce, and PP professionals

France

Regarding Public actors, the HR department informs the officers of the existing training opportunities (according to the road map, different jobs). The training devices are developed in relation with the CNFPT (National Center of the Territorial Public Service) and the community's training managers (based on a catalog of available training offers and from the needs in skills expressed by the officers and validated by the head of department).

The local authorities pay a financial contribution to the CNFPT (aside from the contribution of the operators to training or not). The training offers from other organizations such as ENVIROBAT BDM being entirely paying, the cost can be an obstacle to training: the challenge would be to have free or very low-cost training resources outside the CNFPT offer.

There is the possibility of setting up CNFPT in-service training courses that bring together the public order specialist and the supply analysis technicians.

Sometimes municipalities request the intervention of schools of architecture in their training process. They can also involve elected officials, which allows them to learn about their needs, motivations, fears.

In the training course for the Licence Pro in Civil Engineering and Sustainable Construction, the notion of life cycle analysis of materials is still very little or not at all addressed. There is still no training module related to the choice of materials. Only 10 hours out of the 500 hours in the year are dedicated to the writing of specifications.

Greece

Just few of the participants indicated that they are aware of a GPP related training program. In particular, this training is mostly provided by the Institute of Training of Public Administration School, «GREEN PUBLIC PROCUREMENT: PRINCIPLES AND IMPLEMENTATION FRAMEWORK" and partially by private training centers.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Participants highlighted the need for establishing a broader "alliance" between the public and the private sector aiming to ensure an updated framework for providing training, along with the capacity building of human resources, in order to achieve GPP inclusion, to improve the respective policy framework and mechanism, as well as providing dissemination and GPP knowledge transfer across key stakeholders.

Ireland

The Office of Government Procurement have an academy set up giving accredited training for all public sector workers and employees involved with works. In the public sector there's also an EPA course. A certificate is launching at the institute of public administration which would be a GPP qualification starting in September. There is also the Greenville Academy, but the GPP training is generic, and not construction specific. There is a lot of training in the public sector, but few for the supply side.

Some of the group, particularly on the supply side, didn't know of any trainings in GPP specifically. There is subject matter training- learning about airtightness, fire, acoustics etc. Some large design offices have in-house training, IGBC courses, CPDs- but little on procurement. Skillnet are doing trainings which will have to be updated, however not dramatically so. Manufacturers are now producing products that are compliant with the EU GPP requirements- they are not set at a national level here in Ireland but at an EU level.

Slovenia

The participants' companies receive many information via email by different organisations. They have a broad network since they have cooperated with many national and international stakeholders in the past. These cooperations have covered topics such as the preparation of different green manuals on various projects, energy efficiency. There is also a number a number of magazines dealing on the issue of green policy and sustainability (EOL, EGES, Outsider), as well as the traditional construction magazine Gradbenik, which are a great source of information on a wide range of topics.

On the participants point of view, today work in all institutions has lots of common fact: hyperproduction of tasks, faster data and information delivery, changing priorities in time, scattered focus working, administration work results in employs adaptations and search for short cuts, and there is a need for practical and exemplary guidelines to support and orient teams involved in GPP.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.1.12. Challenges faced in designing a training path for PP staff, PP workforce, PP professionals and officials specializing in GPP.

France

The participants pointed out the need for information/awareness of MSB issues and for cross-disciplinary work. The public procurement departments, which are rather focused on the legal aspect, will not be able to take into account the MSB criteria if the technical departments and the elected representatives do not make it a priority.

It should be relevant to make a precise mapping of the training offer on the subject in order to check if they meet the needs of the communities and if necessary to forward these needs to the CNFPT.

They identify a need to adapt university training programs with more concrete concepts and relevant analysis tools (e.g. on the life cycle of materials), to enrich training for adults, to make better use of training credits for elected officials.

In a training session, it is advisable to allow the students/ learners to be in a "real" situation through, for example, workshops associating directly involved actors (local authorities, professionals), able to provide feedback.

From a clear political order, one is able to ask the legal questions. In order to respond to this, it is necessary to be able to train in the knowledge of resources; it would be appropriate to give the institutions the benefit of specific technical assistance or training/action with an exchange of experiences.

While there is already an extensive offer of training on the different aspects of public procurement and GPP, the question arises as to the target groups/beneficiaries of these services and the visibility or quality of the training.

Participants to the existing training, for example those provided by the CNFPT, ADEME or ENVIROBAT, are not necessarily the "decision-makers" in the implementation of public construction contracts (elected officials, head of the "works" department, etc.). It would be relevant to target the heads of department and managers who are supposed to have a transversal view.

Greece

A number of challenges when designing a training path were highlighted. In particular:

- The contracting authorities have various levels of knowledge, and specialization in PP. Problems, barriers, specifications and challenges vary according to the profile of each organization (national, local public bodies, municipalities, ministries etc). Most of public staff is trained either through the Institute of Training, mentioned above, on an ad hoc basis and following a selection procedure made by the Institute. Self-learning and learning by each other are common practice of capacity building in the field.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

- Training provision should be specified according to the profile of the trainees and their correlation with PP (such as different training for those who will form the committee that will select the contractor and different training for those who will monitor the implementation of the contract and will control the deliverables etc.)
- It is necessary to issue instructions from the competent public services on how to integrate environmental criteria into the criteria / selection and award of public contract.
- It is essential to provide with good practices and examples of GPP along with the dimension of evaluating the results and problems raised.
- Constant training on technical issues raised from GPP developments is essential for PP occupants. It is suggested to be provided up to date knowledge on the current technological data (products, methodologies, costs, restrictions that apply at a given time).
- It is important that efforts in this direction are based on a comprehensive and structured action plan, customized to beneficiaries needs, so as to ensure the complementarity of actions and programs, monitoring / evaluation, management support, and interconnection with the construction industry, the academia and the research.
-

Ireland

Targeted: It was recommended by a number of participants that training be targeted to specific groups. There should be a toolkit for information to be passed down in a business so the senior administrator can determine the necessary knowledge for the employees in each position. A breakdown of the knowledge required within a business and a hierarchy of information from senior to front line, as well as an audit process within that system. Levels of training.

Feedback: A process by which the efficiency of each learning method is required. The feedback mechanism is important as well as continuous adaptation.

Structure: Formatting and structuring the training correctly is important. In the supply side people may be in a course with their competitors and may not be prepared to have an open discussion.

Top-down: It is thought that training should be aimed at decision-makers, or people won't do it (As well as tailored training for different groups). Top-down. Local authorities have signed a climate change charter which is a broad indication to people that they intend on being a lot greener and promoting it in the local authorities and communities. Training should be mandated for top managers in the local authority sectors. Once the person in charge is put directly responsible for implementation of the policy and ensuring it's delivered on time, on budget etc, things will get done.

Designers in the group felt that training should also be aimed at people who will influence the building regulations and planning process. Currently the regulations are very restrictive- they need

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

to reflect the environmental targets. A process is needed to allow more innovative solutions/technologies.

Innovation: The problem with the public sector is there's such a risk adversity to change because they always have the challenges hanging over them. Everything will be scrutinised by the market if one of the suppliers find they have been disadvantaged. If they don't follow process, engage the market without discrimination, if they put out a wrong spec, if they're not transparent, they are challenged- the whole process stops, and they go in front of a committee. The tender stops for 6 months. It is felt that the system prohibits people from buying innovation to make changes, and that people need to be given the tools to do it confidently. Everything should be put into a simple process.

Assess: Every state company of significance, every regional and local authority should be asked to prepare a needs assessment to find out, doing a spending review, how and to what extent GPP could apply to that organisation. Then you identify how it will be done.

The training should simplify, and GPP portrayed in a way where 'there are opportunities from this as much as challenges.' With the revised version of Project 2040 national development plan which includes a requirement to use GPP on all capital projects approved by government, as well as the new procurement guidelines which are due to come out, things will begin to move.

Case Studies: Case studies and sharing of information were also suggested to support the trainings, as well as pilot projects.

Slovenia

The participants think it would be useful to make an account on how things have changed since the adoption of GPP regulations in Slovenia. A particular important issue of research is the efficiency of the decentralized system in the public sector and whether a central procurement system would be more useful.

A challenge to design a training path is the constant and evident problem related with staff changes in line ministries, which take knowledge and experience with them when they leave their post.

The participants think that when a sufficiently comprehensible and simple tool, such as this Slovenian system of sustainable construction indicators, is available, it will be easier. This will be accepted as part of daily practice not as an additional work, time burden.

Public administration academy (https://www.gov.si/teme/usposabljanje-javnih-usluzbencev/) for staff training should put more focus on GPP, annually and build career of employees/servants responsible for GPP. There is no specific training for GPP under public procurement training: https://ua.gov.si/aktivnosti/?Tag=459&category=e2b8aa94-8b97-e711-8382-00155d010a0f. The government does not recognize this competence and knowledge GPP gap and requires this from public servants spending public budget. The participants think this to be quite odd.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

4.3.2. Key conclusions reached on transnational level

Integrating green criteria in public procurement is not an easy goal to achieve. The contributing partners report many challenges that arise in their countries and barriers that need to be overcome for this adaptation to be possible. In general terms, partners find that in their countries, the necessary political incentive is not yet present for brave change.

Apart from this, all partners strongly emphasize the lack of available tools for quantifying and assessing environmental qualities, as well as the lack of databases of environmental criteria to adapt to their procurement processes.

Therefore, there is **a growing need for the exchange of best practices and case studies on how to effectively incorporate GPP between interested parties**, i.e. contracting authorities, contractors and their staff, managers, etc. Of course, this is not the only obstacle. There are a number of challenges, such as **the concern**, shared by partners from France, Greece and Ireland, that the implementation of green requirements in public procurement could lead to, or be seen as, **favoring some contractors who can adapt more easily**. Of course, the issue of **higher costs is also alarming**. The French partners point to the potentially higher costs of sustainable solutions, which could be a barrier, especially for SMEs. Like the Irish partners, they stress that setting award criteria in contracts is an important challenge to be addressed. The Slovenian partners stress the need for **financial and technical support for all stakeholders to implement GPP**.

Another concern is the **rapid integration of new sustainable materials**, also taking into account their higher cost. Reference was made to the **possible distortion of competition in the free market**, as this could favor certain suppliers. At the same time, it was pointed out that **the supply market is not ready to respond to these new needs**. For this reason, **stakeholders need to be trained** in the concepts of Life Cycle Assessment (LCA) and Life Cycle Cost (LCC) in order to make the right material choices. Regarding the challenges identified in the PP system and the approach to GPP, the common need defined was the development of **tools that can help quantify the environmental criteria**. In France and Greece, participants believe that this could be addressed by defining award criteria for contractors that exceed the required standards. In Slovenia it was expressed that the development of a system of sustainable construction indicators would be helpful.

The lack of information and knowledge on GPP remains a bottleneck. Partner countries stress **the need for capacity building of all parties** involved in a PP process to implement GPP. French partners note that officials dealing with PP have **limited decision-making support**. In Greece, Ireland and Slovenia, partners consider that **good practices, implementation examples and case studies, as well as a database** - constantly updated - of new technologies and sustainable materials **need to be made available to companies**. Slovenia also points out that the development of model tender documents would help companies to overcome the challenges related to the inclusion of GPP. Against this background, the **qualification of staff at PP** is of great importance for the integration of green criteria into procurement processes. Therefore, a common need for qualification has been identified by the partner countries.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

One of the main needs is **knowledge about sustainable materials that can be used in construction projects**. The partners from Greece stress the importance of training on modern construction methods and ISO standards. On the same topic, respondents from Ireland introduced the concept of "buying better", which means that **contractors will require suppliers to provide only sustainable products**. In general, they believe that PP staff should be trained to keep the overall bottom line in mind when selecting products and services.

In addition, it was agreed that **financial tools that allow stakeholders to analyze the costs** of different solutions for construction projects should be an important part of the training program. The French partners stress the need to train officials from PP to be able to estimate the environmental impacts and costs of projects. The partners from Ireland point out the importance of LCA and the LCC approach.

It has also been reported that familiarity with **GPP policy tends to be confined to high levels of local authorities, central government authorities** or high levels of PP officials. It is therefore important that **the GPP training approach incorporates a specific institutional, legal and policy context**. This context must be **both national and European**. In terms of national policy, it should set the respective framework of all countries involved. In this context, the Greek partners point out the importance of the staff of PP being trained not only in the legislation they have to comply with, but also having an understanding of the environmental issues and the country's obligations towards the EU. However, they believe that a training program for the different sectors should address different levels of knowledge on these issues. The Irish partners point out that the delivery of knowledge must follow the 'stages' method. It is also noted that targeted training combined with general awareness raising is a prerequisite for meeting regulatory requirements. The French partners recommend targeted regulatory monitoring of the various actors, while the Irish partners believe that a top-down approach will be more motivating. Either way, the common opinion is that it would be efficient if "everyone knows everything".

The integration of BIM technology into GPP was a particular issue. Not only because BIM is a useful tool, but also because its use is a prerequisite for participation in public tenders in many European countries. **Respondents from all four countries recognized the value of BIM** and the helpful role it can play in public procurement. It allows planners, workers, officials, etc. to monitor the elements of the project, check the implementation of green criteria and generally help regulate GPP requirements in projects. It also helps in comparing alternative methods and reducing costs as sustainability is also about lifetime cost effectiveness. They also pointed out that it can help in the overall management of the project and its maintenance, reducing the possibility of errors, etc.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.

5. EU level conclusions and recommendations that should be linked with the training design

Respecting the opinions reflected and the input shared by all participants involved in the field research activities, as well as the feedback collected through the desk research activities, the recommendations that should be strongly considered upon the training design phase of the GPP training program are summarised as follows.

Key Conclusions and recommendations concerning the training content:

Skills needs that could be addressed through the GPP capacity building program are the following:

- Institutional, legal and policy framework relative with GPP, applied in national contexts, as well as on EU level.
- Provision of good practices and case studies with efficient GPP applications, along with their results, impact and lessons learnt.
- Raise awareness of GPP inclusion through highlighting GPP benefits, with particular focus on the environmental impact, energy savings, financials and long-term cost benefits.
- Particular recommendation for BIM correlation with GPP, and potential benefits, expected environmental impacts and costs.
- Familiarity with Level(s) methodology provided by the EU.
- Familiarity with Life Cycle Costs (LCC) analysis and Life Cycle Assessment (LCA) approach.
- Capacity building in available tools and databases, such as green clauses, e-platforms for PP, financial tools, where to find accurate green Procurement information such as Environmental Product Declarations (EPD) and specifications- toolkit, concrete tender documentation specifications for GPP etc.
- Mobilization of national building industry towards more green construction product conception and market certification.
- Estimating environmental impacts and costs of projects.
- Raise awareness in technology developments in the areas that affect GPP in relation to materials and construction methods.

Finally, it should be respected the different profiles of participants/ trainees, along with their different familiarity and involvement in GPP. Therefore, customized training according to the different profiles, along with different levels of education could be an option.

Theoretical knowledge provision as well as practical, by integrating case studies, tools, and good practices is strongly recommended.

Raising awareness on the subject matter should be horizontally addressed within the training provision.

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European commission. This publication reflects the views of the author, and the Commission cannot be held responsible for any use which may be made of the information therein.