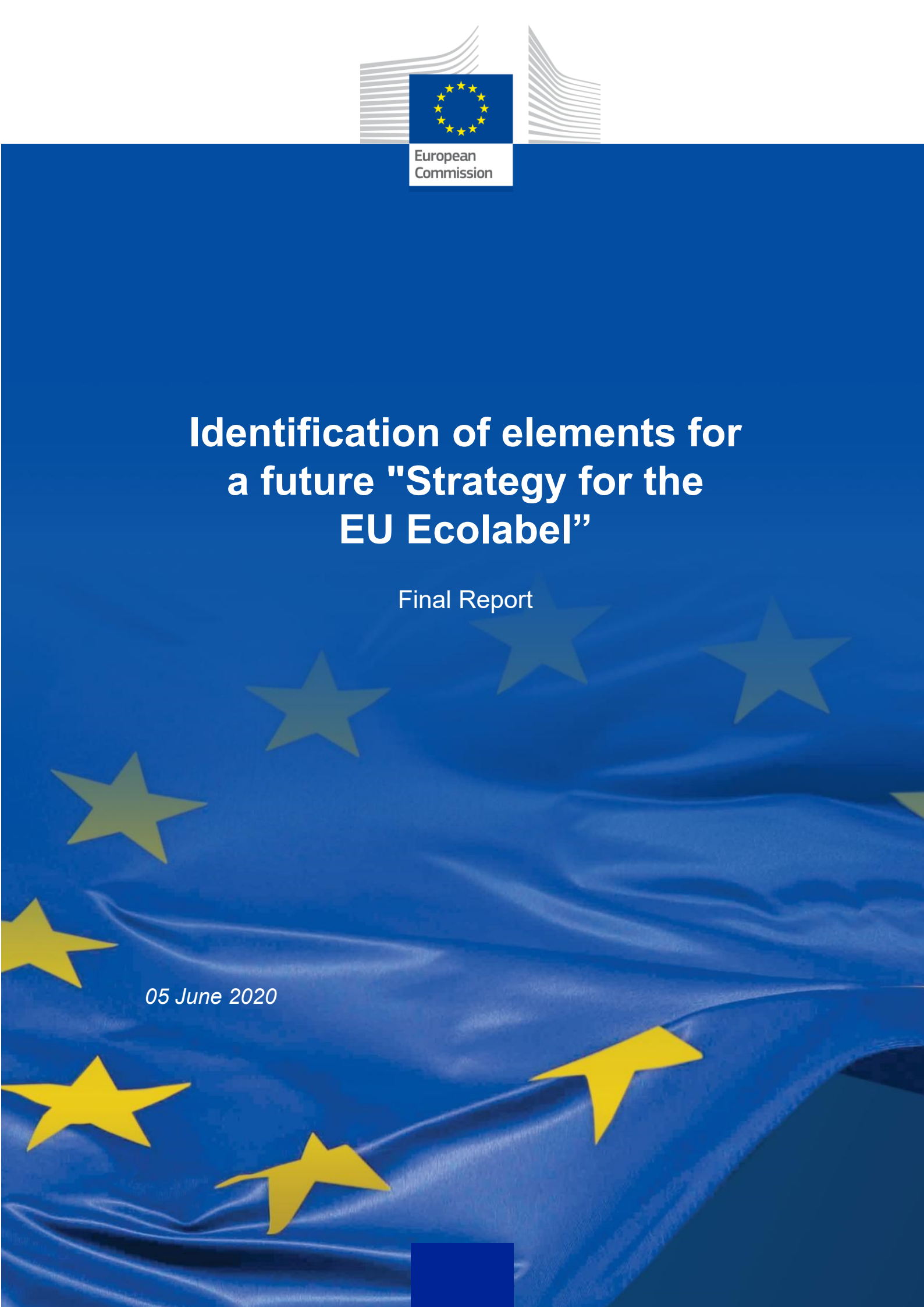

Identification of elements for a future "Strategy for the EU Ecolabel"

Final Report

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Abstract:

The general objective of the present study is to support the implementation of the EU Ecolabel identifying elements for a future strategy. The project team performed a market analysis highlighting water, electricity, gas, transport recreation and culture services, food and non-alcoholic beverages, restaurants and hotels as the most consumed per household budget expenditure. The analysis on the attitude of consumers toward green products and services showed food, beverages and over-the-counter drugs, shoes and apparel, household appliances and electronics, lotions, detergents and creams, paper products, household detergents, mobility and financial services as the most frequently purchased. The comparative analysis between EU Ecolabel and other ecolabelling schemes identified cosmetic products, education services, meeting and events, restaurant and catering services, toner and cartridges and financial products as the most successful product groups of the other ecolabels. Through an analysis on the economic sectors with the highest environmental improvement potential, the project team recognised food, housing and transport as the most relevant. Based on these findings and using the results of the stakeholders' consultation, the project team defined three future scenarios for the EU Ecolabel in addition to the Baseline Scenario. Through the assessment of the scenarios, the project team suggested to pursue a twofold strategy focusing in the short period (by 2023) on consumable goods with a health/well-being connotation and in the long period (by 2028) on food, housing, mobility, education, financial, recreation and cultural sector services. Lastly, the project team developed a methodology for the identification and the discontinuation of EU Ecolabel product groups. With respect to the methodology, the project team considered economic, environmental, social and political criteria with a specific focus on Circular Economy. The methodology was applied to a long-list of possible future product groups. The most favourable future product categories identified are products with a health/well-being connotation; financial, food and transport services; and construction and building-related products.

Executive Summary

The general objective of the present study is to support an improved implementation of the EU Ecolabel voluntary scheme leading to an increased uptake, following the findings and conclusions of the Fitness Check. The specific objective of the present study is to identify elements for a future "Strategy for the EU Ecolabel", specifically focusing on the sector and product groups of interest for the scheme. In order to achieve these goals, the project team performed the following tasks:

- **Task 1, Evidence gathering and market analysis for the identification of windows of opportunities for the EU Ecolabel:**
  - Attitude of consumers toward green products and services;
  - Analysis of the market context;
  - Comparative analysis between EU Ecolabel and other ecolabelling schemes;
  - Identification of the economic sectors with high environmental relevance.
- **Task 2, Identification and assessment of scenarios for the EU Ecolabel and monitoring activities:**
  - Identification of elements for the definition of the scenarios for the EU Ecolabel;
  - Description and assessment of the identified scenarios for the EU Ecolabel;
  - Identification of the most favourable scenario for the EU Ecolabel;
  - Proposal for a monitoring system of the EU Ecolabel.
- **Task 3, Identification of product/service groups on which the EU Ecolabel should focus:**
  - Methodology for the identification and the discontinuation of EU Ecolabel product groups;
  - Identification of product/service groups for the EU Ecolabel.

Key conclusions

Attitude of consumers towards green products and services

In the analysis of the theoretical framework of consumers' behaviour, the project team has focused on the risk of misleading claims and greenwashing, deriving from information asymmetries as regards both consumers and businesses. Sustainable features of products could be a boost for their diffusion on the market and green labels should be able to clearly differentiate the greenest products. In a market without environmental labels, firms are less inclined to promote their sustainable aspects. On the other side, when firms decide to promote their products' sustainability, consumers almost always think that communication is not only incomplete, but also selective, exaggerated, biased and deceptive. **It is precisely here, in this confusing situation, that ecolabelling schemes could assume their primary function: their role as a guide for consumers' choices**.

Through the analysis of the "BCG Global Green Consumer Survey"[1], the project team investigated consumers' willingness to pay a premium price for green products across different product categories.

Food, beverages and over-the-counter drugs, **shoes and apparel**, **household appliances and electronics**, **lotions, detergents and creams**, **paper products, household detergents, mobility and financial services** are types of goods/services most frequently purchased for their green features.

Analysis of the market context

The analysis of the market context has been limited to a statistical analysis based on EUROSTAT data encompassing the Household Budget Surveys. **The analysis of household budget consumption has shown that "Housing, water, electricity, gas and other fuels", "Transport", "Food and non-alcoholic beverages", "Miscellaneous goods and services", "Restaurants and hotels", "Recreation and culture" are the main consumption categories in terms of total household expenditure.** The limitations of the study are mainly related to data availability and to the fact that not all sectors fall within the scope of the EU Ecolabel Regulation[2].

According to the analysis of the top 10 sectors[3] in terms of public procurement demand, the main potential product groups of interest for a future strategy for the EU Ecolabel are "Basic pharmaceutical products" (currently excluded according to the EU Ecolabel regulation), "Education services", "Electricity, gas, steam and air conditioning", and "Human health services"..

After a more detailed analysis, and after excluding product groups not included in the scope of the EU Ecolabel, the analysis has shown that the potential product groups of interest for the EU Ecolabel in terms of EU consumers' demand and of public procurement demand are: **accommodation services, education services, electronic equipment, financial services, household maintenance products and services, medical products (excluding medical device), personal care products, recreational and cultural services, restaurant and catering services, transport services, etc.**

Comparative analysis between EU Ecolabel and other EN ISO 14024 type I ecolabelling schemes

The project team compared the EU Ecolabel with several other officially recognized national or international EN ISO 14024 type I ecolabelling schemes (Nordic Swan, Blue Angel, Austrian Ecolabel, Korean Ecolabel, Environmental Choice - New Zealand, TCO Certified). The comparative analysis focused on existing EU Ecolabel product groups showing lower levels of uptake (in terms of number of labelled products) than the similar product groups under the other ecolabels, and, more importantly, on the product groups those are successful under other ecolabels, but which are currently not considered by the EU Ecolabel.

'Electronic Equipment' and 'Furniture' are the weakest product categories of EU Ecolabel in terms of number of EU Ecolabel products and 'Indoor and Outdoor paints and varnishes' and 'Paper Products' the strongest. Where it is not possible to establish if there is a direct

[1] Source: BCG Global Green Consumer Survey, 2008.
[2] Source: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010R0066&from=EN
[3] Source: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EC), JIIP Joint Institute for Innovation Policy, VVA Consulting, and London Economics (2017)

correspondence between EU Ecolabel and other ecolabelling schemes product groups, the project team recommended a detailed analysis of the technical criteria. Acknowledging that the number of labelled products, of license holders and of criteria cannot be used to determine the uptake of an ecolabel and that the comparative analysis itself could only give an indication of it, the project team provided a pragmatic, but sound and useful tool for identifying successful and unsuccessful product groups for the EU Ecolabel and other ecolabelling schemes through a comparative analysis. **The project team identified several successful product groups under other ecolabels those could be promising under the EU Ecolabel too (e.g. cosmetic products, education services, meetings and events, restaurant and catering service, toner and cartridges, financial products, etc.).**

Identification of the economic sectors with high environmental relevance

The analysis of the environmental relevance clearly shows that **food, housing and mobility sectors are responsible for most of the environmental impacts of the European consumption**.

In the food sector, meat and meat products have the highest environmental relevance, followed by dairy products. **Food products were found to be the priority cluster for the environmental aspects related to emissions (air, water & soil), water use and land use**.

In the housing sector, the **energy used for heating, hot water, electric appliances and construction of housing was the dominating factor in terms of environmental impact**. In particular, electricity was found to be one of the major contributors.

Within the mobility sector, **driving motor vehicles and passenger cars was the main factor contributing with almost 80% to the overall impact**. Furthermore, the impact of air transport for recreation (holidays, tourism) has been continuously increasing.

Additionally, restaurants and hotels contribute significantly to several environmental impacts.

In terms of hazardous content, pharmaceuticals, detergents and sanitation products, pesticides and plastics and synthetic rubber had the highest human toxicity potential. Packaging was important from the perspective of waste generation and lifespan, while textiles were found to be a priority for addressing land use, water use and lifespan. Lastly, it was found that **services have an increasing environmental impact in the EU**.

Identification of elements for the definitions of the scenarios for the EU Ecolabel

From the above findings and from the outcomes of the "Stakeholders' Consultation" organized in the framework of the study, some considerations were outlined for the future development of the EU Ecolabel. These main considerations suggest that a **heterogeneous approach to portfolio definition is more strategic for the EU Ecolabel**.

Consulted stakeholders suggest **focusing on consumable goods and give priority to non-energy-related durable products**. Moreover, **EU Ecolabel should include energy-related products not covered by the EU Energy Label and focus on circular economy aspects - such as durability, reparability, re-use, recyclability, hazardous substances, etc. - if not addressed adequately by the Ecodesign and Energy Label Directives**. **The health/wellbeing connotation of products should be used as market leverage, and the EU Ecolabel should remain a label of environmental excellence. Services may represent a valuable opportunity for increasing**

uptake. The EU Ecolabel should make **strategic considerations** taking into account the potential uptake linked to green public procurement whenever possible and relevant. On the contrary, **B2B should not be considered a priority**. Lastly, even though **the PGs' harmonization with strong national labels should be pursued further, the EU Ecolabel should pursue its own EU-wide market strategy**.

Description and assessment of the identified scenarios for the EU Ecolabel

The project team considered a baseline scenario and proposed three scenarios for the product groups to cover/discontinue under the EU Ecolabel. In order to facilitate the comparison between different scenarios, as regards the new suggested product groups, the project team developed scenarios which are structured in the same way and, when possible, linked together. Scenario 2 incorporated Scenario 1 and provided a more widespread market coverage in terms of additional possible future EU Ecolabel product groups. Scenario 3 incorporated both Scenario 1 and Scenario 2 and provided additional product groups.

The baseline scenario represented the status quo of EU Ecolabel, i.e. no policy change from the actual situation. **Scenario 1 dealt with an EU Ecolabel focused strongly on consumable goods with a health/well-being connotation** and primarily aimed at meeting consumers' demand for such products, with priority assigned to personal care/cosmetic products. **Scenario 2**, in addition to the focus on consumable goods with a health/well-being connotation presented in the Scenario 1, **assigned priority to services in food, housing, mobility, education, financial, recreation and cultural sector**. **Scenario 3**, after incorporating Scenario 1 and Scenario 2, **suggested focusing on housing, mobility and education, recreation and cultural products**.

For each scenario the project team analysed the positioning of the EU Ecolabel in the market, the goods and services those the EU Ecolabel should cover, the relation with the existing EU circular economy tools / role in the EU circular economy, the strategic objectives by 2023/2028, the procedural implications and the elements in the EU Ecolabel Regulation that could represent a barrier for increasing uptake. For each scenario the project team also presented an assessment using the SWOT methodology for the identification of strengths, weaknesses, opportunities and threats for the EU Ecolabel and an assessment using an *ad hoc* quali-quantitative methodology.

The project team developed a quantitative methodology based on the qualitative analysis to assess the scenarios using the economic, political, environmental and social impacts of each scenario.

The project team underlined that Baseline Scenario and Scenario 3 seemed to be two extreme positions, diametrically opposed to each other. For instance, while the Baseline Scenario left everything unchanged with extremely low expected benefits in terms of increasing uptake of the EU Ecolabel, under Scenario 3, high benefits were not expected if compared to the enormous economic effort required. On the contrary, Scenario 1 and Scenario 2 seemed to be more balanced. Considering these two scenarios, the project team recommended adopting a twofold strategy: **in the short-term (by 2023) the project team recommends adopting Scenario 1, which requires a lower economic effort compared to Scenario 2, and, at the same time, budgeting resources for the long-term strategy (by 2028) thus adopting Scenario 2**. As regards the discontinuation of already covered product groups, the **project team recommends adopting a case by case methodology. By analysing the evolution of the product groups** (the trend in terms of number of licences and labelled products) **suggested for discontinuation both in Scenario 1 and**

Scenario 2 and by considering the available resources, it is possible to identify the best solution for each specific product group.

Proposal for a monitoring system of the EU Ecolabel

EU Ecolabel effectiveness in reducing the environmental impact of consumption and production in the EU cannot be fully assessed because of the lack of data to quantify, benchmark and compare the environmental performance of products, and because of the lack of market data for EU Ecolabel products.

At present, the EU Ecolabel uses the number of EU Ecolabel licenses and the number of labelled products as key performance indicators. At the international level, other ISO Type I ecolabelling schemes analysed in the study use a diverse and non-standardized set of indicators to monitor and evaluate their performance. Nevertheless, none of them evaluates neither the environmental benefits nor the market penetration of their ecolabelled products and services. This kind of Key Performance Indicators (KPIs) are considered burdensome in terms of resources needed (time and financial), methodologically difficult or not feasible/unrealistic because data - such as market share, sales, turnover - are not readily accessible to ecolabelling organizations.

The project team deems useful to underline that **an adequate assessment of the performance of the EU Ecolabel shall be based first of all on market penetration data and related to environmental benefits.** Moreover, as regards the level of awareness, trust and overall perception of the EU Ecolabel among EU citizens/consumers, companies and public purchasers, the project team **recommends defining a strategic plan for EU representative consultation to be carried out on a regular basis (every 2-3 years) and in line with available resources**.

Methodology for the identification and the discontinuation of EU Ecolabel product and service groups

The project team provided a methodology to prioritise the product groups identified as possible candidates for the EU Ecolabel. It consisted in a set of criteria constructed using quantitative and qualitative data derived from the conducted **evidence gathering and market analysis for the identification of windows of opportunities for the EU Ecolabel** and from further desk research. **These criteria allow to evaluate the selection of the product groups for the development of EU Ecolabel future portfolio as well as the discontinuation of already covered product groups.** The same approach is proposed for the selection and discontinuation of product groups because a scientific and rational definition of thresholds for the evaluation of the criteria related to the historical evidence of product groups is not possible. **A qualitative assessment of the aspects related to the historical evidence on the performance of products within the EU Ecolabel is proposed for the purpose of decision-making regarding discontinuation of product groups**.

The product groups selection process is based on several criteria with different features but the criterion **"Environmental relevance"** should be considered as the starting point of the analysis. The criterion on consumers' preference in green purchase, **"Green consumption relevance"**, is important as it shows consumer's willingness to buy specific green alternatives. The criterion **"Other ecolabelling schemes"** - i.e. those product groups which have been indicated as successful under other ecolabel schemes in terms of number of labelled products, in the comparative analysis performed in the study - has been considered to complement the long-list of environmentally relevant products and services. To this long-list, products and services currently covered by the EU Ecolabel

(if not present already in the list) are added. This step ensured the use of a harmonized methodology for taking decisions on both – selection or discontinuation of products and services.

The proposed method has been applied to analyse the suggested key product groups identified in the study, in order to identify the most promising ones. The project team came out with a "long-list" of product groups which were then assessed according to the following three criteria: **"Policy opportunity"** meaning if a product group is already adequately "covered" by other EU policies different from EU Ecolabel or circular economy; **"Stakeholders' Expectations"** taking into account if relevant stakeholders would like this product group to be included in the EU Ecolabel and **"Circular economy policy priority".**

Using this methodology, a final long-list of around 50 recommended product groups was provided. The suggested product categories include products those have a direct or indirect **health/well-being connotation (including cosmetic, personal care products**, **financial products, food services, transport services, construction and buildings products)**.

Conclusions

Looking at the work carried on within this project, the project team would recommend adopting a strategy for the future selection of product groups for the EU Ecolabel based on three main pillars:

- Develop a heterogeneous, but not much too broad portfolio with a focus on services and consumable goods with a health/well-being connotation;
- Strongly increase the promotion of the EU Ecolabel at all levels, especially in Member States with currently weak national ecolabels;
- Accelerate criteria harmonisation with other EU policies and develop a common communication strategy for promotion.

In particular, when combining the findings from the different project tasks, the project team suggests adopting a twofold strategy related to the 2023 and 2028 timing milestones. **By 2023**, this would consist in developing criteria for **personal care consumable goods, toys, consumable do-it-yourself chemical products for household maintenance and renovation, consumable chemical products for gardening and sustainable financial products**. By **2028**, the project team suggests developing criteria for the **food sector services (restaurants and cafés, supermarket and food retail and catering services), for laundry services, for meetings and events and for car cleaning services**. As regards the discontinuation of product groups, **the project team recommends assessing each product group on a case by case basis, in view of individually deciding for the possible discontinuation of a product group**. **This means** not only to consider the product group under the criteria proposed under the *Methodology for the identification and the discontinuation of EU Ecolabel product and service groups,* but also **analysing the trend of each product group in terms of number of licences and labelled products, and the available resources.**

Zusammenfassung

Allgemeines Ziel der vorliegenden Studie ist es, eine verbesserte Umsetzung des freiwilligen EU-Umweltzeichens zu unterstützen und dem Zeichen somit zu einer verbesserten Akzeptanz zu verhelfen, ganz im Sinne der Ergebnisse und Schlussfolgerungen des Fitness-Checks[4] . Das konkrete Ziel der vorliegenden Studie besteht darin, Elemente einer zukünftigen „Strategie für das EU-Umweltzeichen“ zu ermitteln. Dabei soll der Schwerpunkt bei denjenigen Sektoren und Produktgruppen gelegt werden, die für das Zeichensystem von besonderem Interesse sind. Um diese Zielsetzung zu erreichen, übernahm das Projektteam die folgenden Aufgaben:

- **Aufgabe 1, Erhebung von Evidenzen und Durchführung von Marktanalysen zur Identifizierung neuer Gelegenheitsfenster für das EU-Umweltzeichen:**
  - Einstellung der Verbraucher zu umweltfreundlichen Produkten und Dienstleistungen;
  - Analyse des Marktumfelds;
  - Vergleichende Analyse zwischen dem EU-Umweltzeichen und anderen Umwelt-zeichensystemen;
  - Identifizierung der Wirtschaftszweige mit hoher Umweltrelevanz.
- **Aufgabe 2, Ermittlung und Bewertung von Szenarien für das EU-Umweltzeichen und die Monitoring-Aktivitäten:**
  - Identifizierung von Elementen für die Festlegung der für das EU-Umweltzeichen möglichen Szenarien;
  - Beschreibung und Bewertung der identifizierten Szenarien für das EU-Umwelt-zeichen;
  - Ermittlung des möglichst besten Szenarios für das EU-Umweltzeichen;
  - Vorschlag für ein Monitoringsystem für das EU-Umweltzeichen.
- **Aufgabe 3, Identifizierung von Produkt-/Dienstleistungsgruppen, auf die das EU-Umweltzeichen fokussieren sollte:**
  - Methodik zur Identifizierung und Einstellung von Produktgruppen mit dem EU-Umweltzeichen;
  - Identifizierung von Produkt-/Dienstleistungsgruppen für das EU-Umweltzeichen.

Wichtigste Schlussfolgerungen

Einstellung der Verbraucher zu umweltfreundlichen Produkten und Dienstleistungen

Bei der Analyse des theoretischen Rahmens des Konsumentenverhaltens konzentrierte sich das Projektteam auf das Risiko von irreführenden Werbeaussagen und Greenwashing, welches sich aus Informationsasymmetrien sowohl in Bezug auf Verbraucher als auch Unternehmen ergibt. Nachhaltigkeitsmerkmale von Produkten könnten deren Marktverbreitung fördern und grüne Labels sollten dazu dienen, die umweltfreundlichsten Produkte klar abzugrenzen. In einem Markt ohne Umweltzeichen sind Unternehmen weniger dazu geneigt, ihre Bemühungen im Hinblick auf Nachhaltigkeitsaspekte herauszustellen. Entschließen sich Unternehmen hingegen für das

[4] Quelle: https://ec.europa.eu/environment/ecolabel/documents/Report_from_the_Commission.pdf

Bewerben der Nachhaltigkeit ihrer Produkte, so halten die Verbraucher deren Kommunikation nahezu immer nicht nur für unvollständig, sondern auch für selektiv, übertrieben, voreingenommen und irreführend. **Gerade in dieser unübersichtlichen Lage sollten Umweltzeichensysteme ihre Hauptfunktion wahrnehmen, nämlich als Leitfaden für die Entscheidungen der Verbraucher dienen.**

Mit der Analyse des "BCG Global Green Consumer Survey"[5] untersuchte das Projektteam die Bereitschaft der Konsumenten, für grüne Produkte über verschiedene Produktkategorien hinweg einen Premiumpreis zu zahlen.

Lebensmittel, Getränke und rezeptfreie Medikamente, Schuhe und Bekleidung, Haushaltsgeräte und Elektronik, Lotionen, Waschmittel und Cremes, Papierprodukte, Haushaltsreiniger, Mobilität und Finanzdienstleistungen sind die Arten von Produkt/Dienstleistungen, die am häufigsten aufgrund ihrer grünen Eigenschaften gekauft werden.

Analyse des Marktumfelds

Die Analyse des Marktumfelds beschränkte sich auf eine statistische Analyse auf der Grundlage von EUROSTAT-Daten aus der Erhebung über die Wirtschaftsrechnungen der privaten Haushalte. **Die Analyse der Wirtschaftsrechnungen privater Haushalte zeigte, dass „Wohnen, Wasser, Strom, Gas und andere Brennstoffe“, „Verkehr“, „Nahrungsmittel und alkoholfreie Getränke“, „Verschiedene Waren und Dienstleistungen“, „Restaurants und Hotels“ sowie „Freizeit und Kultur“ die wichtigsten Verbrauchskategorien bezogen auf die gesamten Haushaltsausgaben sind.** Die Einschränkungen der Studie hängen hauptsächlich mit Datenverfügbarkeit zusammen sowie mit der Tatsache, dass nicht alle Sektoren in den Geltungsbereich der EU-Umweltzeichenverordnung fallen[6].

Gemäß der Analyse der 10 wichtigsten Sektoren[7] in Bezug auf die Nachfrage im öffentlichen Beschaffungswesen sind die wichtigsten potenziellen Produktgruppen, die im Hinblick auf eine zukünftige Strategie für das EU-Umweltzeichen von Interesse sind, die „Pharmazeutische Basisprodukte“ (derzeit nach der EU-Umweltzeichenverordnung ausgeschlossen), „Bildungsdienste“; „Energieversorgung“ und „Gesundheitsdienste".

Nach einer detaillierteren Analyse und nach Ausschluss von Produktgruppen, die nicht in den Geltungsbereich des EU-Umweltzeichens fallen, zeigte sich, dass die potenziellen Produktgruppen, die für das EU-Umweltzeichen in Bezug auf die Nachfrage der EU-Verbraucher und die Nachfrage im öffentlichen Beschaffungswesen wichtig sind, sind : **Unterkunftsdienste, Bildungsdienste, elektronische Geräte, Finanzdienstleistungen, Haushaltspflegeprodukte und -dienstleistungen, medizinische Produkte (außer medizintechnischen Geräten), Körperpflegeprodukte, Freizeit- und Kulturdienstleistungen, Restaurant- und Verpflegungsdienstleistungen, Verkehrsdienstleistungen usw.**

Vergleichende Analyse zwischen dem EU-Umweltzeichen und anderen EN ISO 14024 Typ I-Umweltzeichensystemen

[5] Quelle: BCG Global Green Consumer Survey, 2008
[6] Quelle: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010R0066&from=EN
[7] Quelle: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EC), JIIP Joint Institute for Innovation Policy, VVA Consulting, and London Economics (2017)

Das Projektteam verglich das EU-Umweltzeichen mit mehreren anderen offiziell anerkannten nationalen bzw. internationalen EN ISO 14024 Typ I-Umweltzeichensystemen (dem skandinavischen Nordic Swan, dem Blauen Engel, dem österreichischen Umweltzeichen, dem koreanischen Umweltzeichen, dem neuseeländischen Umweltzeichen sowie dem Gütesiegel „TCO-zertifiziert"). Das Augenmerk der vergleichenden Analyse lag dabei hauptsächlich auf Produktgruppen des EU-Umweltzeichens, die (der Anzahl der gekennzeichneten Produkte nach zu urteilen) eine geringere Akzeptanz aufweisen als die ähnlicher Produktgruppen unter anderen Umweltzeichen, sowie insbesondere auf Produktgruppen, die unter anderen Umweltzeichen erfolgreich sind, aber vom EU-Umweltzeichen derzeit nicht berücksichtigt werden.

„Elektronische Geräte" und „Möbel" erwiesen sich dabei, gemessen an der Anzahl der mit dem EU-Umweltzeichen gekennzeichneten Produkte, als die schwächsten Produktkategorien des EU-Umweltzeichens, „Farben und Lacke für den Innenraum und Außenbereiche" und „Papierprodukte" als die stärksten . Für Fälle, in denen es nicht möglich ist, einen direkten Zusammenhang zwischen dem EU-Umweltzeichen und anderen Produktgruppen von Umweltzeichensystemen herzustellen, empfahl das Projektteam eine detaillierte Analyse der technischen Kriterien. In der Erkenntnis, dass die Anzahl der gekennzeichneten Produkte, der Lizenznehmer und der Kriterien nicht ausschließlich für die Akzeptanz eines Umweltzeichens maßgeblich sind und dass die vergleichende Analyse selbst nur einen Anhaltspunkt dafür liefern kann, stellte das Projektteam mit der vergleichenden Analyse ein pragmatisches, aber solides und nützliches Instrument zur Verfügung, um „erfolgreiche" und wenig erfolgreiche Produktgruppen für das EU-Umweltzeichen und andere Umweltzeichensysteme zu ermitteln. **Das Projektteam identifizierte dabei mehrere Produktgruppen, die unter anderen Umweltzeichensystemen (z.B. Kosmetikprodukte, Bildungsdienste, Meetings und Veranstaltungen, Restaurant- und Catering-Service, Toner und Kartuschen, Finanzprodukte etc.) erfolgreich sind und auch in Bezug auf das EU-Umweltzeichen vielversprechend sein könnten.**

Identifizierung der Wirtschaftszweige mit hoher Umweltrelevanz

Die Analyse der Umweltrelevanz zeigt deutlich, dass **der Lebensmittel-, Wohn- und Mobilitätssektor in Europa den größten Teil der konsumbedingten Umweltauswirkungen ausmacht.**

Im Lebensmittelsektor haben Fleisch und Fleischprodukte die höchste ökologische Relevanz, gefolgt von Milchprodukten. **Lebensmittel stellten sich als die Gruppe mit der höchsten Dringlichkeit in Bezug auf Emissionen (Luft, Wasser und Boden) und Wasser- und Landnutzung heraus.**

Im Wohngebäudebereich waren der **Energieverbrauch für Heizung, Warmwasser und Elektrogeräte sowie der Wohnungsbau die dominierenden Faktoren in Bezug auf ihre Umweltauswirkungen.** Insbesondere stellte sich der Strom als einer der Hauptverursacher der Umweltauswirkungen in diesem Sektor heraus.

Innerhalb des Mobilitätssektors war das **Fahren mit Kraftfahrzeugen und Personenkraftwagen mit einem Anteil von fast 80 % an den Gesamtumweltwirkungen das Hauptproblem.** Des Weiteren nimmt der Einfluss der freizeitbedingten Flugreisen (Urlaub, Tourismus) kontinuierlich zu. Darüber hinaus tragen Restaurants und Hotels wesentlich zu mehreren Umweltauswirkungen bei.

Bei den gefährlichen Inhaltsstoffen hatten Pharmazeutika, Wasch- und Reinigungsmittel, Pestizide und Kunststoffe sowie Kunstkautschuk das höchste Humantoxizitätspotenzial. Die Verpackung war

in Bezug auf Abfallproduktion und Lebensdauer von großer Bedeutung, während sich Textilien als prioritär für die Lösung der Probleme im Zusammenhang mit Landnutzung, Wassernutzung und Lebensdauer erwiesen. Schließlich wurde festgestellt, dass **der Dienstleistungssektor in der EU immer größere Auswirkungen auf die Umwelt hat.**

Identifizierung von Elementen für die Festlegung der Szenarien für das EU-Umweltzeichen

Aus den obigen Ergebnissen und den Ergebnissen der im Rahmen der Studie organisierten "Stakeholder-Konsultation" wurden einige Überlegungen zur zukünftigen Entwicklung des EU-Umweltzeichens skizziert. Diese zentralen Überlegungen legen nahe, dass ein **heterogener Ansatz bei der Festlegung des Portfolios für das EU-Umweltzeichen strategisch sinnvoller ist.**

Die konsultierten Akteure schlagen vor, **sich auf Verbrauchsgüter zu konzentrieren und nicht-energieverbrauchsrelevante langlebige Produkte vorrangig zu behandeln.** Darüber hinaus sollte **das EU-Umweltzeichen auch energieverbrauchsrelevante Produkte einschließen, die nicht unter die EU-Energieeffizienzkennzeichnung fallen, und dabei sich auf Aspekte der Kreislaufwirtschaft – wie Haltbarkeit, Reparaturfähigkeit, Wiederverwendung, Recyclingfähigkeit, Gefahrstoffe usw. – konzentrieren – wenn diese Aspekte in der Ökodesign- und der Energiekennzeichnungsrichtlinie nicht ausreichend berücksichtigt werden. Die Konnotation von Produkten in Bezug auf Gesundheit / Wohlbefinden sollte als Markthebel genutzt werden, wobei das EU-Umweltzeichen weiterhin ein Zeichen für hervorragende Umweltfreundlichkeit bleiben sollte. Dienstleistungen können dabei zu einer erhöhten Akzeptanz beitragen.** Das EU-Umweltzeichen sollte, wann immer möglich und relevant, **strategische Überlegungen zu einer möglichen Anwendung im Zusammenhang mit dem umweltgerechten öffentlichen Beschaffungswesen** anstellen. **B2B** sollten jedoch **nicht prioritär behandelt werden**. Und schließlich ist **die Harmonisierung der Produktgruppen mit starken nationalen Zeichen zwar weiter voranzutreiben, doch sollte das EU-Umweltzeichen seine eigene EU-weite Marktstrategie verfolgen.**

Beschreibung und Bewertung der identifizierten Szenarien für das EU-Umweltzeichen

Das Projektteam betrachtete ein Basisszenario und schlug drei Szenarien in Bezug auf Produktgruppen vor, die vom EU-Umweltzeichensystem abgedeckt und solche, die nicht unter dem Umweltzeichen fortgeführt werden sollen. Um den Vergleich zwischen den verschiedenen Szenarien zu erleichtern, hat das Projektteam für die neu vorgeschlagenen Produktgruppen Szenarien entwickelt, die gleich aufgebaut und, wenn möglich, miteinander verknüpft sind. So integriert Szenario 2 Szenario 1 und sieht eine breitere Marktabdeckung im Hinblick auf zusätzliche mögliche künftige Produktgruppen für das EU-Umweltzeichen vor. Szenario 3 integriert sowohl Szenario 1 als auch Szenario 2 und sieht weitere Umweltzeichen vor.

Das Basisszenario stellt den Status quo des EU-Umweltzeichens dar, d.h. es enthält keine strategische Änderung gegenüber der aktuellen Situation. **Szenario 1 befasst sich mit einem EU-Umweltzeichen, das sich stark auf Verbrauchsgüter mit einer Gesundheits-/Wohlfühlkonnotation** konzentriert und in erster Linie darauf abzielt, die Nachfrage der Verbraucher nach solchen Produkten zu befriedigen, wobei der Schwerpunkt auf Körperpflege-/Kosmetikprodukten liegt. **Szenario 2 räumt** neben dem im Szenario 1 dargestellten Fokus auf Konsumgüter mit Gesundheits-/Wohlfühlkonnotation **Dienstleistungen aus den Bereichen Ernährung, Wohnen, Mobilität,**

Bildung, Finanzen, Freizeit und Kultur Priorität ein. Der Ansatz von **Szenario 3** nach Einbeziehung von Szenario 1 und Szenario 2 ist eine Fokussierung **auf Wohnen, Mobilität und Bildung, Freizeit und Kulturprodukte**.

Für jedes Szenario analysierte das Projektteam die Positionierung des EU-Umweltzeichens auf dem Markt, die potenzielle Abdeckung der Waren und Dienstleistungen durch das EU-Umweltzeichen, die Beziehung zu den bestehenden EU-Instrumenten der Kreislaufwirtschaft / die Rolle in der Kreislaufwirtschaft der EU, die strategischen Ziele bis 2023/2028, die verfahrenstechnischen Auswirkungen und die Elemente der EU-Umweltzeichen-Verordnung, die ein Hindernis für eine zunehmende Verbreitung darstellen könnten. Darüber hinaus legte das Projektteam für jedes Szenario eine Bewertung nach der SWOT-Methode zur Ermittlung der Stärken, Schwächen, Chancen und Risiken des EU-Umweltzeichens sowie eine Bewertung auf der Grundlage einer qualitativ-quantitativen Methodik vor.

Ermittlung des besten Szenarios für das EU-Umweltzeichen

Das Projektteam entwickelte eine auf der qualitativen Analyse basierende quantitative Methodik zur Bewertung der Szenarien anhand der wirtschaftlichen, politischen, ökologischen und sozialen Auswirkungen der einzelnen Szenarien.

Das Projektteam unterstrich, dass das Basisszenario und Szenario 3 zwei Extrempositionen zu sein scheinen, die sich diametral gegenüberstehen. Während das Basisszenario zum Beispiel alles unverändert lässt, wobei die zu erwarteten Vorteile hinsichtlich des zunehmenden Erfolgs des EU-Umweltzeichens gering ausfallen, nimmt Szenario 3 weitreichende Änderungen vor, obwohl angesichts des enormen wirtschaftlichen Aufwands keine allzu großen Vorteile zu erwarten sind. Im Gegensatz dazu scheint Szenario 1 und Szenario 2 eine ausgewogenere Herangehensweise zugrunde zu liegen. In Anbetracht dieser beiden Szenarien empfiehlt das Projektteam, eine Doppelstrategie zu verfolgen. **Das Projektteam** empfiehlt **Szenario 1, das im Vergleich zu Szenario 2 einen geringeren wirtschaftlichen Aufwand erfordert, kurzfristig (bis 2023) zu verabschieden und gleichzeitig die Mittel für die langfristige Strategie (bis 2028) zu budgetieren, was mit der Annahme von Szenario 2 gleichzusetzen ist.** Hinsichtlich der Einstellung bereits abgedeckter Produktgruppen empfiehlt das Projektteam **die Zugrundelegung einer Einzelfallmethodik**. **Mithilfe einer Analyse der Entwicklung der Produktgruppen** (Trend in Bezug auf die Anzahl der Lizenzen und der gekennzeichneten Produkte)**, deren Einstellung sowohl in Szenario 1 als auch in Szenario 2 vorgeschlagen wird, und unter Berücksichtigung der verfügbaren Ressourcen sollte es möglich sein, die beste Lösung für jede spezifische Produktgruppe zu identifizieren.**

Vorschlag für ein Monitoringsystem für das EU-Umweltzeichen

Eine vollständige Bewertung der Wirksamkeit des EU-Umweltzeichens hinsichtlich der Verringerung der Umweltauswirkungen von Verbrauch und Produktion in der EU ist nicht möglich, da es keine Daten zur Quantifizierung und Bewertung sowie zum Vergleich der Umweltleistung von Produkten gibt und es an Marktdaten für EU-Umweltzeichenprodukte mangelt.

Derzeit verwendet das EU-Umweltzeichen die Anzahl der Lizenzen für das EU-Umweltzeichen und die Anzahl der gekennzeichneten Produkte als wichtige Leistungsindikatoren. Auf internationaler Ebene verwenden andere Umweltzeichensysteme des ISO-Typs I, die im Rahmen der Studie untersucht wurden, einen diversifizierten und nicht standardisierten Satz von Indikatoren zum Monitoring und zur Bewertung ihrer Leistung. Von keinem dieser Systeme wird jedoch der

ökologische Nutzen oder die Marktdurchdringung ihrer mit dem Umweltzeichen gekennzeichneten Produkte und Dienstleistungen bewertet. Diese Art von Leistungskennzahlen gelten als extrem aufwändig in Bezug auf den Ressourcenbedarf (Zeit und Geld), methodisch schwierig oder nicht realisierbar/unrealistisch, da Daten wie z.B. Marktanteil, Absatz, Umsatz etc. für Umweltzeichenorganisationen nur schwer zugänglich sind.

Das Projektteam möchte betonen, dass **eine angemessene Bewertung der Leistung des EU-Umweltzeichens zunächst auf Daten über die Marktdurchdringung und die damit verbundenen Umweltvorteile beruhen sollte.** Was darüber hinaus den Grad der Sensibilisierung, des Vertrauens und der allgemeinen Wahrnehmung des EU-Umweltzeichens bei den EU-Bürgern/Verbrauchern, Unternehmen und öffentlichen Auftraggebern betrifft, **so empfiehlt das Projektteam die Festlegung eines strategischen Plans für die regelmäßige (alle 2-3 Jahre) und im Einklang mit den verfügbaren Ressourcen durchzuführende Konsultation der EU-Vertreter.**

Methodik zur Identifizierung und Einstellung der Produkt- und Dienstleistungsgruppen mit dem EU-Umweltzeichen

Das Projektteam stellte eine Methodik zur Priorisierung der Produktgruppen (PG) vor, die als mögliche Kandidaten für das EU-Umweltzeichen identifiziert wurden. Diese bestand aus einer Reihe von Kriterien, die auf der Grundlage quantitativer und qualitativer Daten, die aus den Analysen in diesem Vorhaben sowie aus weiterer Sekundärforschung erstellt wurden, abgeleitet wurden. **Diese Kriterien ermöglichen es, die Auswahl der Produktgruppen für die Entwicklung des zukünftigen Portfolios des EU-Umweltzeichens sowie für die Einstellung der bereits abgedeckten Produktgruppen zu bewerten.** Der gleiche Ansatz wird für die Auswahl und Einstellung von Produktgruppen vorgeschlagen, da eine wissenschaftliche und rationale Definition von Schwellenwerten für die Bewertung der Kriterien in Bezug auf den historischen Nachweis von Produktgruppen nicht möglich ist**. Hinsichtlich der Entscheidung über die Einstellung von Produktgruppen wird eine qualitative Bewertung der Aspekte im Zusammenhang mit den historischen Nachweisen über die Leistung von Produkten innerhalb des EU-Umweltzeichens empfohlen.**

Der Prozess der Auswahl der Produktgruppen basiert auf mehreren Kriterien mit unterschiedlichen Merkmalen, wobei das Kriterium **„Umweltrelevanz“** als Ausgangspunkt der Analyse zu betrachten ist. Das Kriterium der Verbraucherpräferenz beim ökologischen Einkauf, **„Relevanz des grünen Konsums“** ist wichtig, da es die Bereitschaft der Verbraucher zeigt, bestimmte grüne Alternativen zu kaufen. Das Kriterium **„Andere Umweltzeichensysteme“**, d.h. diejenigen Produktgruppen, die unter anderen Umweltzeichensystemen in Bezug auf die Anzahl der gekennzeichneten Produkte als erfolgreich eingestuft wurden, wurde in der in der Studie durchgeführten Vergleichsanalyse als sinnvolle Ergänzung zur langen Liste (Long List) der umweltrelevanten Produkte und Dienstleistungen betrachtet. In diese Long List wurden die derzeit unter das EU-Umweltzeichen fallenden Produkte und Dienstleistungen aufgenommen, die bislang noch nicht auf der Liste standen. Dieser Schritt stellte die Verwendung einer harmonisierten Methodik zur Entscheidungsfindung hinsichtlich der Auswahl bzw. Einstellung von Produkten und Dienstleistungen sicher.

Die vorgeschlagene Methode wurde zur Analyse der vorgeschlagenen Schlüssel-Produktgruppen, die in der Studie identifiziert worden waren, herangezogen, um die vielversprechendsten

Produktgruppe zu ermitteln Das Projektteam erstellte eine sogenannte Long List von Produktgruppen, die dann anhand der folgenden drei Kriterien bewertet wurden: **„Politische Opportunität“** bewertet, ob eine Produktgruppe bereits ausreichend durch andere EU-Politikinstrumente abgedeckt ist,. **„Erwartungen der Interessenvertreter“** berücksichtigt, wenn relevante Interessengruppen die entsprechende Produktgruppe gerne in das EU-Umweltzeichen aufnehmen lassen würden und **„Politische Priorität einer Kreislaufwirtschaft (Circular Economy)“.** Unter Anwendung dieser Methodik wurde eine endgültige Long List von rund 50 empfohlenen Produktgruppen vorgelegt. Die vorgeschlagenen Produktkategorien beinhalten Produkte mit einer direkten oder indirekten **Gesundheits-/Wohlfühlkonnotation (einschließlich Kosmetik- und Körperpflegeprodukten), Finanzprodukte, Lebensmittel- und Transportdienstleistungen sowie Bauprodukte.**

Schlussfolgerungen

Im Rückblick auf die im Rahmen dieses Projekts geleistete Arbeit würde das Projektteam empfehlen, eine Strategie für die zukünftige Auswahl von Produktgruppen für das EU-Umweltzeichen basierend auf drei Säulen zugrunde zu legen:

- Entwicklung eines heterogenen, aber nicht zu breiten Portfolios mit Fokus auf Dienstleistungen und Konsumgütern mit Gesundheits-/Wohlfühlkonnotation;
- Deutlich verstärkte Förderung des EU-Umweltzeichens auf allen Ebenen, insbesondere in den Mitgliedstaaten mit derzeit schwachen nationalen Umweltzeichen;
- Beschleunigung der Kriterienharmonisierung mit starken nationalen Umweltzeichen und Entwicklung einer gemeinsamen Kommunikationsstrategie für die Werbung.

Insbesondere auf der Grundlage der Summe der unterschiedlichen Erkenntnisse aus den verschiedenen Projektaufgaben schlug das Projektteam vor, eine Doppelstrategie in Bezug auf die Zeitvorgabe der Meilensteine 2023 und 2028 zu verfolgen. **Bis 2023** würde diese daraus bestehen, Kriterien für **verbrauchbare Körperpflegeprodukte, Spielzeug, verbrauchbare Do-it-yourself-Chemikalienprodukte für die Instandhaltung und Renovierung von Haushalten, chemische Konsumgüter für den Gartenbau und nachhaltige Finanzprodukte** zu entwickeln. Für den Zeitraum **bis 2028** schlug das Projektteam vor, Kriterien für den **Lebensmittelsektor (Restaurants und Cafés, Dienstleistungen in Supermärkten, Lebensmitteleinzelhandel sowie Catering), für Wäschereidienstleistungen, für Meetings und Veranstaltungen sowie für Autowaschdienste zu entwickeln**. Hinsichtlich der Einstellung von Produktgruppen **empfiehlt das Projektteam, jede Produktgruppe im Hinblick auf die individuelle Entscheidung über ihre mögliche Einstellung von Fall zu Fall zu bewerten.**

Dies bedeutet, dass die Produktgruppe nicht nur nach den in der *Methodik zur Ermittlung und Einstellung von Produkt- und Dienstleistungsgruppen im EU-Umweltzeichen* vorgeschlagenen Kriterien betrachtet wird, sondern dass auch **der Trend jeder Produktgruppe in Bezug auf die Anzahl der Lizenzen sowie der gekennzeichneten Produkte und die Verfügbarkeit von bestehenden Ressourcen berücksichtigt wird.**

Résumé analytique

L 'objectif général de la présente étude est de soutenir une meilleure mise en œuvre du système volontaire de l'Ecolabel Européen conduisant à une adoption accrue, à la suite des constatations et conclusions du bilan de qualité. L'objectif spécifique de la présente étude est d'identifier les éléments d'une future "stratégie pour l'Ecolabel Européen, en se concentrant spécifiquement sur le secteur et les groupes de produits d'intérêt pour le programme. Afin d'atteindre ces objectifs, l'équipe de projet a effectué les tâches suivantes:

- **Tâche 1, Collecte des données probantes et analyse du contexte du marché de l'Écolabel Européen:**
  - Attitude des consommateurs à l'égard des produits et services écologiques;
  - Analyse du contexte du marché;
  - Analyse comparative entre l'Écolabel Européen et d'autres systèmes de label écologique
  - Identification des secteurs économiques présentant le potentiel d'amélioration environnementale le plus élevé.
- **Tâche 2, Identification et évaluation de scénarios pour l'Écolabel Européen et les activités de surveillance:**
  - Identification des éléments pour les définitions des scénarios pour l'Écolabel Européen;
  - Description et évaluation des scénarios identifiés pour le l'Écolabel Européen;
  - Identification du scénario le plus favorable pour le l'Écolabel Européen;
  - Proposition relative à un système de surveillance de l'Écolabel Européen.
- **Tâche 3, Identification des groupes de produits/services sur lesquels l'Écolabel Européen devrait se concentrer:**
  - Méthodologie pour l'identification ou l'abandon des groupes de produits et de services de l'Écolabel Européen;
  - Identification des groupes de produits/services pour l'Écolabel Européen.

Principales conclusions

Attitude des consommateurs à l'égard des produits et services écologiques

En analysant le cadre théorique du comportement des consommateurs, l'équipe du projet s'est concentrée sur le risque d'allégations trompeuses et de *greenwashing*. Ces problèmes découlant des asymétries d'information concernent à la fois les consommateurs et les entreprises. Les caractéristiques de durabilité des produits peuvent stimuler la diffusion sur le marché ; les labels sont un symbole qui doit pouvoir différencier les produits étiquetés des autres. Dans un marché sans label environnemental, les entreprises sont moins enclines à promouvoir leurs aspects de durabilité. D'un autre côté, si les entreprises décident de communiquer les atouts positifs sur la durabilité de leurs produits, les consommateurs pensent que la communication n'est pas seulement incomplète, mais sélective, exagérée, biaisée et trompeuse. **C'est précisément ici, dans cette situation**

confuse, que les systèmes d'étiquetage écologique pourraient assumer leur fonction principale, leur rôle de guide pour les choix des consommateurs.

Dans le cadre de l'analyse de l'enquête "*BCG Global Green Consumer Survey*"[8], l'équipe du projet a enquêté sur la volonté de payer un prix plus élevé pour les modifications apportées aux produits écologiques dans différentes catégories de produits.

Les aliments, les boissons et les médicaments en vente libre, les chaussures et les vêtements, les appareils ménagers et électroniques, les lotions, les détergents et les crèmes, les produits en papier et en plastique et les nettoyants ménagers, la mobilité et les services financiers sont les catégories de produits les plus fréquemment achetés par les consommateurs pour leurs caractéristiques écologiques.

Analyse du contexte de marché

L'analyse du contexte du marché a été réalisée au moyen d'une analyse statistique basée sur les données d'EUROSTAT englobant les enquêtes sur le budget des ménages. **L'analyse de la consommation du budget des ménages fait apparaître que "Logement, eau, électricité, gaz et autres combustibles", "Transport", "Alimentation et boissons non alcoolisées", "Biens et services divers", "Restaurants et hôtels", "Loisirs et culture" sont les principales catégories de consommation en termes de dépenses totales des ménages.** Les limites de l'étude sont principalement liées à la disponibilité des données du fait que tous les secteurs ne sont pas adaptés au champ d'application du l'Écolabel Européen. Néanmoins, il pourrait y avoir des sous-secteurs des secteurs les plus importants selon l'analyse de la consommation des ménages qui sont cohérents avec l'Écolabel Européen.

Selon l'analyse des 10 principaux secteurs[9] en termes de demande de marchés publics, les principaux groupes de produits potentiels d'intérêt pour une future stratégie pour l'Ecolabel Européen sont les "produits pharmaceutiques de base" (actuellement exclus selon le règlement de l'Ecolabel Européen), "l'éducation", "Électricité, gaz, vapeur et climatisation" et "Services de santé humaine".

Après une analyse plus détaillée et après exclusion des groupes de produits non inclus dans le champ d'application du l'Ecolabel Européen, l'analyse a montré que les groupes de produits potentiels présentant un intérêt pour l'Ecolabel Européen en termes de demande des consommateurs de l'UE et de marchés publics sont: **services d'hébergement, services éducatifs, équipement électronique, services financiers, produits et services d'entretien ménager, produits médicaux (à l'exclusion des dispositifs médicaux), produits de soins personnels, services récréatifs et culturels, services de restauration et de restauration, services de transport, etc.**

Analyse comparative entre l'Ecolabel Européen et d'autres systèmes de label écologique

L'équipe du projet a comparé l'Écolabel Européen avec d'autres systèmes d'étiquetage écologique nationaux ou internationaux EN ISO 14024 de type I officiellement reconnus (*Nordic Swan, Blue Angel, Austrian Ecolabel, Korean Ecolabel, Environmental Choice - New Zealand, TCO Certified*). L'analyse comparative s'est concentrée soit sur les groupes de produits du l'Écolabel Européen

[8] Source: BCG Global Green Consumer Survey, 2008.
[9] Source: Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EC), JIIP Joint Institute for Innovation Policy, VVA Consulting, and London Economics (2017)

présentant des niveaux d'utilisation inférieurs à ceux des autres labels écologiques en termes de produits labellisés, soit, plus important encore, sur les groupes de produits qui sont couverts par les critères des autres labels écologiques, mais qui ne sont pas considérés par l'Écolabel Européen. Prenant la structure de l'Écolabel Européen comme référence, l'équipe du projet a comparé le succès, mesuré en termes de nombre de produits labellisés, d'autres systèmes d'étiquetage écologique.

Les "équipements électroniques" et les "meubles" sont les catégories de produits les plus faibles l'Écolabel Européen ; les "peintures et vernis d'intérieur et d'extérieur" et les "produits en papier" sont les plus fortes en termes de nombre de produits étiquetés Écolabel Européen. Lorsqu'il n'est pas possible d'établir s'il existe une correspondance directe entre l'Écolabel Européen et d'autres catégories de produits du système d'étiquetage écologique, l'équipe du projet a recommandé une analyse détaillée des critères techniques. Consciente que le nombre de produits labellisés, de titulaires de licence et de critères ne peuvent être utilisés pour déterminer l'adoption d'un label écologique et que l'analyse comparative elle-même ne peut que donner une indication, l'équipe du projet a fourni, à travers l'analyse comparative, un outil pragmatique, mais solide et utile pour identifier les points faibles et les forces de l'Écolabel Européen et des autres systèmes d'étiquetage écologiques. **L'équipe du projet a identifié plusieurs groupes de produits (par exemple, produits cosmétiques, services éducatifs, réunions et événements, services de restauration, toner et cartouches, produits financiers, etc.) d'autres systèmes d'étiquetage écologique qui pourraient être pris en considération par l'Écolabel Européen pour son développement futur.**

Identification des secteurs économiques présentant le potentiel d'amélioration environnementale le plus élevé

L'analyse de la pertinence environnementale montre clairement que **les secteurs de l'alimentation, du logement et de la mobilité sont responsables de la majeure partie de la charge environnementale de la consommation européenne.**

Dans le secteur alimentaire, la viande et les produits à base de viande ont la plus grande importance environnementale, suivis par les produits laitiers. **Les produits alimentaires ont été considérés comme le groupe prioritaire pour les aspects environnementaux liés aux émissions (air, eau et sol), à l'utilisation de l'eau et des sols.**

Dans le secteur du logement, **la consommation d'énergie pour le chauffage, l'eau chaude, les appareils électriques et la construction de logements ont été les facteurs les plus importants.** Prise isolément, l'électricité s'est avérée être l'un des principaux facteurs contribuant à l'impact environnemental dans ce secteur.

Dans le secteur de la mobilité, la **conduite avec des véhicules à moteur et des voitures particulières a été le principal facteur contribuant avec près de 80 % à l'impact global.** En outre, l'impact du transport aérien pour les loisirs (vacances, tourisme) n'a cessé d'augmenter. De plus, les restaurants et les hôtels contribuent de manière significative à plusieurs impacts environnementaux.

En termes de contenu dangereux, les produits pharmaceutiques, les détergents et les produits d'hygiène, les pesticides, les plastiques et le caoutchouc synthétique présentent le potentiel de toxicité humaine le plus élevé. L'emballage était important du point de vue de la production de

déchets et de la durée de vie, tandis que le textile était considéré comme une priorité pour l'utilisation des terres, de l'eau et de la durée de vie. Enfin, il a été constaté que **les services ont un impact environnemental croissant dans l'UE.**

Identification des éléments pour les définitions des scénarios pour l'Écolabel Européen

À partir des constatations ci-dessus et des résultats de la consultation des parties prenantes organisée dans le cadre de l'étude, certaines considérations ont été exposées pour le développement futur de l'Ecolabel Européen. Ces principales considérations suggèrent qu'une **approche hétérogène de la définition du portefeuille est plus** stratégique pour l'Ecolabel Européen.

Grâce à la combinaison des sources mentionnées ci-dessus, l'équipe du projet a exposé certaines considérations pour le développement de l'Écolabel Européen. Ces principales considérations suggèrent qu'une **approche hétérogène de la définition du portefeuille est plus stratégique pour l'Écolabel Européen**. Les parties prenantes identifiées suggèrent de **se concentrer sur les biens consommables et de donner la priorité aux produits durables non liés à l'énergie**. En outre, **l'Écolabel Européen devrait inclure les produits liés à l'énergie non couverts par le label énergétique de l'UE et se concentrer sur les aspects d'économie circulaire - tels que la durabilité, la réparabilité, la réutilisation, la recyclabilité, les substances dangereuses, etc. - si les Directives sur l'Ecoconception et sur le Label Energétique ne traitent pas ces aspects de manière adéquate. La connotation santé/bien-être des produits devrait servir de levier au marché, mais l'Écolabel Européen devrait toujours être considéré comme un label d'excellence environnementale et les services peuvent représenter une occasion précieuse d'accroître son adoption par les entreprises.** L'Écolabel Européen devrait tenir compte des **considérations stratégiques relatives aux marchés publics écologiques** chaque fois que cela est possible et pertinent. Au contraire, **le commerce interentreprises ne devrait pas être considéré comme une priorité.** Enfin, **même si l'harmonisation des groupes de produits avec les labels nationaux plus importante doit être poursuivie, l'Écolabel Européen devrait poursuivre ses propres stratégies de marché à l'échelle de l'UE**.

Description et évaluation des scénarios identifiés pour l'Écolabel Européen

L'équipe de projet a examiné un scénario de référence et a proposé trois scénarios pour les groupes de produits à couvrir / abandonner sous l'Ecolabel Européen. Afin de faciliter la comparaison entre différents scénarios, en ce qui concerne les nouveaux groupes de produits proposés, l'équipe de projet a développé des scénarios qui sont structurés de la même manière et, si possible, liés entre eux. Le scénario 2 a incorporé le scénario 1 et a fourni une couverture du marché plus étendue en termes de futurs autres groupes de produits potentiels de l'Ecolabel Européen. Le scénario 3 a incorporé les scénarios 1 et 2 et a fourni des groupes de produits supplémentaires.

Le Scénario de base représentait le statu quo de l'Écolabel Européen, c'est-à-dire qu'il n'y avait aucun changement de politique par rapport à la situation réelle. **Le Scénario 1 concerne un Écolabel Européen fortement axé sur les biens de consommation ayant une connotation de santé/bien-être** et visant principalement à répondre à la demande des consommateurs pour ces produits, la priorité étant accordée aux produits de soins personnels/cosmétiques. **Le scénario 2**, en plus de l'accent mis sur les biens de consommation ayant une connotation de santé/bien-être

présenté dans le Scénario 1, **a accordé la priorité à l'alimentation, au logement, à la mobilité, à l'éducation, aux services financiers, récréatifs et culturels. Le Scénario 3**, après avoir incorporé le Scénario 1 et le Scénario 2, **a suggéré de se concentrer fortement sur le logement, la mobilité et l'éducation, les loisirs et les produits culturels.**

Pour chaque scénario, l'équipe de projet a analysé le positionnement de l'Écolabel Européen sur le marché, les biens et services que le l'Écolabel Européen devrait couvrir, la relation avec les outils existants de l'économie circulaire de l'UE / le rôle dans l'économie circulaire de l'UE, les objectifs stratégiques à 2023/2028, les implications procédurales et les éléments du Règlement sur l'Écolabel Européen qui pourraient représenter un obstacle à l'augmentation de son utilisation. Pour chaque scénario, l'équipe de projet a également présenté une analyse utilisant la méthodologie SWOT pour l'identification des forces, faiblesses, opportunités et menaces pour l'Écolabel Européen et une évaluation utilisant une méthodologie quali-quantitative *ad hoc*.

Identification du scénario le plus favorable pour l'Écolabel Européen

L'équipe de projet a élaboré une méthodologie quantitative basée sur l'analyse qualitative pour évaluer les scénarios en utilisant les impacts économiques, politiques, environnementaux et sociaux de chaque scénario.

L'équipe du projet a souligné que le scénario de base et le Scénario 3 semblent être deux positions extrêmes, diamétralement opposées l'une à l'autre. Si, pour le scénario de référence, il s'agit fondamentalement de tout laisser inchangé avec des bénéfices escomptés extrêmement faibles, le Scénario 3 propose de tout renverser, même si, pour l'énorme effort économique requis, on ne prévoit pas des bénéfices aussi élevés. Au contraire, le Scénario 1 et le Scénario 2 semblent plus équilibrés. Compte tenu des deux échéances de 2023 et 2028, en ce qui concerne l'adoption de nouveaux groupes de produits, **à court terme (d'ici 2023), l'équipe de projet recommande d'adopter le Scénario 1, qui exige un effort économique moindre par rapport au scénario 2, et, dans le même temps, de budgétiser les ressources pour la stratégie à long terme (d'ici 2028), adoptant ainsi le scénario 2.** En ce qui concerne l'abandon des groupes de produits déjà couverts, l'équipe de projet recommande d'adopter une méthodologie au cas par cas. En analysant l'évolution des groupes de produits (la tendance en termes de nombre de licences et de produits étiquetés) **dont l'abandon est suggéré tant dans le Scénario 1 que dans le Scénario 2 et en considérant les ressources disponibles, la CE serait en mesure d'identifier la meilleure solution pour chaque groupe de produits spécifique**.

Proposition pour un système de surveillance de l'Écolabel Européen

L'efficacité de l'Écolabel Européen dans la réduction de l'impact environnemental de la consommation et de la production dans l'UE ne peut pas être pleinement évaluée en raison de l'absence d'une méthode commune pour quantifier et comparer les performances environnementales des produits et de l'absence de données commerciales pour les produits portant l'Écolabel Européen.

Actuellement, l'Écolabel Européen utilise le nombre de licences et le nombre de produits labellisés comme indicateurs de performance clés. Au niveau international, les systèmes d'éco-étiquetage de type I de l'ISO utilisent un ensemble diversifié et non normalisé d'indicateurs pour suivre et évaluer leurs performances. Néanmoins, aucun d'entre eux n'évalue ni les avantages environnementaux ni la pénétration sur le marché de ses produits et services étiquetés. Ce type d'indicateur clef est

considéré comme une charge en termes de ressources nécessaires (temps et ressources financières), de difficultés méthodologiques ou d'impossibilité de mettre en œuvre une méthodologie ou de réalisme parce que les données - telles que la part de marché, les ventes, le chiffre d'affaires - ne sont pas facilement accessibles aux organisations utilisant l'Écolabel Européen.

L'équipe du projet juge utile de souligner **qu'une évaluation adéquate des performances de l'Écolabel Européen doit se fonder avant tout sur des données relatives à la pénétration du marché et aux avantages environnementaux connexes.** En outre, en ce qui concerne le niveau de connaissance, de confiance et de perception générale du l'Écolabel Européen parmi les citoyens/consommateurs, les entreprises et les acheteurs publics de l'UE, l'équipe du projet **recommande de définir un plan stratégique pour une consultation représentative de l'UE à mener sur une base régulière (tous les 2-3 ans) et selon les ressources disponibles.**

Méthodologie pour l'identification et la suppression des groupes de produits et de services de l'Écolabel Européen

L'équipe de projet a fourni une méthodologie pour hiérarchiser les groupes de produits identifiés comme candidats potentiels à l'Ecolabel Européen. Il consistait en un ensemble de critères construits à partir de données quantitatives et qualitatives dérivées de **la collecte de preuves et de l'analyse de marché menées pour l'identification de fenêtres d'opportunités pour l'Ecolabel Européen** et d'autres recherches documentaires. **Ces critères permettent d'évaluer la sélection des groupes de produits pour le développement du futur portefeuille de l'Ecolabel Européen ainsi que l'arrêt de groupes de produits déjà couverts**. La même approche est proposée pour la sélection et l'abandon des groupes de produits car une définition scientifique et rationnelle des seuils pour l'évaluation des critères liés aux preuves historiques des groupes de produits n'est pas possible. **Une évaluation qualitative des aspects liés aux preuves historiques sur la performance des produits au sein de l'Ecolabel Européen est proposée aux fins de la prise de décision concernant l'arrêt des groupes de produit**.

Le processus de sélection repose sur plusieurs critères présentant des caractéristiques différentes, mais le critère **"Pertinence environnementale"** doit être considéré comme le point de départ de l'analyse. Le critère de préférence des consommateurs en matière d'achats écologiques, **"Pertinence pour la consommation verte"**, est important car il montre la volonté des consommateurs d'acheter des alternatives écologiques spécifiques. Même le critère **"Autres systèmes d'éco-étiquetage"** - c'est-à-dire les groupes de produits qui, dans l'analyse comparative effectuée dans le cadre de la tâche 1, ont été jugés efficaces en termes de numérotation des produits étiquetés - a été considéré comme un complément à la longue liste des produits et services pertinents pour l'environnement. A cette longue liste, l'équipe du projet a ajouté les produits et services actuellement couverts par l'Écolabel Européen qui n'étaient pas présents dans le premier projet. Cette étape a permis d'assurer l'utilisation d'une méthodologie harmonisée pour la prise de décisions sur le choix ou l'abandon des produits et services.

La méthode proposée a été appliquée pour analyser les principaux groupes de produits suggérés, issus de la Tâche 1 et de la consultation des parties prenantes, afin d'identifier les plus prometteurs. À ce stade, l'équipe de projet a établi une longue liste de principes directeurs qui doivent être évalués en fonction des trois critères. Le critère "**Opportunité politique**" permet de déterminer si un groupe de produits est déjà suffisamment "couvert" par d'autres politiques de l'UE différentes de l'Écolabel

Européen ou de l'économie circulaire. Les "**Attentes des parties prenantes**" représentent les indications géographiques que les parties prenantes concernées souhaitent voir figurer dans le l'Écolabel Européen. Les "**Priorités de la politique d'économie circulaire**" ont été administrées aux groupes de produits qui ont été indiqués comme prioritaires.

Grâce à l'adoption de la méthodologie, une liste finale d'une cinquantaine de groupes de produits recommandés a été établie. Les catégories de produits suggérées étaient liées aux **cosmétiques**, aux **soins personnels** ou ayant une connotation directe ou indirecte de santé/bien-être, aux **services financiers, alimentaires et de transport, aux produits de construction et de bâtiment.**

Conclusions

L'équipe du projet recommande l'adoption d'une stratégie pour l'avenir de l'Écolabel Européen qui repose sur trois piliers principaux :

- Développer un portefeuille hétérogène, mais pas trop large, axé sur les services et les biens de consommation ayant une connotation santé/bien-être ;
- Accroître fortement la promotion de l'Écolabel Européen à tous les niveaux, en particulier dans les États membres dont les labels écologiques nationaux sont actuellement faibles ;
- Accélérer l'harmonisation des critères avec les autres politiques de l'UE et élaborer une stratégie de communication commune pour la promotion.

En particulier, lors de la combinaison des résultats des différentes tâches du projet, l'équipe du projet suggère d'adopter une double stratégie liée aux jalons de calendrier 2023 et 2028. **D'ici 2023**, cela consisterait à développer des critères pour **les produits consommables de soins personnels, les jouets, les produits chimiques consommables de bricolage pour l'entretien et la rénovation des logements, les produits chimiques consommables pour le jardinage et les produits financiers durables. D'ici 2028**, l'équipe du projet suggère d'élaborer des critères pour **les services du secteur alimentaire (restaurants et cafés, supermarchés et services de vente au détail et de restauration), pour les services de blanchisserie, pour les réunions et événements et pour les services de nettoyage de voitures**. En ce qui concerne l'arrêt de groupes de produits**, l'équipe de projet recommande d'évaluer chaque groupe de produits au cas par cas, en vue de décider individuellement de l'arrêt éventuel d'un groupe de produits**. Cela signifie non seulement de considérer le groupe de produits selon les critères proposés dans la *méthodologie pour l'identification et la suppression des groupes de produits et de services de l'Ecolabel Européen*, **mais également d'analyser la tendance de chaque groupe de produits en termes de nombre de licences et de produits étiquetés, et les ressources disponibles**.

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List of Abbreviations

ADEME = French Environment and Energy Management Agency

ADP = Abiotic Depletion Potential

BAU = Business-As-Usual

B2B = Business to business

B2C = Business to consumer

BSR = Business for Social Responsibility

CB = Competent Bodies

CML = Centrum voor Milieukunde

COICOP = Classification of Individual Consumption According to Purpose

DLR = Deutsches Zentrum für Luft- und Raumfahrt

EB = Exabyte

EC = European Commission

ECNZ = Environmental Choice New Zealand

EEA = European Environment Agency

EEE = Electrical and Electronic Equipment

EFTA = European Free Trade Association

EIA = Ecodesign Impact Accounting

EIPRO = Environmental Impact of Products

EU = European Union

EUEB = European Union Ecolabelling Board

GDP = Gross Domestic Product

GHG = GreenHouse Gas

GRI = Global Reporting Initiative

GWP = Global Warming Potential

GVA = Gross Value Added

HVAC = Heating, Ventilation and Air-Conditioning

IOA = Input-Output-Analysis

ICT = Information and Communication Technologies

JRC = Joint Research Centre

KPI = Key Performance Indicators

LCA = Life Cycle Assessment

LH = EU Ecolabel Licence Holder

NLH = Non EU Ecolabel Licence Holder

MS = Member State

NMS = New Member States

PEF/OEF = Product Environmental Footprint / Organisation Environmental Footprint

PG = Product Group

PROSA = Product Sustainability Assessment

SCP = Sustainable Consumption and Production

SMEs = Small and Medium Enterprises

TMR = Total Material Requirement

TWh = Terra Watt Hours

UK = United Kingdom

UNEP = United Nations Environment Programme

UNWTO = United Nations World Tourism Organization

List of Definitions and Assumptions

CONSUMABLES GOODS: products that consumers use recurrently, i.e. items which "get used up" or discarded.

GROSS SALES: the total sales of a company, unadjusted for the costs related to generating those sales. The gross sales formula is calculated by totalling all sale invoices or related revenue transactions. However, gross sales do not include the cost of goods sold, operating expenses, tax expenses, or other charges. All of these are deducted to calculate net sales.

NET SALES: the sum of a company's gross sales minus its returns, allowances, and discounts.

PRODUCT CATEGORY: cluster of product groups that can refer to the same market product class. Example: "*Paper Products"* is the product category; "*Graphic Paper*", "*Tissue Paper*" and "*Printed Paper*" are some of the product groups that can composed this product category. We decided to specify this difference, because some of the other national and internationals EN ISO 14024 ecolabels analysed in the report use this technical classification for their labelled products.

PRODUCT GROUP: a set of products that serve similar purposes and are similar in terms of use, or have similar functional properties, and are similar in terms of consumer perception (art. 3 of the Regulation (EC) 66/2010 on the EU Ecolabel).

SOLD UNITS: number of products or service sold by a business.

SUCCESSFUL: if referred to PGs, we mean in terms of number of EU Ecolabel labelled products. This concept has been used in the comparative analysis of the EU Ecolabel and of the other national and internationals EN ISO 14024 ecolabels. A specific benchmark to be considered "successful" has been identified by the project team for each specific analysed ecolabelling schemes considering the average number of labelled products and the average percentage weight of each PG.

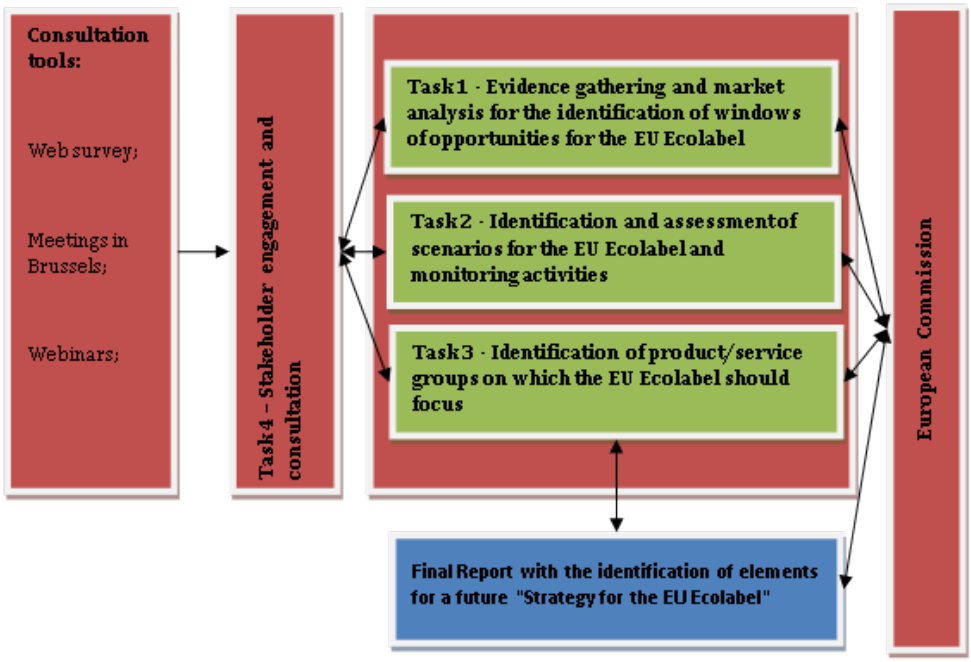
TURNOVER: the net sales generated by a business.

1. Introduction

The EU Ecolabel is a voluntary instrument aimed at identifying the environmentally best performing (typically the top 10-20%[10]) products on the market. The debate on the role and effectiveness of ecolabels in driving sustainable consumption and production (SCP) has been going on for several years. According to the Fitness Check on the EU Ecolabel (EC, 2017), ecolabels are effective if they meet their objectives, i.e. promoting products with a high level of environmental performance. In order to prove a high environmental performance, it is required to measure tangible market uptake of labelled products with ambitious environmental criteria and robust verification mechanisms. The Fitness Check on the EU Ecolabel highlights the limited effectiveness of the EU Ecolabel, predominantly due to the lack of awareness and market recognition. Such effects have led to a low uptake of the EU Ecolabel by businesses. Furthermore, lack of recognition in public policy and the compliance and verification costs have also contributed to the limited uptake of the EU Ecolabel (EC, 2017).

The general objective of the present study is to support the improvement of the implementation of the EU Ecolabel voluntary scheme on the basis of the Fitness Check findings and conclusions, leading to the identification of elements for a future strategy for the EU Ecolabel.

Figure 1 – Flow chart of the research design.



The project is composed of four main Tasks which lead to the final report. It was developed using a mix of desk-based research and consultation of relevant shareholders. The first phase of the project therefore focused on the design of the draft Stakeholder Survey, which will simultaneously use several channels to gather opinion from as many stakeholders as possible (see Annex A).

Task 1 helped in observing which ecolabels and products/services are more/less successful in different countries, which would then lay the basis for the development of Task 2. Thus, Task 1 firstly

[10] This is an indicative target indicated for the criteria development process, referred to in annex I of the EU Ecolabel regulation.

analysed the attitude of consumers towards green purchasing and then provided a general market context analysis. Furthermore, a comparative analysis between EU Ecolabel and six other main national and international Ecolabelling schemes was provided. Finally, the economic sectors with the highest environmental improvement potential were identified.

On the basis of the results from Task 1, in Task 2 scenarios for the EU Ecolabel were defined and assessed, in view of increasing its uptake. After identifying the elements gathered within Task 1 "Evidence gathering and analysis of the EU Ecolabel market context" and of Task 4 "Stakeholders' Consultation", three possible future scenarios in addition to the baseline Scenario (status quo) were developed. All these four scenarios were described and evaluated in order to identify the most favourable scenario for the EU Ecolabel. Lastly, a proposal for a monitoring system for the EU Ecolabel was made.

In Task 3, the criteria for the inclusion or the discontinuation of the PGs in the EU Ecolabel were identified and a long-list of possible future PGs was set.

In the conclusions of this report, the main findings and recommendations were listed and further potential studies on the EU Ecolabel were suggested.

2. Task 1 - Evidence gathering and market analysis for the identification of windows of opportunities for the EU Ecolabel

2.1 Attitude of consumers toward green products and services

Key findings:

- Data show that consumers' awareness of environmental problems and the perceived related impacts on health and personal well-being are the main drivers of purchase behavior for green products and services;
- Energy-savings household appliances, green building material, organic food and drinks, green personal care products/cosmetics, green urban mobility and sustainable financial products and services show high and still growing levels of consumers' demand;
- Consumers are not willing to trade green products for lower quality and brand image. Brand reputation counts as much as the quality or the environmental features of products and services.

2.1.1. Green consumers' behaviours and purchasing intention: the theoretical framework

Consumers play a fundamental role in the evolution of industrial production and in the development of a sustainable market (Carrete et al., 2012). They can direct firms towards a greater degree of sustainability by purchasing eco-friendly products (Caswell and Mojduszka, 1998). However, consumers are usually reluctant to purchase such products when they do not have information about their environmental aspects (Karna et al. 2001). Alchian and Demsetz (1972) called this situation "asymmetric information" that leads to market inefficiencies.

Ecolabelling schemes provide information on products' features which can help consumers in choosing eco-friendly products (Minton and Rose, 1997). In order to increase green consumption, policymakers and NGOs promote the spread of environmental labels (Darnall et al., 2012). Thanks

to this, some Ecolabelling schemes have been growing exponentially (Grunert et al., 2014), indeed in terms of number of countries and industrial activities, becoming increasingly widespread.

In recent years, ecolabelling schemes have proliferated from 12 schemes issued in 1990 to more than 465 ecolabelling schemes globally registered in 2017 (Castaldo et al., 2009; Delmas et al., 2013; Potts et al., 2014, Darnall et al., 2017). The primary objective of ecolabelling schemes is to steer consumers' behaviour to purchase green and sustainable products. (Daugbjerg et al., 2014; Testa et al., 2015). Hence, studies focused on consumers' behaviour are vital for the future planning of ecolabelling schemes.

Consumers' behaviours and purchasing intention

The main theoretical frameworks used to understand consumers' behaviour are the Theory of Planned Behaviour (TPB) which focuses on self-interest-based and rational-choice-based behaviour proposed by Aizen (1988 and 1991) and the Value-Belief-Norm Theory (VBN) which focuses on values and moral norms proposed by Stern et al. (1999). VBN theory is based on the concept that 'pro-social attitudes and personal moral norms are predictors of specific behaviour, such as environmental-friendly or energy-saving behaviour' (Jackson, 2005).

According to TPB theory, *'human behaviour may be explained through the identification of predictors of behaviours, identified as a rational progression from intentions to behaviour, where attitudes, subjective norms and perceived control influence the intentions to perform the behaviour'*. (Aizen, 1985). However, Ajzen suggested that 'investigations that rely on intention as a proxy for actual behaviour must be interpreted with caution' (Ajzen et al., 2004). For instance, there may be a gap between declared intention and actual behaviour, what consumers declare they will purchase and what they actually purchase (Auger and Devinney, 2007). This 'intention-behaviour gap', has been recognized in different research areas of consumerism, such as sustainable consumption (Feldmann and Hamm, 2015; Moser, 2015), ethical consumption (Auger and Devinney, 2007; Carrington et al., 2014), recycling behaviours (Gamba and Oskamp, 1994) and green public procurement tenders (Testa et al., 2016).

One of the most cited causes of the 'intention-behaviour gap' is the influence of social norms (Fisher, 1993). Individuals perceive the pressure deriving from social and cultural norms and for this reason, in order to gain social approval, they emulate other people's behaviour (Krumpal, 2013). There is a relevant tendency to deny socially undesirable behaviours and to embrace socially acceptable ones in cases of environmental green behaviours (Gabler et al., 2013). Several studies on consumers have confirmed that 'subjective norms' could be an optimal predictor of behavioural intentions (Ha and Janda, 2012; Vermeir and Verbeke, 2008). There is substantial literature that has analysed the impact of internal factors such as people's attitude towards environmental issues (Paco et al., 2009; Ramayah et al., 2010 and Aman et al., 2012) and awareness on the environmental impact of products and services (D'Souza et al 2007, Moisander, 2007, Ha and Janda, 2012). However, defining the criteria of consumers' environmental purchasing choices is still an important research topic to investigate, despite the substantial empirical academic publications (see Annex B).

The reliability of the theory of reasoned action and planned behaviours developed by Ajzen and Fishbein (Fishbein and Ajzen, 1975 and Ajzen, 1985) to predict green choices in consumers' purchase behaviours is widely accepted both in the academic world and in the private marketing sector (see Annex B). In the first version of this theory, Ajzen identified the intention as the basic

predictor of a certain behaviour, e.g. a function of the attitudes towards the behaviour and 'subjective norms. He then added a new aspect, the 'perceived behavioural control', that can be summarized as *"the ability of a person to perform a given behaviour and which depends by several internal and external factors such as ability, level of information and opportunity"*.

Starting from these theoretical frameworks, studies have focused attention on the internal factors those influence consumers' ecological behaviour, in particular 'environmental concerns' and 'environmental knowledge'. The first factor, 'environmental concerns', is defined as *'the level of emotion and commitment towards environmental issues'* (Aman et al., 2012); there is a direct correspondence between environmental sensitivity and green purchases: the stronger is the first one, the greater is the second one. Nevertheless, a consistent group of studies underlines contrasting evidence on this correlation (Diamantopoulos et al., 2003; Paco et al., 2009 and Ramayah et al., 2010). Even if the spread of information has raised the level of people awareness on consumption and production models and, consequently, it increasingly drawn their attention to environmental issues, this has not automatically led to the adoption of sustainable behaviours. For instance, *'95% of EU citizens feel that protecting the environment is important to them personally and 87% of them believe that they themselves can play a part in helping to protect the environment, but only 17% usually buy more environmentally products'* (Eurobarometer, 2011).

The second factor, 'environmental knowledge', has been investigated as a relevant predictor of green purchasing intention. D'Souza et al. (2007) distinguished two forms of environmental knowledge. One is a general awareness on the current state of the environment that can steer people's decisions towards a sustainability-conscious approach (Moisander, 2007), which can be considered as a determinant of 'subjective norms' (Ha and Janda, 2012). The other one is consumer knowledge regarding the way products are produced, which can encourage "green" consumer behaviour.

Focusing on general knowledge of environmental issues, Ha and Janda (2012) found a positive correlation between environmental awareness and subjective norms and environmental behaviours. Similarly, Darnall et al. (2012) have shown that personal knowledge of climate change is associated with higher total green consumption. However, there are contrasting findings in the literature, which highlight how a general environmental knowledge is not always a sufficient condition to determine a green consumption-oriented behaviour (Schahn and Holzer, 1990; Laroche et al., 2001). So, "*to allow ever more informed consumers to make conscious and reasoned choices, knowledge on the environmental performance of products and labels providing appropriate and accurate information also appears to be a fundamental requirement"* (Minton and Rose, 1997).

The risk of misleading claims and greenwashing

The problems arising from information asymmetries relate to both consumers and businesses. As stated above, product sustainability claims could boost their market diffusion, as labels are a symbol which should be able to differentiate labelled products from the others. According to Darnall and Aragon-Correa (2014), in a market without environmental labels, firms are less inclined to promote their sustainability aspects. However, if firms decide to spread their products' sustainability goodness then consumers think that communication is not only incomplete but selective, exaggerated, biased and deceptive (Cai et al., 2017; Oates et al., 2008; Darnall et al., 2016; Shahrin et al., 2017). The diffusion of misleading claims on sustainability damages the overall green market with a significant

reduction of the demand of green products and services due to consumers' preventive behaviour with regard to the purchase, on a non-labelled market, of products with high environmental performances. (Kangun et al., 1991; Banerjee et al., 1995).

Surprisingly, the situation is similar in a market overcrowded by labels: on the one side, firms are 'increasingly and significantly making use of green claims in advertising their products' (Testa et al., 2011) and "altering the number and form of informational product cues may overcome purchase barriers" (Gleim et al., 2013); on the other side, consumers are even more inclined to believe that these claims are not trustworthy and, as a consequence, refuse to purchase this kind of products (Banerjee and Solomon, 2003; Oates et al, 2008). This phenomenon, called "greenwashing" is one of the main issues in the communication of sustainability. The effects and the perception of environmental claims on and by consumers are not clearly defined. There are a lot of studies leading to diametrically opposed results. For example, Cai et al. (2017), D'Souza et al. (2006), and Hartmann and Apaolaza-Ibanez (2009) reported that consumers' confidence in products' sustainability claims is increasing. Whereas, a recent European Commission study "Attitudes of European citizens towards the environment" (Eurobarometer, 2014) found that only 2 percent of Europeans trust the environmental information reported by companies. Also, Eurobarometer (2011) shows that consumers' confidence is progressively decreasing, with low percentages of consumers trusting green information coming from businesses. Consumers' choice of buying non-green products significantly damages the firms those have chosen green production. In fact, the decrease in the demand for green products does not push firms to further improve their production processes and to reduce their environmental impact in order to be more suitable in terms of efficiency and competitiveness (Iraldo et al., 2013).

It is precisely here, in this confusing situation, that ecolabelling schemes could assume their primary function, their role as a guide for consumers' choices. Studies have investigated how consumers respond to ecolabelling schemes and four types of segmentation frameworks have been identified. These frameworks are distinguished by their focus on consumers' macro/micro motivations, demographics, cognition, and lifestyles. Nevertheless, it is important to never forget that under these segmentation frameworks, there is an important defect that could distort the results. In fact, most of the researches adopting these frameworks are based on consumers' self-reported purchasing behaviour (e.g. surveys and interviews) which is subject to an attitude-behaviour gap (Davies et al., 2002; Peattie, 2001) in addition to social desirability bias (Fisher, 1993; Schwarz, 1999). Several studies have also considered the purchase of certified products by consumers as a measure of their level of environmental sensibility (O'Brien and Teisl, 2004; Loureiro et al., 2001; Brécard et al., 2009 and Perrini et al., 2010). However, these studies have never investigated in-depth the role of the labels in helping consumers develop sustainable behaviour. Other studies revealed that in the case of an extensive environmental knowledge, consumers' purchasing choices are meaningfully conditioned by the environmental impacts of production (Ha and Janda, 2012 and Darnall et al., 2012).

This means that the use of ecolabelling schemes is perceived as an important warranty for purchasing decisions (ecolabelling schemes are trusty information for consumers) and are seen as important tools in order to prevent unclear and deceptive claims (Peattie and Crane, 2005).

2.1.2. Attitude of consumers towards specific products and services

There is consolidated evidence that environmental concern has been gaining more and more importance among consumers' purchasing behaviour in the last two decades. In fact, it is a result of a growing perception that the natural environment is endangered by anthropic activities including modern consumerism. In 2009, Boston Consulting Group (BCG) conducted the Global Green Consumer Survey among 9,000 people from several countries including Italy, France, the UK, Germany, and Spain. The survey results clearly showed that consumers, especially Europeans, were concerned about the natural environment. Notably, two-thirds of respondents, particularly from France, Italy and the UK, declared that the environment is in danger and must be protected. Only 12 percent of the total respondents declared themselves doubtful about the relevance of environmental issues. Interestingly, almost ten years after the BCG survey, the scenario has not changed much. For instance, the 2017 survey "Special Eurobarometer 468: Attitudes of European citizens towards the environment" revealed that:

- 94 percent of responding Europeans consider environmental protection as personally important to them. Among these respondents more than a half (56 percent) claimed that environmental protection is very important;
- 81 percent of respondents consider environmental issues as having a direct impact on their everyday life and health;
- 74 percent of responding Europeans specified that they are worried about the effect that everyday disposable plastic products may have on their health and on the environment;
- 84 percent of responding Europeans declared to be concerned about the impact that chemicals contained in products may have on their health.

It is noteworthy that most responding Europeans (87 percent) believe that they can personally act and make a difference for the environment, of which 45 percent totally agrees and 42 percent of respondents tends to agree. The act of doing something good for the environment includes purchasing products with lower environmental impacts.

The 2014 edition of the "Special Eurobarometer 416: Attitudes of European citizens towards the environment", reported that 75 percent of the total respondents are willing to purchase greener products. However, it must be noted that "being green" for consumers goes far beyond purchasing green products as shown by the 2017 Eurobarometer Survey. Only 19 percent of respondents declared to buy products with an environmental label. Most of respondents claimed that they acted green by separating waste, buying local products, saving energy and water and reducing the use of plastics.

Furthermore, Eurobarometer Survey 2017 shows that the general awareness of environmental labels is still relatively low, especially if we consider the proliferation of ecolabels witnessed since the '90s, though the concern about products' environmental impacts is increasingly becoming a significant factor when citizens act as consumers and take purchasing decisions. Thanks to the relative success of instruments such as the EU Energy Labelling (ANEC & BEUC, 2016) and the EU Ecolabel (EC, 2017), over the last two decades demand for environmentally friendly products has grown across Europe. Nevertheless, consumers' actions are not always and systematically aligned with their declared intention about "buying green". Indeed, a second survey conducted by the BCG in 2013 asked consumers around the world (more than 9.000 targeted) - including France, Italy,

Spain, the UK and the Netherlands - how often they buy responsible products, including environmentally friendly ones. On average, only 8 percent of respondents declared to buy such products on a regular basis across the different product categories, while 66 percent of respondents declared to buy responsible products only occasionally. This is a behavioural pattern that has been systematically observed in all advanced economies.

It is worth adding that among the factors that inhibit green purchases there is the proliferation of green claims by companies. Indeed, the last decade has witnessed a considerable increase in products and services advertisements containing environmental claims as companies have become eager to appeal to the increasing number of environmentally aware consumers. This has led to the widespread utilisation of green claims on the market (GFK, 2011; ADEME, 2011). However, research has shown that consumers often do not trust such claims (Iraldo and Melis, 2012; Testa et al., 2018) and therefore, they are not always directing their purchasing decisions towards products with higher environmental performance. After these initial considerations we deem useful to specify that an analysis of "green consumption" from consumers' perspective poses some additional challenges that may be worth mentioning:

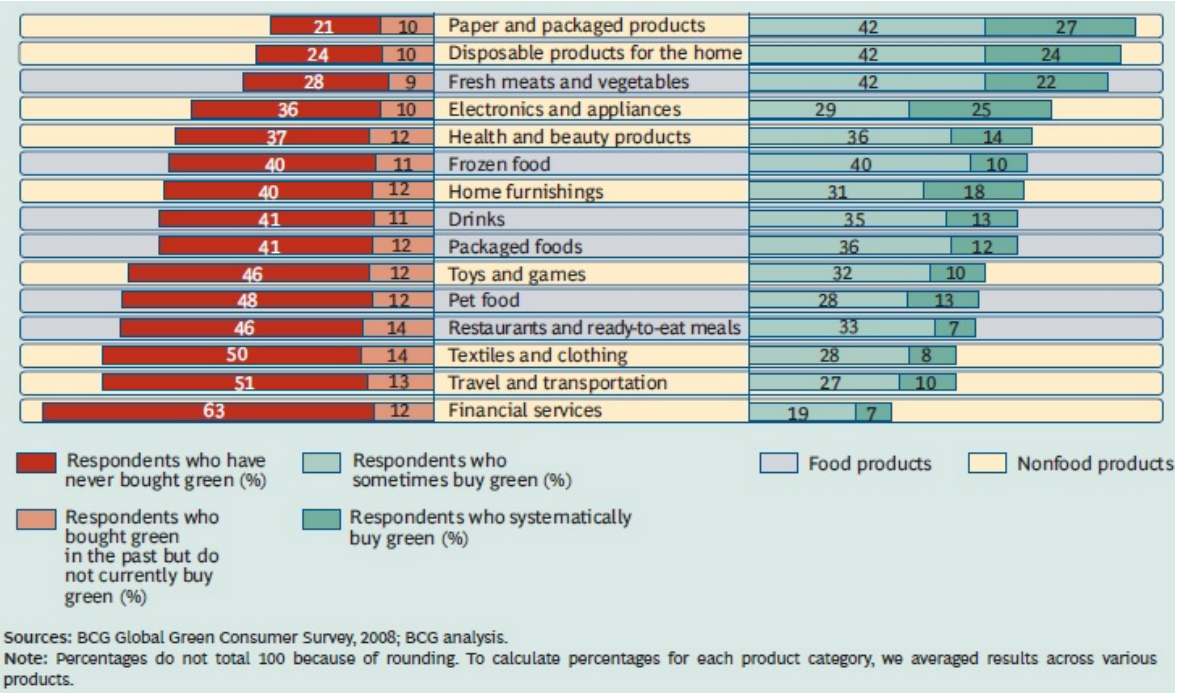
- **define what a "green product" is in the consumer's eye;**
- **if and how the purchasing behaviour changes across the different product categories.**

As for the first issue, academic literature itself is still in search of a widely agreed definition on what "environmentally friendly" or "eco-friendly" product is. Some attempts at providing an overarching and all-embracing definition have been made: "[…] *an ecologically safe product that can facilitate the long-term goal of protecting and preserving our natural habitat*" or "[…] *a product designed or manufactured in a manner as to minimize the environmental impact involved in its production, distribution and consumption*" (Yang, 2017). Although literature still lacks a commonly agreed definition there is a certain level of agreement among environmental experts and policy makers that **green products (and services) should minimise environmental impacts during a product's entire life cycle.**

In consumers' perspective, however, the concept of "green products" embraces a broader and more confusing set of characteristics those are considered more environmentally and socially desirable: low water usage, reduced and recyclable packaging, organic, locally grown and sold, fair trade, energy-efficient, biodegradable, non-toxic and low volatility organic compounds, and recyclable materials or content (Deloitte, 2009)[11]. Furthermore, as demonstrated by the *2009 BCG Global Green Consumer Survey*, not only consumers have different ideas about what makes a product "green", but this definition varies greatly across the globe. As for the second issue raised, there is also evidence that consumers have a different approach to green consumption across different product categories. The *2008 BCG Global Green Consumer Survey* has already demonstrated that consumers buy more often green **food products** than non-food products, with **meat and vegetables** representing the most sought-after products. Food ranks always on top among the green product categories purchased in all countries targeted by the survey, along with **paper, cleaning products and trash bags.** Still, the same study found that, on average, a percentage ranging from 15 to 20 of more consumers buy green **household cleaners.**

[11] Finding the green in today's shoppers Sustainability trends and new shopper insights. Deloitte.2009

Figure 2 - Global consumers responses about how frequent they buy green products. Source: BCG Global Green Consumer Survey, 2008.



The *2008 BCG Global Green Consumer Survey* also investigates how the willingness to pay a premium price for green products changes across different product categories[12]. The results showed that:

- in the "*ingestible products category*" – including **food, beverages and over-the-counter drugs** – approximately 30 percent of surveyed consumers showed a willingness to pay a premium price of 10 percent or more, especially for meat, seafood and dairy products. These results are not surprising as consumers see food's environmental quality as a proxy for health and well-being;
- in the "*wearable product category*" – including **shoes and apparel** – 20 to 30 percent of the respondents claimed to be willing to pay more (10 percent premium price or more);
- in the "*plug-in product category*" – including **household appliances and electronics** – a percentage of 20 to 30 consumers claimed to be ready to pay a 10 percent premium price or more;
- in the category of "*products applied to the body*" – including **lotions, detergents and creams** – 20 to 30 percent of the surveyed consumers declared to be willing to pay a premium price;
- In the "*disposable products category*" – including **paper and plastic products and household cleaners** – responding consumers showed a lower readiness to pay a premium price for green products.

These results clearly demonstrate that the willingness to pay for green products depends not only on the product category but also on the level of perceived benefit associated with a product.

[12] In the BCG study, products have been grouped into categories based on how consumers use them.

The 2014 study "*Green products in Germany*" by the *Umwelt Bundesamt (UBA)* presented a series of data on sales of green products from several consumer sectors. The assumption behind the study is that in Germany green products have become widespread among consumers and that environmentally friendly consumer goods now represent a consolidated share of the overall basket of products offered by companies. The study examined the following sectors:

- Food;
- Home appliances;
- Green buildings materials and products;
- Green power;
- Mobility;
- Green finance.

The study reported that in 2012, Germans spent a total of EUR 46 billion on the green products mentioned above, which represented an increase of 27 percent compared to the previous year. Within this total expenditure, the largest share was represented by the **homes and living sector** (energy-saving renovation, energy-efficient homes), followed by **mobility** (public transport, carsharing and hybrid vehicles), **organic food and products from sustainable fishing**, and other consumer goods such as **textile, paper** and **wood products, personal care** and **cleaning products**.

2.1.3. Spotlight on selected green products and services

In the previous sections, we presented a review of some studies carried out at the international level in the last 10-15 years regarding consumers' attitude toward environmentally friendly products and services. In the following sub-sections, we provide a sectoral analysis of **how consumers' demand and attitude toward selected green products and services are evolving**. The selection of products and services presented in the following sub-sections is mainly based on data availability and has the intention to provide a scenario comprising of:

- more "established" green sectors, in which consumers' demand has been on rise for years. These are **personal care products/cosmetics** and **household appliances**;
- "new-comers" green products and services, for which the market is showing increasing interest. These are green **building materials, financial services and car-sharing services**.

Personal care products/cosmetics

In 2017, the European cosmetics market was valued €77.6 billion, with Europe being the most important cosmetics market in the world in terms of size. If we look at European countries, Germany represents the biggest market for cosmetic products, with a value of €13.6 billion in 2017, followed by France (€11.3 billion), the UK (€11.1 billion), Italy (€10.1 billion) and Spain (€6.8 billion). In terms of product groups, **skincare and toiletries** represented the largest segment of the European market. Indeed, sales of both product groups were valued approximately €20 billion in 2017. Sales of **haircare products** reached the value of €14.8 billion in 2017, while sales of **fragrances/perfumes**

and **decorative cosmetics** (make up) represented a total €11.9 billion and €11.2 billion respectively[13].

In recent years, the market for personal care/cosmetic products has witnessed a changing trend in consumers' behaviour towards environmental and health quality features. Consumers are paying increasing attention to detailed information about the sustainability and origin of such products. For instance, consumers are taking interest in organic ingredients which are associated with no use of chemicals, anti-air pollution and environmental protection. However, it is worth highlighting that consumers demand for "green" or "sustainable" personal care products refers mostly to the use of natural and bio ingredients vs. chemicals substances and not to the overall impact of a product on the environment. In 2015, a research specialist and consulting company, *Organic Monitor* (now *Ecovia Intelligence*), published a report highlighting the existence of a link between consumers' demand for anti-pollution cosmetics and broader environmental awareness. Indeed, the demand for organic and ethically produced cosmetics in the EU continues to grow. For instance, according to *Cosmetica Italia*, the Italian cosmetic industry association, in 2017 the number of products marketed as "green"- with natural and/or bio ingredients and/or bearing an ecolabel - was about 50 percent of the overall number of products launched on the market. Furthermore, the 2017 survey by Human Highway for Cosmetica Italia shows that 52 percent of Italian consumers would like to see more sustainable products in the next 10 years. Indeed, consumers associate a very positive emotional value to personal care products coupled with growing environmental concerns, and this attitude is sustaining the demand for green cosmetics.

Household appliances

Next to China, Europe is still one of the biggest markets for home appliances holding 31 percent of the global market. In 2016, the European home appliances industry registered a turnover of €47,6 billion and a total of 3.429 companies (APPLIA, 2018)[14]. The range of products in the sector is very broad encompassing large home appliances and small home appliances. Large home appliances include white goods such as refrigerators, freezers, dishwashers, washing machines, tumble dryers, cookers, ovens, hoods, cooktops and microwaves. As for the category of small home appliances, it covers irons, devices for home preparation, cooking products, coffee machines and juicers.

There is evidence that in Europe the spread of the EU Energy Label has not only been successful in improving the energy efficiency of white goods but also in creating consumer's demand for greener products in the sector. Given the lack of aggregated available data for this sector, in order to investigate the attitude toward these products we deem useful to provide data on sales at the specific product level and use them as a proxy for the whole sector of home appliances. Indeed, if we look at the sales data in the EU for certain household appliances provided by ADEME[15], we observe that the demand – in terms of sales of energy label classes – for more energy-efficient **refrigerators, washing machines and tumble driers** increased in the period 2004-2015. ADEME (2016) shows that an increasing percentage of sales of washing machines per efficiency classes: the higher the energy-efficiency, the higher is the sale of washing machine each year. A similar trend is also observed in the sales of tumble driers.

[13] Socio-economic contribution of the European cosmetics industry. Cosmetics Europe. 2018
[14] *The Home Appliance Industry in Europe 2017-2016*. APPLIA. 2018
[15] *Energy efficiency of White Goods in Europe: monitoring the market with sales data*. Study realised on behalf of ADEME by: SOWATT and Bush Energie, 2016.

These data are consistent with the results of the 2013 and 2014 GMI/Mintel studies[16] on washers and refrigeration appliances in the UK. These reports showed that **energy efficiency is reported to be the main purchase driver for refrigerators and washing machines** (65% of respondents). Interestingly, if we consider the driver "environmentally friendly manufacturer" jointly with the preference for energy efficiency, the percentage of consumers those would choose a green refrigerator or washing machine is higher.

To conclude, it is worth adding that a 2017 market research on kitchen appliances – refrigerators, cooking appliances, dishwashers - by Grand View Research[17] reported that **demand for energy-efficient and eco-friendly products is expected to increase in the next ten years, due to rising energy costs and growing awareness about energy saving**. In Europe particularly, the market for **kitchen appliances** is expected to grow, boosted by the increasing demand for energy-efficient products.

Building materials

The 2014 report "*Smart living. Advanced material building. Business Innovation Observatory*" of the European Commission (EC) DG – Enterprise and Industry states that buildings are responsible for 30 to 40 percent of European energy consumption and that another 5 to 10 percent is used for processing and transport of construction products and components. The same report underlines that buildings produce almost one-third of Europe's CO_2 emissions and that onsite construction activities, as well as the manufacturing of construction materials, are responsible for the consumption of billions of tons of natural resources. Furthermore, the construction industry produces a large amount of non-recyclable waste. Therefore, over the past few decades, this sector has been under increasing attention by market and regulators for improving environmental performance. At the same time, increased awareness of climate change and other environmental concerns is changing priorities as people transform the way they live to limit the impacts of their daily life on the environment.

In fact, customers are seeking innovative solutions that would improve their quality of life while being environmentally friendly. The willingness to use greener building materials for home construction has become an important trend over the last few years, mainly driven by growing environmental awareness and cost-saving opportunities through better energy management. The advanced building materials market (including green building materials) is constituted by new innovative products those are durable, environmentally friendly, recyclable and energetically efficient. According to the same report, **the demand for green buildings materials is expected to strongly grow globally and particularly in Europe, also driven by an increasingly private and public demand for environmentally friendly building solutions**.

The European Patent office estimates that the European energy efficiency-related construction market will increase its value up to €140 billion by 2020 and that green-construction-related patents have tripled in the period 2000-2011.

Financial products and services

[16] GMI/Mintel "Washers and dryers – UK", June 2013; GMI/Mintel "Fridges and freezers – UK", April 2014.
[17] *Kitchen Appliances Market Analysis by Product (Refrigerator, Cooking Appliances, Dishwasher), By Application Commercial, Residential) And Segment Forecasts To 2022*. Grand View Research. 2017.

The 2016 *Global Sustainability Investment Review* by GSIA[18] reported that in 2016 there were assets for a total value of 22.89 trillion dollars under responsible investment strategies, including investments in themes or assets specifically related to sustainability (i.e. clean energy, green technology or sustainable agriculture). This data registered an increase of 25 percent since 2014 and a growth of the market share for all the world regions considered. GSIA also specified that, in relative terms, responsible investment now account for 26 percent of all professionally managed assets at the global level and that sustainable investing is turning into a foremost phenomenon in global financial markets. In Europe, total assets committed to sustainable and responsible investment (SRI) strategies grew by 12 percent from 2014 to 2016 to reach 12.04 trillion dollars. 53 percent of total professionally managed assets in Europe now use responsible investment strategies.

As regards sustainable finance, in May 2018, the EC adopted a package of measures implementing several key actions announced in its action plan on sustainable finance. As part of the "EU Sustainable Finance Strategy", EC is currently working on three main proposals:

- *A proposal for a regulation on the establishment of a framework to facilitate sustainable investment*: establishing the conditions and the framework to gradually create a standard taxonomy on what can be considered an environmentally sustainable economic activity.
- *A proposal for a regulation on disclosures relating to sustainable investments and sustainability risks and amending Directive (EU) 2016/2341*: introducing disclosure obligations on how institutional investors and asset managers integrate environmental, social and governance factors in their risk processes;
- *A proposal for a regulation amending the benchmark regulation*: including a new category of benchmarks comprising low-carbon and positive carbon impact benchmarks, which will provide investors with better information on the carbon footprint of their investments.

As for market trends, the 2017 report "*Bonds and climate change. The State of the Market*" maintains that both **the markets for green bonds and climate aligned bonds will continue to grow in the next years, particularly in terms of local green bonds**. In this respect, it is interesting to note that in June 2018 the *World Green Building Council* (WorldGBC) Europe Network announced a new energy efficiency mortgage pilot scheme in collaboration with 37 major banks across Europe.

Car sharing services

Many European urban areas have witnessed a considerable increase in car-sharing services in order to meet the increasing demand for alternative and less expansive mobility. However, data across Europe show that car ownership decline is not only a matter of income but that many drivers are playing a role. The demand for alternative transport is certainly driven by the high cost of car ownership but also by municipalities discouraging car use in city centers, changing life-style habits among younger urban dwellers and increased awareness of pollution problems and environmental issues[19]. **Several projections show that, by 2030, the automotive industry will face a dramatic decrease in production and that car-sharing will still be on the rise** (Neckermann Strategic Advisors. 2016).

[18] *Global Sustainable Investment Alliance.*
[19] *Corporate Mobility Breakthrough 2020*. Neckermann Strategic Advisors. 2016

As for the environmental benefits associated with car sharing, the existing literature has focused on the supposed impacts in terms of CO_2 and air pollutant emissions reduction due to the lower number of circulating car and to the reduced congestion. However, results show no clear and agreed conclusions, suggesting that the positive effects of car sharing on the environment depend much on the business model (free-floating vs. stationary), the type of vehicles (fossil fuel vehicles vs. hybrid/electric), local regulation and consumers' driving behaviour. Nevertheless, today it is generally accepted that car sharing is representing one of the most important changes in the transport sector. Car sharing is a broad term including several types of sharing services for mobility, ranging from taxi services (such as Uber), to B2C service and peer-to-peer services. A 2016 article by the Boston Consulting Group (BCG)[20] reported that 31.000 car-sharing vehicles were operating in Europe in 2015, for a total of 2.1 million users. BCG (2016) projects a substantial growth in car-sharing worldwide, particularly in Europe. In 2016[21], Europe accounted for about 50% of the global car-sharing market with substantial growth expected in the next years (up to 15 million users in 2020).

2.2 Analysis of the market context[22]

Key findings:

- The household expenditure by consumption purpose in terms of share of GDP follows the values of the share of total, and decreased from 2005 to 2016 in all sectors with the exceptions of 'housing, water, electricity, gas and other fuels', 'health', and 'education' categories, while remained stable for 'restaurants and hotels';
- Considering the analysis of the EU consumers' demand, the main suggested PG categories are (in alphabetical order): accommodation services, catering services, electronic appliances, financial services, food, hospital services, household maintenance products, medical products, personal care products, recreational, gardens and pets products, recreational and cultural services and transport services;
- Considering the analysis of the demand in public procurement, the main suggested PG categories are (in alphabetical order): "basic pharmaceutical products"; "education services"; "electricity, gas, steam and air conditioning" and "human health services".

2.2.1 Analysis of the EU consumers' demand

Consumption[23] consists of household final consumption expenditure (i.e. all purchases by a person living alone or by a group of people living together in shared accommodation and with common domestic expenses to meet their everyday needs) and government final consumption expenditure (i.e. purchase work, goods or services from companies excluding utilities and defence). The former accounts for approximately 55% of EU-28 gross domestic product (GDP), compared to about 14% of the latter. Then, together household and government final consumption expenditure account for approximately 70% of EU-28 gross domestic product (GDP).

The analysis of the household consumption expenditure has been carried out through a desk research performed on the available EUROSTAT statistical data. The EUROSTAT statistical data refer to the Household Budget Surveys (HBS). These are national surveys focusing on households'

[20] *What's ahead for car sharing*. February 2016.
[21] European countries included are Germany, Italy, France, UK, Switzerland, Austria, the Netherlands, Sweden, Spain, Belgium, Denmark and Norway.
[22] Further details on the analysis of market context are shown in Annex C.
[23] According to EEA, 2015.https://www.eea.europa.eu/soer-2015/europe/consumption accessed on 24/07/2018.

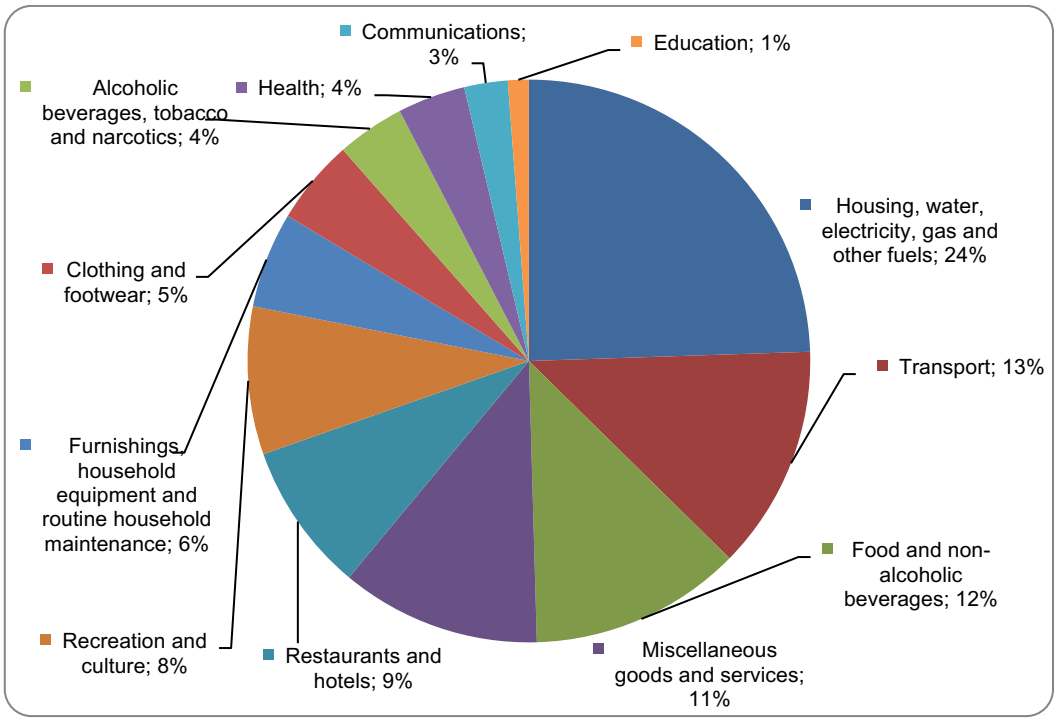
expenditure on goods and services in the European Union (EU28). Consumption expenditure is what people spend on goods and services to satisfy their needs and desires. In national accounts, the final consumption expenditure of households is the main component of the expenditure approach to GDP. Its evolution allows an assessment of purchases made by households, reflecting changes in wages and other incomes, but also in employment and in savings behaviour. The statistical population encompasses individual private households, while Institutional households and persons living in collective households or in institutions are generally excluded.

In 2016, EU-28 total household expenditure amounted to 54.6% of GDP. This was a decrease compared to 2015, when it amounted to 54.8% of GDP, and a greater decrease compared to 2005, when it amounted to 56.4%. The share in 2016 is the lowest share since 2005.

2.2.2 Composition of EU-28 household expenditure in 2016

In terms of composition of EU-28 household expenditure by consumption purpose of the 12 COICOP categories (2 digits) based on current price (Figure 3)**, almost a quarter of EU-28 household expenditure (24.5% of total or 13.3% of GDP) was devoted to 'Housing[24], water, electricity, gas and other fuels'. Other large shares were devoted to 'Transport' (12.9% of total or 7.0% of GDP), 'Food and non-alcoholic beverages' (12.2% of total or 6.7% of GDP) and 'Miscellaneous goods and services' (11.5% of total or 6.3% of GDP).**

Figure 3 - Household expenditure by consumption purpose – COICOP (2 digits), EU-28, 2016, share of total. Source: Eurostat (nama_10_co3_p3).

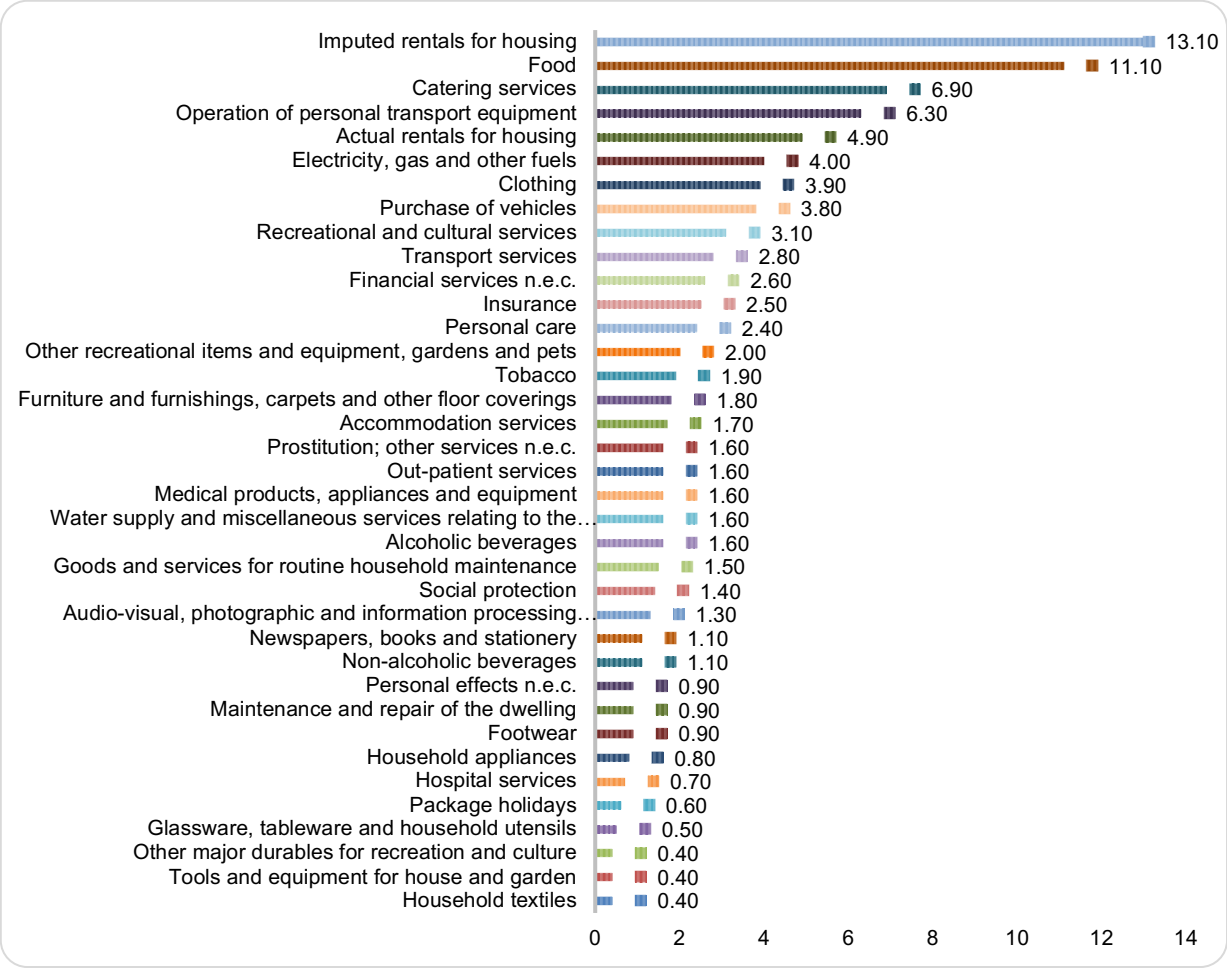


Looking at the composition of EU-28 household expenditure by consumption purpose of the COICOP categories at 3 digits, based on current price (see Figure 4), **the main categories are**

[24] For "Housing", COICOP classification means "Actual rentals for housing", "Regular maintenance and repair of the dwelling" and "Other services relating to the dwelling".

'Imputed rentals for housing'[25] (13% of total), 'Food' (11% of total), 'Catering services' (6.9% of total), 'Operation of personal transport equipment'[26] (6.3% of total). Other large shares were devoted to 'Actual rentals for housing'[27] (4.9%), 'Electricity, gas and other fuels' (4% of total), 'Clothing' (3.9% of total), 'Purchase of vehicles' (3.8% of total), 'Recreational and cultural services' (3.1% of total), 'Transport services' (2.8% of total), 'Financial services n.e.c.' (2.6% of total), 'Insurance' (2.5% of total), 'Personal care' (2.4% of total), 'Other recreational items and equipment, gardens and pets' (2% of total). The other categories followed. The smallest shares were devoted to 'Glassware, tableware and household utensils' (0.5% of total), and 'Household textiles', 'Tools and equipment for house and garden', 'Other major durables for recreation and culture' (0.4% of total respectively).

Figure 4 - Household expenditure by consumption purpose – COICOP (3 digits), EU-28, 2016, share of total (%). Source: Eurostat (nama_10_co3_p3).



[25] "Imputed Rentals for Housing" is an estimate in economic theory of the rent that a house owner would be willing to pay to live in his own house.

[26] "Operation of personal transport equipment" include both the purchases of spare parts, accessories or lubricants made by households with the intention of undertaking the maintenance, repair or intervention and the services of maintenance, repair or intervention.

[27] "Actual Rentals for Housing" is a classification of services that includes the rent actually paid by tenants or subtenants occupying unfurnished or furnished premises as their residence.

2.2.3 Evolution of shares and volumes

Observing the trend of household expenditure by consumption purpose of the COICOP categories at 3 digits based on current price, in terms of share of GDP it decreased from 2005 to 2016 in several sub-categories, in particular in 'Financial services n.e.c.', 'Clothing' and 'Operation of personal transport equipment' decreased by 0.4 p.p.; in 'Purchase of vehicles' and 'Audio-visual, photographic and information processing equipment' by 0.3 p.p.; in 'Furniture and furnishings, carpets and other floor coverings', 'Newspapers, books and stationery', 'Food' and 'Purchase of vehicles' by 0.2 p.p.; and finally 'Household appliances', 'Household textiles', 'Insurance' and 'Tobacco' by 0.1 p.p. While it increased for 'Actual rentals for housing', 'Electricity, gas and other fuels', 'Transport services', 'Social protection', 'Hospital services', 'Water supply and miscellaneous services relating to the dwelling', 'Medical products, appliances and equipment', 'Out-patient services', 'Accommodation services', 'Imputed rentals for housing', and remained stable for the other sub-categories.

In terms of share of total expenditure over 2005-2016, the increasing or decreasing trend observed in terms of percentage of GDP are confirmed, with the exception of 'Footwear', which reveals a decrease of 0.1 p.p. and 'Accommodation services', 'Catering services', 'Alcoholic beverages', 'Other recreational items and equipment, gardens and pets', 'Personal care', which reveal an increase of 0.2 p.p. the former, and of 0.1 p.p. the others.

The analysis of household consumption expenditure in terms of volumes (in other words, adjusted for price changes) based on an analysis of national accounts data allows also some interesting insights. In fact, the chained volume measures allow to identify changes in expenditure on a good (or service) resulting from a change in the quantity purchased, rather than a change in the price of that good (or service) (ONS, 2014).

Looking at the evolution of consumption expenditure in terms of volumes within the COICOP categories during the period 2005-2016, **a few items registered a reduction, in particular 'Newspapers, books and stationery' (-22.4%), 'Tobacco' (-24.3%), 'Electricity, gas and other fuels' (-5.1%), 'Furniture and furnishings, carpets and other floor coverings' (2,6%), 'Operation of personal transport equipment' (-1%), Audio-visual, photographic and information processing equipment registered the most notable increase of 118.3%.** Although 'Communications' in terms of volume consumption at the first level of the COICOP items showed the largest increase, we do not have more specific data on the second level of the COICOP items. Further large increases were recorder for 'Medical products, appliances and equipment' (46.7%), 'Other major durables for recreation and culture' (34.3%), 'Other recreational items and equipment, gardens and pets' (29.1%), 'Footwear' (22.6%), 'Household appliances' (26.7%), 'Out-patient services' (22.5%), 'Personal care (23.7%), 'Social protection' (20.3%), 'Financial services n.e.c.' (27.8%), 'Accommodation services' (19.9%) registered higher volumes between 20% and 30% during the period 2005-2016. The other categories followed with minor increases.

2.2.4 Structure of consumption expenditure for households in 2010

The analysis of the distribution of the total mean expenditure between the different COICOP divisions, expressed in thousands of the total mean expenditure, carried out in this section, allows to examine how households split their expenditures among the different COICOP categories, and to monitor how the structure can be affected over time by price changes (HBS EU Quality report, 2015).

In particular, the analysis structure of expenditure represented in Table 7, allows to identify the relative importance of each consumption category in the total household budget (Eurostat, 2009) and to compare data of EU-27 in 2005 with those of EU-28 in 2010.

In conclusion, this analysis of the comparison between 2005 and 2010 showed that an increase higher than 0.3 p.p. was registered only in 'Housing, water, electricity, gas and other fuels' and 'Restaurant and hotels'. On the other hand, a decrease higher than 0.3 p.p. has been observed in 'Food and non-alcoholic beverages' and 'Clothing and footwear'. Looking at the consumption sub-categories only 'Actual rentals for housing', 'Electricity, gas and other fuels' and 'Operation of personal transport equipment' registered an increase greater than 0.3 p.p., on the contrary, 'Clothing', 'Imputed rentals for housing', 'Furniture and furnishings, carpets and other floor coverings', 'Medical products, appliances and equipment', 'Out-patient services' and 'Purchase of vehicles' registered a decrease greater than 0.3 p.p.

2.2.5 Potential product groups of interest in terms of consumer's demand

In order to select potential PGs of interest in terms of consumer's demand we have ranked the different PGs using static and dynamic indicators. For an in-depth explanation of the adopted methodology, see Annex C.

After the application of this methodology we created **a unique ranking** where the different PGs have a score that ranges from 1 to 35. The first 10 PGs with highest score of this final ranking are the followings:

- **Imputed rentals for housing**
- **Actual rentals for housing**
- **Operation of personal transport equipment**
- **Electricity, gas and other fuels**
- **Food**
- **Transport services**
- **Catering services**
- **Audio-visual, photographic and information processing equipment**
- **Social protection**
- **Medical products, appliances and equipment**
- **Other major durables for recreation and culture**
- **Hospital services**
- **Other recreational items and equipment, gardens and pets**
- **Accommodation services**

The full list of PGs included in the ranking is provided in Table 1.

Two other rankings have been created. The first based only on static indicators (i.e. Household expenditure by consumption purpose, EU-28, 2016, cumulated % of GDP; Household expenditure by consumption purpose, EU-28, 2016, share of total (%); and Structure of consumption expenditure for households EU-28, 2010, share of total (%)), while the second based only on dynamic indicators (Evolution of household expenditure by consumption purpose, EU-28, 2005-2016, cumulated % of

GDP; Evolution of household expenditure by consumption purpose, EU-28, 2005-2016, share of total (%); Evolution of chain linked volumes 2005-2016; Evolution of structure of consumption expenditure for households 2005-2010, share of total (%)).

The final ranking with the PGs listed per consumer's demand are shown in Table 1.

Table 1 - List of the top PGs according to household consumption analysis.

Consumption category at COICOP 3 digits detail	Ranking
Imputed rentals for housing	1
Actual rentals for housing	2
Operation of personal transport equipment	3
Electricity, gas and other fuels	4
Transport services	5
Food	5
Catering services	6
Audio-visual, photographic and information processing equipment	7
Social protection	8
Medical products, appliances and equipment	8
Other major durables for recreation and culture	9
Hospital services	9
Other recreational items and equipment, gardens and pets	10
Accommodation services	10
Personal care	11
Recreational and cultural services	11
Out-patient services	11
Financial services n.e.c.	11
Water supply and miscellaneous services relating to the dwelling	11
Non-alcoholic beverages	11
Goods and services for routine household maintenance	11

As said before, not all the identified PGs are PGs of interest for the EU Ecolabel. Nevertheless, from this list we can indirectly draw some suggestions. For instance, considering that rentals for housing are at the top in terms consumers expenditure, we can assume that EU Ecolabel for green buildings could be well appreciated by consumers. Regular maintenance products, repair and other services relating to the dwelling may also be of interest for the EU Ecolabel considering the high level of consumers' expenditure on housing.

On the contrary, other PGs of interest for the EU Ecolabel can directly be considered for the development of future criteria. For instance, other major durables for recreation and culture like toys and games may be suitable for the EU Ecolabel. Without individually analysing the PGs listed in Table 1, the main consideration we can make relates to the fact that **most of the PGs are services (e.g. accommodation services, financial services, hospital services, transport services, etc.**). This aspect should be strongly taken into consideration. Indeed, it is time for the **EU Ecolabel to extend to the service sector** where the ecolabel market has yet to develop.

2.2.6 Potential product groups of interest in Public Procurement in terms of demand

'Public procurement refers to the process by which public authorities, such as government departments or local authorities, purchase goods or services from companies'[28]. The public sector represented around 17.1% of total expenditure across the EU28 in 2012 (EC Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EC), JIIP Joint Institute for Innovation Policy, VVA Consulting; London Economics, 2017). According to the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (EC), JIIP Joint Institute for Innovation Policy, VVA Consulting, and London Economics (2017) the top 10 categories in terms of public demand based on "Public sector Value (Bn EUR)" are the following:

1. Public administration and defence services; compulsory social security services
2. Human health services
3. Education services
4. Electricity, gas, steam and air conditioning
5. Residential care services; social work services without accommodation
6. Mining and quarrying
7. Basic pharmaceutical products and pharmaceutical preparations
8. Wholesale trade services, except of motor vehicles and motorcycles
9. Sewerage services; sewage sludge; waste collection, treatment and disposal services; materials recovery services; remediation services and other waste management services
10. Land transport services and transport services via pipelines

'Human health services' encompasses all services already mentioned for the 'Hospital services' sub-division of 'Health' emerged also in the overall ranking of potential product groups of interest for the EU Ecolabel in terms of consumer's demand. Since this PG emerged in both rankings, it is very relevant in terms of public and private demand.

'Education services' encompasses all education services at all levels of education. This PG includes general continuing education and continuing vocational education and training for any profession, hobby or self-development purposes. It includes camps and schools offering instruction in athletic activities to groups or individuals, foreign language instruction, instruction in the arts, drama or music or other instruction or specialised training. The EU Ecolabel could be extended to these services.

'Residential care services; social work services without accommodation' includes social, counselling, welfare, referral and similar services which are aimed at the elderly and disabled in their homes or elsewhere and carried out by government offices or by private organisations, national or local self-help organisations and by specialists providing counselling services (i.e. visiting of the elderly and disabled; day-care activities for the elderly or for disabled adults; vocational rehabilitation and facilitation activities for disabled persons provided that the education component is limited); activities of day nurseries for pupils, including day-care activities for disabled children; and social, counselling,

[28] Definition found at link: https://ec.europa.eu/growth/single-market/public-procurement_en accessed on 31/07/2018.

welfare, refugee, referral and similar services which are delivered to individuals and families in their homes or elsewhere and carried out by government offices or by private organisations, disaster relief organisations and national or local self-help organisations and by specialists providing counselling services[29]. Therefore, this category is similar to 'outpatient services' and 'social protection', which are both included in the overall ranking of potential PGs of interest in terms of consumer demand. Since this PG emerged in both rankings it is clear that it represents an important PG in terms of private and public demand. Nevertheless, developing criteria for this kind of PGs may be difficult and may require a strong effort in terms of economic and human resources. Therefore, we suggest not to include these PGs in the future development strategy/evolution strategy of the EU Ecolabel (at least in the short term).

'Basic pharmaceutical products and pharmaceutical preparations' represents a PG which is included in the 'medicaments, prostheses, medical appliances and equipment and other health-related products' sub-division of 'Health', and emerged also in the overall ranking of potential PGs of interest for the EU Ecolabel in terms of consumer demand. Since this product group emerged in both rankings it is clear that it represents an important PG in terms of private and public demand and therefore it is worth a deeper consideration for an extension of the EU Ecolabel, even though it is currently not relevant for the EU Ecolabel as does not fall within the boundaries of the EU Ecolabel Regulation. Developing criteria for this PG would require a change to the EU Ecolabel regulation.

The EU Ecolabel could also theoretically cover 'Sewerage services; sewage sludge; waste collection, treatment and disposal services; materials recovery services; remediation services and other waste management services', which falls within the boundaries of 'Water supply and miscellaneous services relating to the dwelling' emerged also in the overall ranking of potential PGs of interest for the EU Ecolabel in terms of consumer demand. Since this PG emerged in both rankings it clearly represents an important PG in terms of private and public demand, and it may be worth extending the application of the EU Ecolabel to this PG. Nevertheless, as has already been said for the 'Residential care services; social work services without accommodation', a large expenditure may be necessary in terms of both economic and human resources needed for the development of the criteria. For these reasons, we suggest not to include these PGs in the future development strategy/evolution strategy of the EU Ecolabel (at least in the short term).

Within the category 'Electricity, gas, steam and air conditioning' the EU Ecolabel could be extended to the production and distribution of cooled air, chilled water for cooling purposes, ice for food and non-food items (e.g. cooling) and heating equipment. In fact, the other products and services included in this category are covered by other European policies such as the EU Emissions Trading Scheme. In addition, the PGs just mentioned fall within the boundaries of 'Water supply and miscellaneous services relating to the dwelling' emerged also in the overall ranking of potential PGs of interest for the EU Ecolabel in terms of consumer's demand. Since these PGs emerged in both rankings it is clear that they represent an important sector in terms of private and public demand and therefore it may be worth extending the application of the EU Ecolabel to this PG.

Finally, 'Mining and quarrying', 'Wholesale trade services, except of motor vehicles and motorcycles' and 'Land transport services and transport services via pipelines' should not be consider because out of the scope of EU Ecolabel.

[29] Available at: https://bit.ly/2PnsXVh

To summarize, in Table 2 we listed the suggested PGs emerged from the analysis of potential PGs of interest for the EU Ecolabel in Public Procurement in terms of demand.

Table 2 – PGs suggested by the analysis of the Public Procurement in terms of demand listed in alphabetical order.

SECTOR	PGs
Basic pharmaceutical products and pharmaceutical preparations (currently excluded by the EU Ecolabel regulation)	Herbal medicines and homeopathic products
	Medical appliances and equipment (e.g. manual or electric wheelchairs, pressure mattresses, pumps, etc.)
	Medicines, vaccines and other pharmaceutical preparations
	Other health-related products
	Prostheses
Education services	Camps and college
	Kindergartens and nursery schools
	Schools and university
Electricity, gas, steam and air conditioning	Cooling equipment
	Heating equipment
	Machine for ice production
Human health services	Dental services
	Medical laboratory services
	Preventive care services
	Outpatient curative and rehabilitative services

2.3 Comparative analysis – EU Ecolabel and other EN ISO 14024 type I national and international ecolabels

Key findings:

- 'Electronic Equipment' and 'Furniture' are the weakest PGs of EU Ecolabel in terms of number of labelled products; 'Indoor and Outdoor paints and varnishes' and 'Paper Products' the strongest ones;
- "Beds", "Blocks, Tiles and Panels", "Building Insulants", "Candles", "Car and Boat Care Products", "Chemical Building Products", "Computer", "Cosmetic Products", "Displays", "Education", "Electronic Office Equipment", "Furniture", "Green Meetings and Green Events", "Heat Pump Systems", "Restaurants and Conference Facilities", "LED Lighting Luminaire", "Recycled Construction Materials", "Recycled Plastics Products", "Toner and Ink Cartridges", "Stoves", "Supplies for Microfibre Based Cleaning", "Sustainable Financial Products", "Textiles, Hides/Skins and Leather", "Thermal Insulation", "Water-Saving Articles", "Windows and Auxiliary Parts for Windows", "Wood heaters" are the most successful PGs of the other analysed ISO 14024 type 1 ecolabels.

This chapter presents an analysis of other officially recognized national or international EN ISO 14024 Type I Ecolabelling schemes (ISO, 2018) in order to identify additional elements for a future strategy for the EU Ecolabel and in particular new potential PGs.

ISO 14024 is based on international standard establishing principles and procedures for developing Type I environmental labelling programmes. Type I environmental labelling schemes are different from Type II labels for products those include general green claims and from Type III labels related to environmental product declarations. Provided that there is no agreed definition of "nationally or regionally recognized" Ecolabelling schemes, for the aim of this analysis we have considered that

"nationally and regionally recognized" refers to "*ecolabels which receive/are subject to some public administration recognition on the base of common standards/requirements*". (LEITAT, 2017)

The analysis focuses on both the structure and evolution overtime of the Ecolabelling schemes considered, above all in terms of uptake of the product/service groups they cover. The Ecolabelling schemes analysed were chosen on the basis of data availability and taking into account the suggestions of the EC DG-ENV. The final list includes not only the Ecolabelling schemes promoted by EU Member States, but also those adopted by extra-EU countries, and those having an international diffusion and legal soundness.

The selected Type I Ecolabelling schemes are listed below:

- **Nordic Swan, Scandinavian Countries[30];**
- **Blue Angel, Germany;**
- **Austrian Ecolabel[31], Austria;**
- **Korean Ecolabel, Republic of Korea;**
- **Environmental Choice, New Zealand;**
- **TCO Certified, Worldwide[32].**

The comparative analysis focuses on both:

- Existing EU Ecolabel product categories showing lower levels of uptake (measured in terms of number of labelled products) than the same/similar product categories under the other ecolabels; and
- The product categories and the product groups covered by other ecolabels' criteria, but which are not considered by the EU Ecolabel and are successful (in terms of number of labelled products).

Finally, the last part of the analysis presents the long list of product/service categories and/or product/service groups on which the EU Ecolabel should possibly focus. The final long-list of products and services will be also taken into consideration for the development of the scenarios in Task 2. Moreover, the same long-list will be used in Task 3 where we will explain and apply the methodology for the identification of possible future product and service groups.

2.3.1 Methodology

The first step was the collection of data regarding each ecolabel in order to allow their comparability and ensure the soundness of the analysis. In order to achieve representativeness, we gathered data published on the ecolabel official websites, on reports published by the ecolabel management bodies and on scientific articles and papers collected thanks to a desk research on the main important databases (Scopus, Science Direct, etc.). Furthermore, some data were directly provided by the national CBs of each Ecolabelling scheme after direct contact with them.

In order to guarantee comparability, **the data collected were classified following standardized criteria, such as: the number of product categories and product groups, the number of license holders (i.e. companies with the ecolabel certification for at least one of their**

[30] For Scandinavian Countries we mean: Denmark, Finland, Iceland, Norway and Sweden.
[31] The original name is "Österreichisches Umweltzeichen".
[32] TCO Certified headquarters are located in Stockholm, Sweden, with regional presence in Asia and North America.

products), and the number of labelled products (i.e. the overall number of products bearing the ecolabel certification in the referred year).

Once these data were gathered and assembled into a matrix, we took the EU Ecolabel structure of product categories and groups as a "benchmark". Following the EU Ecolabel structure, we identified the corresponding product categories of the other Ecolabelling schemes and created an EU Ecolabel-like structure for all of them (both product categories and groups). When it was not possible to match some product categories completely with the EU Ecolabel ones, we created a new ad hoc product category composed by all the product groups of the compared ecolabel. When it was not possible to find any correspondence between an EU Ecolabel product category and another ecolabel's product category or product groups, we indicated "not present".

Once a common and standardized structure for all Ecolabelling schemes considered in the analysis was established, we started to compare them considering their diffusion in terms of number of labelled products in the referred year. Unfortunately, it was not possible to analyse and compare the number of licenses for each single product category or product group due to the lack of data or different counting methods. In fact, CBs do not include the systematic registration of licences and each Ecolabelling scheme considered has different methods for counting licenses.

In order to identify the PGs with a higher number of labelled products compared to the EU Ecolabel, we took into account two criteria: the absolute number of certified products under a specific PG and its percentage weight (measured in the percentage of the number of labelled products for the PG on the total number of products labelled with that certification).

Furthermore, whenever we identified a product category of another analysed ecolabels, which satisfied both criteria, we checked if inside that product category there were some product groups not included by the EU Ecolabel. Any differences between the two compared ecolabelling schemes may distort the results of the comparative analysis.

After analysing the common PGs between the EU Ecolabel and the other Ecolabelling schemes considered in the analysis, we examined all the remaining PGs of the compared ecolabels. This cluster included all PGs of the national or international ecolabels which are not yet covered by the EU Ecolabel. The evaluation of their degree of diffusion through the absolute number of certified products and the relative percentage weight[33] of each product group, allowed us to identify some possible cases which may be useful for the development of new criteria within the EU Ecolabel.

These two approaches, the search for common PGs with a higher number of certified products compared to the EU Ecolabel and the search for PGs not covered by the EU Ecolabel, but characterized by a significant number of certified products, have provided us with a long-list of PGs. This long-list of PGs has been used for the definition of the scenarios in Task 2 and will be part of the analysis on possible future EU Ecolabel criteria in Task 3.

2.3.2 The EU Ecolabel

The EU Ecolabel is the reference point of this analysis. Indeed, its PGs represent the "unit of measure" according to which the other ecolabels will be classified. More details on the EU Ecolabel are shown in Annex D.

[33] For "percentage weight" we mean the proportion of labelled products in a specific PG on the total of labelled products.

2.3.3 The Austrian Ecolabel

The Austrian Ecolabel covers 13 product/service categories which are composed by 69 different PGs. The details of its structure are shown in Annex D.

Its scope, in terms of number of labelled products, is significantly lower than that of the EU Ecolabel. However, in terms of percentage weight, some product groups may be relevant in the comparative analysis. Both the number of licenses and the number of products bearing the Austrian Ecolabel have steadily increased since 2010.

As explained in the 'Methodology' paragraph, the comparison between the two ecolabels is based on the structure of the EU Ecolabel. So, firstly, we standardized the structure of the Austrian Ecolabel to that of the EU Ecolabel. Whenever it was not possible to find a product category/product group precisely corresponding to the EU Ecolabel, we created a new one. This new product category/group is composed by all product groups of the Austrian Ecolabel similar to the considered EU Ecolabel PG. Results are shown in Annex D.

The comparative analysis indicates that most EU Ecolabel product categories show higher levels of uptake than the corresponding Austrian ones. Focusing on the absolute number of labelled products, **there are only two PGs in which the Austrian Ecolabel shows higher numbers of labelled products than the EU Ecolabel: 'Furniture' and 'Electronic Equipment'.**

Nevertheless, it is necessary to check whether the considered national ecolabel PG ('Furniture' and 'Electronic Equipment' in the case of the Austrian Ecolabel) is composed by different PGs or includes a wider range of products. However, from a preliminary examination of the general information published on the official website, we can state that there is not significant difference between the two PGs.

After comparing common product categories, we analysed the remaining product groups of the Austrian Ecolabel in order to assess **if there is any PG with a high absolute number of labelled products and a significant percentage weight.**

Only those product categories and product groups showing an absolute number of labelled products and services higher than 90 and with a percentage weight above 2% were considered relevant for the analysis: i.e., **'Education', 'Green Meetings and Green Events', 'Remanufactured Toner Modules and Ink Cartridges', 'Wood heaters' and 'Sustainable financial products'**.

As a conclusion to this comparative analysis, Table 3 summarizes all product categories (in bold) and all the PGs (in normal style) of the Austrian Ecolabel which may be **considered for either a revision of the EU Ecolabel pre-existent criteria for specific PGs or for the introduction of new ones.**

Table 3 – Summary of the most successful Austrian Ecolabel product categories and PGs.

Austrian Ecolabel	
*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
Furniture	**Education**
Office equipment with printing function	Green Meetings and Green Events

Austrian Ecolabel
Remanufactured Toner Modules and Ink Cartridges
Sustainable financial products
Wood heaters

2.3.4 The German Ecolabel 'Blue Angel'

The German Ecolabel 'Blue Angel' has a more complex structure than the other Ecolabelling schemes. This scheme includes a classification based on product type in addition to the product category and product group division. The structure has a sequential hierarchical scale: at the higher level there is the 'product type' (e.g. Home and Living), at the second level there is the 'product category' (e.g. Mobility), and at the lower level there is the 'product group' (e.g. Car Sharing, Electric Cycles, etc.). The details of this structure and more information on Blue Angel can be found in Annex D.

For the comparison, we first standardized the German Ecolabel 'Blue Angel'. Whenever it was not possible to find a product category/product group precisely corresponding to the EU Ecolabel, we created a new one. This new product category/group is composed by all product groups of the German Ecolabel similar to the considered EU Ecolabel PG. Results are shown in Annex D.

The comparative analysis shows once again that **more than a half of the EU Ecolabel product categories boast higher levels of uptake than the corresponding German ones**. However, if we focus on the absolute number of labelled products and on the percentage weight, we find **the 'Blue Angel' shows a higher number of labelled products than the EU Ecolabel in four of the product categories: 'Electronic Equipment', 'Furniture', 'Gardening' and 'Household appliances'**.[34]

After the comparison between the common categories, we analyse the remaining product groups of the German Ecolabel 'Blue Angel' which are not covered by the EU Ecolabel. The aim is to assess if there is any PG with a high absolute number of labelled products and a significant percentage weight value that might be of interest for the future strategy of the EU Ecolabel.

Only those product categories or product groups with an absolute number of labelled product higher than 100 and with a percentage weight value above 1.50 % were considered relevant for this analysis: i.e. **'Recycled Plastics' and 'Thermal Insulation'**.

As a conclusion to this comparative analysis, Table 4 summarized all the product categories (in bold) and all the product groups (in normal style) of the German Ecolabel 'Blue Angel' which may be considered for either a revision of EU Ecolabel pre-existent criteria for specific product/service categories or for the introduction of new ones.

Table 4 - Summary of the most successful German Ecolabel product categories and PGs.

German Ecolabel	
*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
All Furniture	Recycled Plastics

[34] The methodology check for these PGs is shown in Annex D.

Multifunction Devices[35]	Thermal Insulation

2.3.5 The Nordic Swan Ecolabel

The Nordic Swan Ecolabel does not feature a subdivision into product categories and product groups as the EU Ecolabel does, but it considers only 58 different PGs. The details of this structure and more information on Nordic Swan can be found in Annex D.

A comparison between the Nordic Swan and the EU Ecolabel has already been performed in Aalto K. et al. (2008) and in Lange P. et al. (2014) studies, both commissioned by the Nordic Council of Ministers. In the first study the authors stated that '*The Nordic Swan and the EU Eco-label are two very similar systems for third-party ecolabelling of products and services'*. Nevertheless, they explain that '*the major difference is the number of product groups available for ecolabelling. The number of product groups with EU Eco-label criteria is still less than half that of the products included in the Nordic Swan'.*

Lange P. et al. (2014) stated that '*the Swan Label has a dominant position in the Nordic countries and that it is used to a substantially higher degree among Nordic companies than the EU Ecolabel is. In addition, the two labels differ significantly in their position across industries. The analysis shows that the Swan Label is especially well positioned within services such as hotels, printing companies, etc. and within products such as household cleaning products, cosmetics, etc. […][36] The EU Ecolabel has a strong position within campsite services and among products within categories such as textiles, painting, paper products, etc.'*.

Our comparative analysis between the Nordic Swan and the EU Ecolabel schemes also shows whether the differences in the diffusion of the product groups reported by Lange P. et al. (2014) are still valid or if new ones have emerged during the last three or four years.

Our comparative analysis aligns to that performed in Lange P. et al. (2014). Furthermore, in Aalto K. et al. (2008) there is a focus on the criteria of some product categories which would be useful to integrate into our analysis.

If we focus on the absolute number of labelled products and its percentage weight, we notice that **there are six cases in which both indicators for the Nordic Swan are higher than those for the EU Ecolabel, i.e. the product category 'Electronic Equipment', 'Furniture', 'Household appliances', 'Other Household Items', 'Personal care products' and 'Tourist Accommodation'.** Moreover, there are two cases in which only the percentage weight of the Nordic Swan is higher than that of the EU Ecolabel, while the absolute number is lower: i.e., 'Cleaning Up' and 'Textiles and footwear'. For all these PGs, the methodology check is shown in Annex D.

As regards the remaining product groups of the Nordic Swan, only those product groups with an absolute number of labelled products higher than 360 and with a percentage weight value above 1% are relevant for our analysis. On the basis of these thresholds, we identified the following four PGs: **'Remanufactured OEM Toner Cartridges', 'Car and boat care products', 'Candles' and 'Chemical building products'**.

[35] For "Multifunction devices" Blue Angel means "Office Equipment with Printing Function". For a definition of this PG see https://www.blauer-engel.de/en/products/electric-devices/printers-and-multifunction-devices/multifunction-devices

[36] '*The strong position within these services is partly due to larger chains of stores being Swan-labelled. When a supermarket chain decides to label all of its stores, these are all counted as labelled'* (Lange P. et al., 2014)

As a conclusion to this comparative analysis, Table 5 summarizes all the product categories (in bold) and all the product groups (in normal style) of Scandinavian Ecolabel 'Nordic Swan' which may be considered for either a revision of EU Ecolabel pre-existent criteria for specific product/service categories or for the introduction of new ones.

Table 5 - Summary of the most successful 'Nordic Swan' Ecolabel product categories and PGs.

Nordic Swan	
*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
All Electronic Equipment	Candles
Furniture and fitments	Car and boat care products
Hotels, Restaurants and Conference Facilities	Chemical building products
Textiles, hides/skins and leather	Cosmetic products
	Remanufactured OEM Toner Cartridges
	Sanitary products
	Stoves
	Supplies for microfibre based cleaning

2.3.6 Environmental Choice - New Zealand Ecolabel (ECNZ)

Although the ECNZ was established in the same year as the EU Ecolabel, the numbers concerning the license holders and the certified products are completely different.[37] However, by using the criteria based on percentage weight, it is possible to analyse also this environmental label with much smaller numbers and diffusion as possible and to make useful considerations for the identification of new products categories or groups to be proposed for the development of the EU Ecolabel.

The ECNZ has a similar structure to the EU Ecolabel: it is composed by 11 product categories plus 2 service categories and 35 PGs. As done for other ecolabelling schemes we standardized the structure of product categories and groups of the ECNZ to that of the EU Ecolabel.

Even if there is a very big gap in terms of absolute numbers between the two ecolabels, there are two cases in which the ECNZ proves to have a greater uptake than the EU Ecolabel: ***'Electronic Equipment' and 'Furniture'.***

Regarding the PGs of the ECNZ that are not covered by the EU Ecolabel, only those product groups with an absolute number of labelled products higher than 15 and with a percentage weight value above 1% are relevant for our analysis. On the basis of these thresholds, the relevant product groups are the following: **'Building Insulants' and 'Recycled plastic products'.**

As a conclusion to this comparative analysis, Table 6 reports all the product categories (in bold) and all the product groups (in normal style) of the ECNZ Ecolabel scheme which may be considered for either a revision of EU Ecolabel pre-existent criteria for specific PGs or for the introduction of new ones.

Table 6 - Summary of the most successful ECNZ Ecolabel product categories and PGs.

ECNZ

[37] See Annex D.

*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
Furniture, Fittings & Flooring	Printers, copiers, faxes and consumables
	Building Insulants
	Recycled plastic products

2.3.7 The Korean Ecolabel

The Korean Ecolabel has literally no structure. There are actually 165 different PGs, but these are not formally included in any product categories.[38] Standardizing the Korean Ecolabel to the EU Ecolabel structure is at the same time easier and more difficult than the other ecolabelling schemes considered. The total absence of a structure for the Korean Ecolabel allows us to create easily product categories as much as possible similar to EU Ecolabel. However, on the other hand the heterogeneity of the PGs covered by the Korean Ecolabel increases the risk of error in the composition of product categories.

If we focus on the absolute number of labelled products and their percentage weight, we observe four cases in which both considered values are higher for the Korean Ecolabel than for the EU Ecolabel. These are the product categories **'Electronic Equipment', 'Furniture', 'Household appliances' and 'Other Household Items'**.[39]

For the PGs not covered by EU Ecolabel, **we consider significant only those product groups with an absolute number of labelled product major than 200 and with a percentage weight above 1.50%.** On the basis of these thresholds, **the product groups which are relevant for this analysis are: 'Toner Cartridges', 'LED Lighting Luminaire', 'Thermal Insulation Materials', 'Windows and Auxiliary Parts for Windows', 'Beds', 'Recycled Construction Materials' and 'Blocks, Tiles and Panels'.**

To conclude this comparative analysis, Table 7 summarizes all the product categories (in bold) and all the product groups (in normal style) of Korean Ecolabel which may be considered for either a revision of EU Ecolabel pre-existent criteria for specific product/service categories or for the introduction of new ones.

Table 7 – Summary of the most successful Korean Ecolabel product categories and PGs.

Korean Ecolabel	
*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
All Electronic Equipment Groups	**All Other Household Items Groups**
All Furniture Groups	**Beds**
	Blocks, Tiles and Panels
	Recycled plastic products
	Heat Pump Systems
	LED Lighting Luminaire
	Recycled Construction Materials

[38] See Annex D.

[39] See Annex D.

Korean Ecolabel
Thermal Insulation Materials
Toner Cartridges
Windows and Auxiliary Parts for Windows

2.3.8 TCO Certified

TCO Certified is composed by 8 PGs. These latter are not grouped into product categories. As for the other ecolabelling schemes, further details are shown in Annex D.

Given that this ecolabel is only for IT products, the comparison with the EU Ecolabel is made exclusively with the corresponding EU Ecolabel product category, i.e. 'Electronic Equipment', and all the PGs those compose it.

Only the newly created product group 'All Computer Groups' corresponds to the EU Ecolabel product category 'Electronic Equipment' and the numbers of products bearing the TCO Certified label are higher than the EU Ecolabel ones.

Looking at the remaining TCO Certified PGs, even if all of the TCO Certified product groups could be new product groups in a wider EU Ecolabel 'Electronic Equipment' product category, it has to be noted that 'Display' has by far the highest number of TCO Certified labelled products.

To conclude, Table 8 reports the one product group (in normal style) of TCO Certified which may be considered for either a revision of EU Ecolabel pre-existent criteria for specific product/service categories or for the introduction of new ones.

Table 8 - Summary of the most successful TCO Certified product categories and PGs.

TCO Certified	
*Successful **'Product Categories'** or 'Product Groups' already covered by EU Ecolabel*	*Successful **'Product Categories'** or 'Product Groups' not covered by EU Ecolabel*
	All Computer Groups
	Displays

2.3.9 Conclusion of the comparative analysis

As we have seen in each single case, it is not always possible to establish a direct correspondence between the EU Ecolabel and the other Ecolabelling schemes' product categories. This is due to the different subdivisions of product groups, to the uncertain definition of each product group and, last but not least, to the difference in the technical criteria.

The comparative analysis itself could only give an indication, but at the same time, it should be considered as a useful tool for identifying weaknesses and strengths in terms of number of labelled products for each ecolabel scheme considered. As already stated, despite its limitations, the comparative analysis allowed us to identify some product groups of other Ecolabelling schemes which may be taken into consideration for the future evolution of the EU Ecolabel.

Comparing the criteria of two different ecolabels is a complicated task, because usually these are not structured in the same way and do not always cover the same properties – even when categories seem to coincide. As suggest in Thidell A. et al. (2015), creating a set of indicators to measures and express performance, efficiency and, in some cases, potential environmental benefits could be

useful in order to evaluate the ecolabel itself but also to compare it with other schemes: '*both the accounts for individual schemes and the comparisons of two or several schemes can be questioned due to incompatible measures, weak data quality, and, in some cases probably for unclear purposes. Consequently, there is substantial interest among ecolabelling schemes to find suitable measurement, often as defined indicators, which could be used for various communication need*'.

Therefore, we believe that a more detailed criteria comparison[40] may be helpful for determining precisely if an ecolabel's product category is also covered by the EU Ecolabel. At the same time, there are PGs resulting from each single analysis of national ecolabels that do not need any 'technical criteria check' because they are not at all covered by the EU Ecolabel.

As a result of this analysis, we present all the different product categories or product groups, which are relevant for the EU Ecolabel, in a final long list of possible new future EU Ecolabel product groups.

In Table 9 we removed all 'duplicates' from the previous two tables in order to obtain a clean list of product categories and product groups advisable for the future development of new criteria for the EU Ecolabel. It will be important to analyse in-depth the technical criteria in order to understand if these could constitute one reason of the higher number of labelled products obtained by the other ecolabelling schemes for the same similar PG of the EU Ecolabel. Furthermore, the list reveals that there are some product groups or categories which have been discontinued by the EU Ecolabel in recent years. This aspect could be an opportunity to reconsider discontinuation or, at least, to try to investigate why the same product groups have reached different levels of uptake in other national Ecolabelling schemes. As for the PGs actually covered by EU Ecolabel, further details on the reason of this difference in levels of uptake could be found through an in-depth analysis of the specific definition of the product group and in the level of consistency of the technical criteria.

Table 9 - List for possible future EU Ecolabel product categories or PGs presented in alphabetical order deriving from the comparative analysis with other Ecolabelling schemes.[41]

Nr.	**Product Category** or Product Group	**Is it already covered by the EU Ecolabel?**	**Other Ecolabelling schemes**
1	Beds	Only bed frames under "Furniture"	Korean Ecolabel
2	Blocks, Tiles and Panels	Only Tiles under "Hard coverings"	Korean Ecolabel
3	Building Insulants	No	ECNZ
4	Candles	No	Nordic Swan
5	Car and Boat Care Products	No	Nordic Swan
6	Chemical Building Products	No	Nordic Swan
7	**Computer**[42]	No	TCO Certified
8	Cosmetic Products	Only "Rinse off cosmetics"	Nordic Swan
9	Displays	No	TCO Certified
10	**Education**	No	Austrian Ecolabel

[40] The list of PGs for which we suggest a technical criteria check is shown in Annex D.
[41] Product categories are written in bold. Product groups are indicated in normal style.
[42] For 'Computer' we mean notebooks, tablets, desktops and All-in-One PCs.

Nr.	**Product Category** or Product Group	**Is it already covered by the EU Ecolabel?**	**Other Ecolabelling schemes**
11	**Electronic Office Equipment**[43]	No	Austrian Ecolabel; Blue Angel; Nordic Swan; ECNZ; Korean Ecolabel
12	**Furniture**	Yes	Blue Angel; Nordic Swan; ECNZ; Korean Ecolabel
13	Green Meetings and Green Events	No	Austrian Ecolabel
14	Heat Pump Systems	No	Korean Ecolabel
15	Hotels, Restaurants and Conference Facilities	Only hotels under "Tourist Accommodation"	Nordic Swan
16	LED Lighting Luminaire	No	Korean Ecolabel
17	Recycled Construction Materials	No	Korean Ecolabel
18	Recycled Plastics Products	No	Blue Angel, ECNZ
19	Toner and Ink Cartridges	No	Austrian Ecolabel; Nordic Swan; Korean Ecolabel
20	Stoves	No	Nordic Swan
21	Supplies for Microfibre Based Cleaning	No	Nordic Swan
22	Sustainable Financial Products	No	Austrian Ecolabel
23	Textiles, Hides/Skins and Leather	Only textiles under "Textiles"	Nordic Swan
24	Thermal Insulation	No	Blue Angel; Korean Ecolabel
25	**Water-Saving Articles**[44]	No	Nordic Swan
26	Windows and Auxiliary Parts for Windows	No	Korean Ecolabel
27	Wood heaters	No	Austrian Ecolabel

[43] For 'Electronic Office Equipment' we mean copiers, printers, scanners, fax machines and multifunctional devices.
[44] For 'Water-Savings Articles' we mean faucets, showerheads, urinals, bidet and other similar sanitary products.

2.4 Analysis of the environmental relevance of products

Key findings:

- The analysis of the environmental relevance of economic sectors clearly shows that food, housing and mobility sectors are responsible for most of the environmental burden of the European consumption;
- Services, such as hotels & restaurants, data centers, food & catering services, tourism etc., have an increasing environmental impact in the EU.
- Food products were found to be the priority cluster for the environmental aspects related to the emissions (air, water & soil), water use and land use. Meat and dairy products are the major contributors.
- The housing sector is recognized as the priority product cluster for environmental aspects related to abiotic resource consumption, emissions (air, water & soil), energy consumption and waste generation. Electricity, energy use for heating, hot water, and electric appliances and construction of housing are the most dominating factors.
- The transport sector is recognized as the priority cluster for energy consumption, abiotic resource consumption and emissions (air, water & soil). Driving with motor vehicles and passenger cars and air transport for recreation (holidays, tourism) are major contributors.
- In terms of hazardous content, pharmaceuticals, detergents and sanitation products, pesticides and plastics and synthetic rubber have the highest human toxicity potential. Textiles were found to be a priority for addressing land use, water use and life-span.

In this chapter, a list of products and services with the highest environmental relevance are identified and described. For environmental relevance, we mean a significant impact on different environmental aspects (e.g. waste, soil consumption, water consumption, air emission, etc.). The analysis of products and services was conducted through a literature review of the existing studies. As a first step, studies, purposely conducted for identifying the most environmentally relevant products, were analysed. As a second step, additional product-related studies were screened to add and update the information on the environmental relevance of the products identified as important in the first step. In the third step, few selected services, where the environmental relevance is expected to be high, were described briefly. Subsequently, possible preliminary implications for the EU Ecolabel were drawn. Finally, a long list of the most environmentally relevant products and services was proposed for further analysis.

It is noteworthy that it was not possible to draw comparable results from the analysed studies. Analysed studies use different methodologies, databases, assumptions, geographical scope etc. to carry out calculations on the environmental impact of products and services. Some studies were based on the 'bottom-up' approach that begins at the level of individual products for conducting life cycle assessments (LCA). Other studies follow the 'top-down' approach that begins with input-output tables (I/O) produced by statistical agencies and describes production and consumption pattern in an economy. The level of aggregation for the various sectors depends on the applied approach and underlying objective. At the same time, some of the analysed studies were found to be old, and hence, their results were not always representative of today's consumption patterns.

Harmonizing the methodologies and other parameters of such a large number of studies for the purpose of absolute comparisons between the products and services under the focus of the EU ecolabel is beyond the scope of this project. The research team seeks to combine quantitative, qualitative and semi-quantitative information, wherever possible, to draw a robust picture of the

product and service landscape when it comes to assessing their potential for the uptake by the EU Ecolabel. The long-list of products and services presented will be subjected to a set of criteria to propose a targeted short-list in the latter stage of the project.

The following section provides an analysis of various literature sources which dealt with the identification of environmentally relevant products and services.

2.4.1 EIPRO-Study by Tukker et al. (2006)

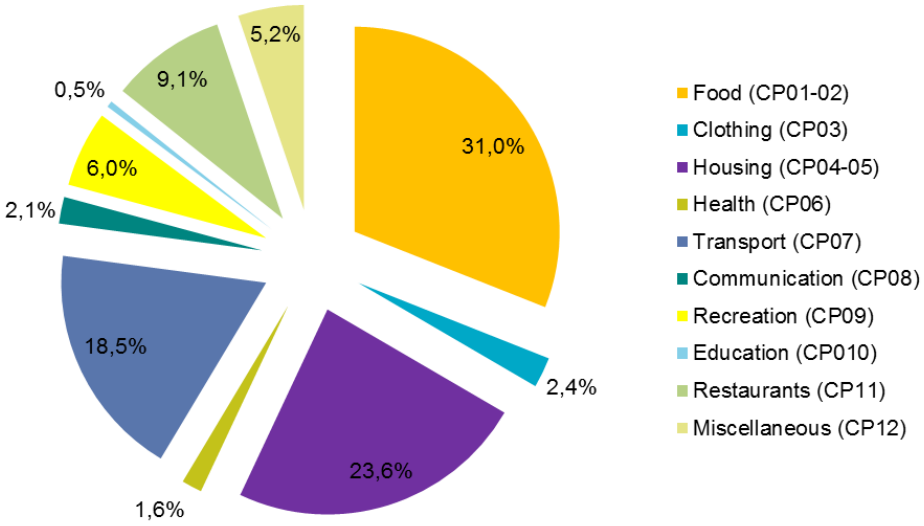
The so-called EIPRO-study by Tukker et al. (2006) is one of the most comprehensive studies assessing the environmental impact of several product groups in the European Economic Area (EU-25). In the first step, the study by Tukker et al. (2006) reviewed the literature on existing studies which compare the environmental impacts of products from a life cycle perspective. A total of seven studies were selected for full evaluation. In the second step, Tukker et al. (2006) developed a model - the CEDA EU-25 Products and Environment model – with a systematic and detailed analysis based on an input-output system. The model covers all resource uses and emissions in the production, use and disposal phases of all products consumed in the EU-25. The analysis does not consider the impacts of products exported outside the EU. For a detailed analysis, the CEDA EU-25 model distinguished 283 consumed product groupings for eight environmental impact categories (abiotic depletion, acidification, ecotoxicity, global warming, eutrophication, human toxicity, ozone layer depletion and photochemical oxidation). The product groups are categorized in the CEDA EU-25 model according to the COICOP[45] categories.

The results of the CEDA EU-25 model suggest that some 20% of product groups (60 product groups of 283) are responsible for about 80% of environmental impacts across all impact categories. There are few product groups covering more than 50% of each environmental impact. The results were found to be consistent with the overall analysis of seven other studies chosen for review.

The result (Figure 5) showed that food and drink, transport and housing were the most important consumption categories and accounted for 70% to 80% of the total life cycle impact of products w.r.t the GWP. For other environmental impacts, see Annex E. The results of other environmental impact categories show similar trends as GWP.

[45] The Classification of individual consumption by purpose, abbreviated as COICOP, is a classification developed by the United Nations Statistics Division to classify and analyse individual consumption expenditures incurred by households, non-profit institutions, serving households and general government according to their purpose. It includes categories such as clothing and footwear, housing, water, electricity, and gas and other fuels. (Source: Eurostat; https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Glossary:Classification_of_individual_consumption_by_purpose_(COICOP); accessed on 26.07.2018)

Figure 5- Quantitative comparison of results per COICOP category (level 1) of the CEDA EU-25 model on global warming potential (GWP) / direct and indirect energy use. Source: Tukker et al. (2006)



Tukker et al. (2006) described the results per COICOP category (level 1) in detail. Products under CP01 and CP02 (Food and beverages, tobacco and narcotics), meat and meat products (including meat, poultry, sausages or similar) were found to have the highest environmental relevance, followed by dairy products (esp. milk, cheese and butter).

In case the of CP03 (clothing), clothes were found to be the main contributor in terms of energy use with about 60-70% of the total impact. The share of shoes and accessories was found to be comparatively less.

In the case of products under CP04 - 05 (Housing, furniture, equipment and utility use), household heating was found to be one of the most important contributors for all impact categories. It was followed by residential structures (or rent and mortgage) and several energy consuming products and processes in the household. The use of household refrigerators, household cooking equipment and washing with household laundry equipment were found to be relevant. Several other relevant products in this category were construction, (use of) electric lamp bulbs and tubes, maintenance and repair of farm and non-farm residential structures, water supply and sewerage systems and Non-durable household goods. Electricity as a product was allocated to the appliances use, and hence was not visible as an individual product. If considered separately, it is found to be one of the major contributors of environmental impact in this category (Tukker et al. 2006; Nijdam and Wilting 2003). According to Tukker et al. (2006, S. 130), energy use for heating, hot water, and electric appliances and construction of housing were the main factors responsible for global warming, acidification, and photochemical oxidation. Among the indicators related to total material use, house construction scored the highest. Tukker et al. (2006, S. 130) emphasized that "wooden products are likely to score high when the aim is to protect biodiversity or (biotic) natural resources". However, biodiversity aspects were not considered in any of the reviewed studies.

Within the transport sector (CP07), driving with motor vehicles and passenger cars was the main factor contributing by almost 80% to the overall impact. However, the impact of air transport might have been underestimated due to several reasons, for instance it might have been included in the holiday package or business trips might not have been considered or consumer expenditure for

international travels might have fallen out of the scope of the study (Tukker et al. 2006, S. 131). Automotive repair shops and services, automotive rental and leasing (without drivers) and local and suburban transit and interurban highway passenger transportation were other areas with relatively high environmental impact.

Looking into the products under CP09 (recreation), it becomes apparent that holidays and tourism is missing from the list of the CEDA EU-25 model (Tukker et al. 2006, S. 132). Other studies, such as Nijdam and Wilting (2003) and Weidema et al. (2005), that were reviewed in Tukker et al. (2006), rated holidays and expenditure for travel abroad as quite significant in terms of environmental impact. The products identified to be relevant for this category, apart from holidays, were the use of household audio and video equipment, other amusement and recreation services, household use of pesticides and agricultural chemicals and dog & cat food.

Products under CP11 (Restaurants, hotels) were found to be important contributors to global warming, acidification and eutrophication. Eating and drinking places had the highest share of environmental impact within this category, followed by hotels and other lodging places. Business-related expenditures are not covered, so the impact of this category might have been underestimated.

The impact of categories CP06 (Healthcare), CP08 (Communications) and CP10 (Education) was found to be relatively low. Potential impacts of education were mainly related to transport to and from the educational institute and to heating. For health care and education, it is possible that data on expenditure and the calculation of impacts were underestimated (e.g. expenditure via government funding). For instance, it was surprising to see that the impact of medicines was higher than the use of hospitals. In case of Communications, telephone, telegraph communications, communications services and postal services were the major contributors within this category. However, it is expected that the impacts of telecommunication networks (especially mobile networks) and data centres will not be considered in the CEDA EU-25 model.

Furthermore, packaging was found to be relevant for resource use and waste generation when it is considered as a separate product grouping. It was not visible in the analysis of the CEDA EU-25 model because it was attributed to various final product systems (e.g. packaging for food and beverages), and hence, its impacts were scattered over a wide range of product systems.

Tukker et al. (2006) drew together **the product groupings responsible for half of each different environmental impact into a single list and came up with a list of 22 PGs presented below in alphabetical order**.

Table 10 - Environmentally most relevant product groups listed in alphabetical order. Source: Tukker et al. (2006)

Nr.	Product groups
1	Car repairs and servicing
2	Cheese
3	Clothing
4	Domestic heating equipment, including use but excluding electric heating
5	Drugs
6	Electric light bulbs and tubes, including use
7	Household laundry equipment, including use
8	Household refrigerators and freezers, including use
9	Household use of pesticides and agricultural chemicals
10	Meat

Nr.	Product groups
11	Milk
12	Motor vehicles, including use
13	New buildings and conversions
14	New one-family houses[46]
15	Other edible fats and oils
16	Other household appliances, including use
17	Other leisure and recreation services
18	Poultry
19	Sausages and other prepared meat products
20	Services of beauty and hairdressing salons
21	Services of restaurants and bars
22	Telephone, telex and communications services

2.4.2 Study Tukker et al. (2011)

Tukker et al. (2011) updated the results of the EIPRO study by analysing and structuring the product groups according to the related environmental aspects[47] (as given by ISO 14001) and their allocation to COICOP categories. Their findings are shown in Annex E. Accordingly, Tukker et al. (2011) proposed a list of priority product clusters for each environmental aspect (Table 11).

Table 11 - Summary of priority product clusters by Tukker et al. (2011).

Environmental aspect	Priority Product Clusters	Priority Product Groups
Energy Consumption	Energy-related products (as part of building occupancy)	Heating, Ventilation and Air Conditioning
		Industrial equipment
	Transport	Road transport (passenger cars, heavy duty vehicles)
		Civil aviation
		Navigation (maritime)
Abiotic Resource Consumption	Housing	Road surface
		Building structure
		Windows
	Transport	Plastic components
		Electrotechnics
Water use	Food products	Meat based products
		Milk based products
	Clothing/Textiles	Clothes
Emissions (air, soil, water)	Transport	Road transport (especially light/ commercial vehicles)
	Food products	Meat based products
		Transformed products
		Milk based products
		Soil culture
	Building occupancy	White goods

46 It means that the building is a structure maintained and used as a single dwelling unit.

47 Environmental aspects are elements of an activity, product or service that can interact with the environment during its life cycle. Environmental aspects can be related to any phase of a products life cycle, such as transport distance, energy consumption, amount of recyclable material etc. Environmental aspects are inherent properties of products or services, which result in environmental impacts (Tukker et al. 2011).

Environmental aspect	Priority Product Clusters	Priority Product Groups
		Household chemicals
		HVAC
		Furniture, bedding and wood products
Hazardous content	Chemicals	Pharmaceuticals
		Detergents & sanitation products
		Pesticides
Waste generation	Housing	Construction and demolition waste
	Packaging	Horizontal product group with variety of materials, such as plastics, paper, glass, metals, wood, cardboard, etc.
Recyclability	Building occupancy	EEE
	Transport	Metals & plastics in transportation products
Life span	Textiles	All textile products
	Building occupancy	Building and construction materials
	Packaging	Reusable packaging, Recyclability of variety of materials, such as plastics, paper, glass, metals, wood, cardboard, etc.

2.4.3 Study by the European Environment Agency, EEA (2013)

The European Environment Agency (EEA) conducted a study to identify the environmental 'hotspots' and leverage points in European consumption and production by using the tool of Environmentally-Extended Input-Output Analysis (EE-IOA) (EEA, 2013). Results of European production patterns can be found in Annex E. In terms of environmental pressures caused by European consumption (direct and indirect/ embodied), it was found that few product groups significantly contribute (30–50%) to indirect (embodied) environmental pressures (EEA 2013, S. 49–51):

- construction works, i.e. buildings and infrastructures;
- food products, beverages and alcohol;
- products of agriculture, forestry and fishing, and
- electricity, gas, steam and hot water.

These four product groups together contributed at 42% to GHG emissions, 52% to acidifying emissions, 37% to ground ozone precursors and 55% to Total Material Requirements, embodied in all consumed products in 2005. However, these product groups represented only 17% of the total consumption expenditure (EEA 2013, S. 49–51).

According to the EEA (2013, S. 52) apart from the four product groups mentioned above, seven additional product groups contributed significantly to indirect environmental pressures:

- Wholesale and retail services,
- Motor vehicles and other transport equipment,
- Hotel and restaurant services,
- Transport, and auxiliary transport services,
- Coke and refined petroleum,

- Health and social work,
- Public administration, defence and social security services.

These eleven product groups accounted in total for 75–85 % of the main environmental pressures caused through expenditure on goods and services. High environmental pressure-intensities product groups included food and beverages, electricity, water and gas, agriculture products, coke and refined petroleum products. Low environmental pressure-intensities product groups included real estate, education and financial services; this means that they contributed more to total expenditure than to environmental pressures. Details on direct and indirect pressures from domestic final consumption assigned to food and lodging, use of housing, infrastructure and mobility in EU-9 can be seen in Annex E. It was found that consumption of food and beverages; housing, water, electricity and gas; transport; furnishings & household equipment and restaurants & hotels caused greater pressure per Euro spent, i.e. they represented the product groups with high environmental pressure-intensities.

The EEA (2013) provided a list of the 20 most GHG-emission intensive and of the 20 most material-intensive products, i.e. with the higher environmental pressure per euro of consumption expenditure (please refer to Annex E). According to the EEA (2013, S. 62), services were mostly found to have comparatively low-pressure intensities for GHG and material requirement. Therefore, the EEA (2013, S. 62) concluded that "decoupling of environmental pressures from growth can in part be achieved by channelling increasing national income towards services rather than material goods". Furthermore, the EEA (2013, S. 68) emphasized that "reducing the pressure-intensities of production chains for key product groups (i.e. technology improvements)", and a behavioural change leading to a "shifting of consumption expenditure from pressure-intensive product groups to fewer intensive groups".

2.4.4 Consumer Footprint Studies of the European Commission, Joint Research Centre

This chapter presents the analysis of the studies carried out within the project "Indicators and Assessment of the Environmental Impact of EU"[48]. The studies Dewulf et al. (2014), Castellani et al. (2017a), Castellani et al. (2017b) and Baldassarri et al. (2017), are conducted by the Joint Research Centre of the European Commission and use a "Consumption-based" perspective in which environmental impacts of the whole life cycle of products are allocated to the country where the product is consumed (EU Consumption Footprint) or to the consumer who purchases the good (EU Consumer Footprint). The studies, which cover food, mobility and housing sector, include the analysis of the environmental impacts of the production of imported goods consumed in the EU and exclude the impacts of production of exported goods. For more detail, see Annex E.

2.4.5 Ecodesign Impact Accounting (EIA II)

The objective of the Ecodesign Impact Accounting (Wierda and Kemna 2017) was **to investigate the impact of the EU Ecodesign, Energy Label, Tyre labelling legislation and the Energy Star programme**. The environmental impact was measured for greenhouse gas emissions (GHG), Nitrogen oxide (NOx), carbon monoxide (CO), organic gaseous carbon (OGC), particulate matter

[48] Joint Research Centre, European Platform on Life Cycle Assessment: https://eplca.jrc.ec.europa.eu/sustainableConsumption.html

(PM) emissions, noise emissions (for relevant products) and auxiliary resources (e.g. paper, toner, detergent, water and vacuum cleaner bags & filters). Projections used two scenarios: a 'business-as-usual' (BAU) scenario, and an ECO scenario building upon the policy options defined in the studies. The accounting covered projections for the period 2010-2050, with inputs going as far back as 1990 and earlier (Wierda and Kemna 2017).

In general, it can be said that the potential for GHG emissions reductions (relative to BAU in 2020) is particularly high (i.e. above or around 20%) in the following product groups: **water heating, space heating, lighting, electronics, food preservation and cleaning**. On the other hand, saving potential was found to be low for space cooling, ventilation, cooking, industry components (such as electric motors, water pumps, air compressors) and transport sector (replacement tyres).

Table 12 - Product groups' total GHG emissions (Mt) according to the BAU scenario and potential reduction in 2020 and 2030. Source: Wierda and Kemna(2017).

Product groups	GHG BAU 2020	Avoided GHG emissions 2020 (ECO)	Avoided GHG emissions 2030 (ECO)
Water heating	233	45	81
Space heating	553	106	175
Space cooling	89	3	7
Ventilation	36	4	9
Lighting	143	43	48
Electronics	72	18	31
Food preservation	132	29	40
Cooking	38	1	3
Cleaning	50	17	23
Industry components	377	34	49
Energy sector	0	2	6
Transport sector	119	15	37
TOTAL in Mt CO_2	**1843**	**319**	**509**

Looking in depth at the level of the products, several observations could be made. The field of space cooling, room air-conditioners and central air heating & cooling equipment showed low saving potential. In electronics, the majority of the savings were attributed to electronic displays, mainly televisions. Saving potential for computer related products, such as monitors, desktops, notebooks etc. were low. However, for computer related product groups, but also for televisions, criteria related to durability and repairability might be increasingly relevant and need to be considered in the future impact assessments. The same applies to refrigeration and freezing equipment as well as cleaning equipment, such as washing machines, vacuum cleaners, dishwasher and tumble driers. These products show a high saving potential in terms of greenhouse gas emissions, but this potential would be higher if durability and repairability aspects were considered. Indeed, in the latest Ecodesign measures those were adopted by the European Commission on 1 October 2019, new provisions on reparability, upgradability, recyclability and end-of-life treatment have been introduced for electronic displays (including TVs), washing machines, washer-dryers and dishwashers, while similar provisions are being envisaged for the rest of the products those are undergoing a review.

2.4.6 Ecodesign Working Plan 2015-2017

BIO by Deloitte, Oeko-Institut and ERA Technology conducted a preparatory study in 2015 to support the European Commission (DG ENTR) in drafting the **Ecodesign Working Plan 2015-2017** for the EU Ecodesign Directive 2009/125/EC (Tinetti et al. 2015). The objective of the study was to draw up

an indicative list of no more than 20 priority product groups for which Ecodesign and/or Energy Labelling regulations may be envisaged. The results of the study are presented in Table 13.

Table 13 - Final Product Matrix of the study on the Ecodesign Workplan (2015-2017). Source:Tinetti et al.(2015);

	Primary Energy savings 2020 (Use phase, TWh (PJ))	Primary Energy savings 2030 (Use phase, TWh (PJ))	Level of confidence for energy savings estimates	Other environmental impact (including resource efficiency)	Policy gaps	Appropriateness of Ecodesign	Appropriateness of Energy Labelling	Industrial competitiveness
High pressure cleaners	2.53 (9.11)	2.81 (10.12)	++	+++	++	+++	+	++
Mobile phones / smartphones	1.89 (6.80) 3.53 (12.71) over life cycle for each 3-months lifetime extension	n.a	++	+++	+++	+++	+	+++
Building Automated Control Systems	11.33 (40.79)	30.08 (108.29)	++	++	+++	++	++	+++
Electric Kettles	11.89 (42.80)	12.14 (43.70)	++	++	++	+++	+++	++
Gateways	1.67 (6.01)	n.a	++	++	++	++	+	++
Greenhouse covers	2.11 (7.60)	7.08 (25.49)	+	++	+	+	+++	++
Hand dryers*	3.03 / 13.75 (10.91 / 49.50)	2.67 / 12.14 (9.61 / 43.70)	+++	++	+++	+++	++	++
Lifts	3.33 (11.99)	7.97 (28.69)	++	++	++	++	+	++
PV inverters	0.61 (2.20)	4.61 (16.60)	++	++	+++	++	++	+++
Refrigerated containers	2.42 (8.71)	5.86 (21.10)	++	++	+++	++	++	+++
Signage displays	4.06 / 6.47 (14.32 / 23.29)	n.a	++	++	+++	++	++	++
Wireless chargers for consumer electronics	2.17 (7.81)	n.a	+	++	+++	+++	+++	+++
Base stations	0.94 (3.38)	n.a	+	+	++	+	+	++
Domestic toasters	2.06 / 4.11 / 6.17 (7.42 / 14.80 / 22.21)	2.11 / 4.25 / 6.36 (7.60 / 15.30 / 22.90)	++	+	+++	+++	++	++
Free-standing hot beverage vending machines	0.61 (2.20)	0.58 (2.09)	++	+	++	++	+	++
Hair dryers	3.61 / 4.94 / 6.28 (13.00 / 17.78 / 22.61)	3.61 / 4.94 / 6.28 (13.00 / 17.78 / 22.61)	++	+	++	+++	+++	++

The results showed that several product groups, such as automated control systems, electric kettles, lifts, refrigerated containers, domestic toasters and greenhouse covers have high energy saving

potential until 2030. At the same time, the study highlighted that wide policy gaps currently exist for mobile phones/ smartphones, automated control systems, hand dryers, PV inverters, refrigerated containers, signage displays, wireless chargers for consumer electronics and domestic toasters. Details of the methodology applied in the study can be found in Annex E.

2.4.7 Consumer's advice as a component of a successful resource policy

The main objective of a study conducted by Oeko-Institut (Antony et al. in progress) is to identify the Big-Points (i.e. the most important fields of action and product groups) from the perspective of resource conservation. These Big Points have been analysed for different impact categories, such as energy consumption, material use, land use etc. The study has also investigated the possibilities of intervention by consumers in the resource-related Big Points. Furthermore, it has analysed the coverage of Big Points for energy/ climate-friendly consumption in terms of their influence on resource-related Big Points and assesses potential synergies and conflicts.

In order to identify the Big Points for each area, a literature review has been conducted focusing on the most relevant fields of action and product groups. The assessment has used the results of the EIPRO-study (Tukker et al. 2006) and has complemented them with updated information and knowledge. Table 14 presents the assessment results of Antony et al. (in progress) and lists only those priority sectors those were either not covered by the EIPRO-study (Tukker et al. 2006) or showed certain deviations from it:

Table 14 - Big Points from the perspective of resource conservation identified by Antony et al. (in progress) in addition to the EIPRO-study. Source: Antony et al.(in progress). Priority sectors either complementary to the EIPRO-study or showed deviations from the results of the EIPRO-study.

Impact	Priority sectors
GHG emissions	Electrical appliances
Material use	**Abiotic** Coal mining, Crude oil, Petroleum Mobility (Petroleum, natural gas, Metals) Buildings (mineral resources) **Biotic** Agriculture Forestry Food
Land use	Textile Food (global)
Water	None (EIPRO-study mentioned food, textiles & water use in households)
Waste	Electrical appliances Concrete & Asphalt Paper, Glass & Plastics Agriculture
Energy	None (EIPRO-study mentioned heating & cooling, mobility (passenger cars, food (production), electrical appliances, construction and warm water)

According to Antony et al. (in progress), food, buildings and mobility are highly relevant to several impact categories. Furthermore, consumer's decisions can play an important role in other relevant fields, such as power generation (by purchasing green electricity, installing PV-systems etc.), sustainable financial investments, clothing / textiles, ICT and waste management (with a focus on food waste in households and businesses). In all the above-mentioned fields of action, Antony et al. (in progress) conclude that energy/climate-friendly consumption simultaneously results in resource-saving consumption.

2.4.8 Tertiary sector

General description of the environmental impacts of the service sector in Europe

For a general description of the environmental impacts of the service sector in Europe, we firstly refer to the study of Bertoldi et al. (2018) on "Energy Consumption and Energy Efficiency Trends in the EU-28 2000-2015". Bertoldi et al. (2018) used the following definition for the service/tertiary sector: "*the tertiary sector includes public sector, professional, scientific and technical activities, services and commerce (this category is also known as the "commercial sector" and represents non-residential buildings in the services sector)*". The transport sector which is (excluding personal passenger cars) generally assigned to the tertiary sector is covered by a separate chapter in Bertoldi et al. (2018).

Food & Catering Services

The food and beverage sectors include restaurants, mobile food service activities, event catering, and beverage serving activities (Styles et al., 2013). Services vary greatly and, depending on location and market, may serve both tourists/one-time visitors and residents. Generally, service providers prepare and serve food and drinks to their guests. Consumption by guests can be on the premises but take-away and food-delivery may also be considered as part of the service.

In 2011 the total expenditure on food and catering services in Europe for the 28 Member States was 206,3 billion Euros and in 2012, the sector, which in total included 1.5 million enterprises, had a turnover of 354 billion Euros, and with 8 million people employed (Neto et al. 2016).

Styles et al. (2013) point out that the supply chains may have much higher environmental impacts than the processes in the service companies themselves (e.g. meal preparation in restaurants). Depending on the ingredients used, the environmental impacts connected to them may vary significantly: usually food originating from conventional agriculture has a higher impact than food from organic agriculture. The use of seasonal products and avoiding air freight can significantly reduce environmental impacts. Furthermore, the share of animal-based products in meals (especially meat) plays a crucial role: the lower the share of animal-based products, the lower the environmental impact of a meal.

In terms of corporate engagement in sustainability issues, within the catering industry there is a strong focus on energy savings, packaging reduction and food waste prevention (Neto et al. 2016).

Styles et al. (2013) indicate the share of the energy demand of the different processes of a catering company. Cooking accounts for 23% of the total energy demand, followed by water heating (mainly for dishwashing) and non-kitchen energy (both 19%), lighting (11%), cooling and others (both 8%), refrigeration (6%), ventilation (5%) and office equipment (1%). Concerning waste generation, Styles et al. (2013) mention a range of 0.26 kg to 0.48 kg organic waste per diner in different restaurants in Germany and UK. This waste originates from the preparation of dishes, the leftovers on customers' plates and the deterioration of stored food. It contains non-avoidable (e.g. peelings, rind, fruit cores) and avoidable shares (e.g. spoilage).

Tourism

The tourism sector includes a broad variety of services such as transport, accommodation (including hotels, guest houses, hostels, campsites and camping parks), food and beverage, tour operators

and travel agents. This sector contributed 10% of global GDP in 2016, with one in ten jobs worldwide (UNWTO 2018). International tourist arrivals (overnight visitors) reached 1.239 million worldwide in 2016, generating 1.107 billion Euros in revenues. With 50% of arrivals, Europe (resp. EU: 40%) is the main destination. Among the top ten destinations in the world, five are in Europe: France is the world's number one tourist destination (83 million in 2016), Spain is the third (75 Million), Italy is the fifth (52 million), United Kingdom is the sixth (36 million) and Germany the seventh in arrivals (36 million).

According to World Tourism Organization UNWTO (2018) tourism is expected to grow continuously until 2030 both in Europe and in the rest of the world (see Annex E). According to the UNWTO (2018), air travel has become the preferred mode of transport, with 57% of overnight visitors worldwide travelling to their destination by air in 2016, compared to 44% in 1995. The remaining visitors travel by surface transport (43%), whether by land (40%) or water (4%). Air travel is also the dominant mode of transport in EU destinations, with 55% of international tourists using this form of transport in 2016 compared to 45% by land or water. If we divide the different EU destinations into group of countries, air travel is the most used mean of transport in Northern Europe (75% of arrivals), followed by Southern and Mediterranean Europe (67%), Western Europe (44%) and Central and Eastern Europe (28%).

UNWTO & UNEP (2008) showed that about 5% of global GHG emissions originated from the tourism sector in 2005. The main source of GHG emissions from the tourism sector is transport (76% in 2005). In particular, in 2005 air transport accounted for 40% or 517 million tons of $CO_{2\text{-eq}}$ per year globally. Accommodation accounted for 21% and tourist activities for 3% only (important: for the latter the degree of uncertainty is high).

Gössling and Peeters (2015) showed that in 2010 the global tourism system required c.16,700 PJ of energy, 138 km3 of fresh water, 62,000 km2 of land, and 39.4 Mt of food, also causing emissions of 1.12 Gt $CO_{2\text{-eq}}$. Their analysis indicates that tourism's overall resource consumption may grow between 92% (water) and 189% (land use) in the period 2010–2050.

Carsharing

There are two different systems of carsharing: the traditional station-based carsharing and the new free-floating carsharing system. With the first one, cars are taken from and returned to the same parking area, while the second one requires users to check through a specific app if and where a car is available and allow them to leave the car wherever they want – within certain limits.

At the beginning of 2009, carsharing services were available in 14 European countries. Carsharing participants in Europe amounted to approximately 380,000, with approximately 11,900 available carsharing vehicles (Loose, 2010). In absolute numbers, Germany had by far the largest share of carsharing in Europe with 137.000 carsharing participants and 3.900 vehicles at the beginning of 2009. It was followed by Switzerland (84.500 participants), United Kingdom (64.769 participants) and the Netherlands (27.000 participants). Compared to the population, the share of carsharing participants in Switzerland was 1.1%, while Sweden, Germany and the Netherlands lied at 0.17%, 0.16% and 0.16% respectively. At the beginning of 2018, there were 2.11 Mio. carsharing participants in Germany and 17.950 vehicles available including both station-based carsharing and free-floating carsharing (bsc, 2018). This corresponds to an increase of carsharing participants by the factor 15.4 and an increase of the number of vehicles by the factor 4.6 between 2009 and 2018

in Germany. About 75% of customers participated in free-floating carsharing. With 10% at the beginning of 2018, the share of electric vehicles in carsharing fleets was by the factor 100% higher than in the average car fleet in Germany.

The following main positive environmental impacts of carsharing were identified by Loose (2010):

- Carsharing vehicles are appropriate to the specific purpose of each different journey. For example, as a carsharing fleet contains different vehicle sizes, the negative environmental effects resulting from the use of an oversized vehicle can be avoided.
- Carsharing fleets in Europe generally result in 15-20% lower emissions than the average cars in a particular country. The main reason is that in carsharing fleets the implementation of improvements in engine technology, in fuel efficiency and in emission levels is faster than in personal cars.
- Each carsharing vehicle replaces several personal cars. Customer surveys regularly show that carsharing participants own a below-average number of personal cars in comparison to average households. Loose (2010) concluded that one carsharing vehicle replaces at least four to eight personal cars in Europe. A customer survey carried out in 2015 in Germany showed an even higher replacement rate: according to this study, one carsharing vehicle replaces eight to twenty personal cars (Loose, 2016). Positive environmental effects originate from a lower number of vehicles produced and from the fact that less space in cities is occupied by vehicles and therefore, less parking space is needed.
- Cost transparency reduces the number of kilometres driven. Customer surveys show that carsharing users drive less kilometres than they used to drive with their own private vehicles. This is partly due to cost transparency: each journey has its price tag (often the price is composed of costs per kilometre and costs per time unit, and tariffs depend on car size). Instead, usually car owners who drive their personal cars do not calculate the kilometres travelled: 'the car is paid for anyway so we should use it as much as possible.'
- Carsharing changes mobility behaviour. Customer surveys show that the use of public transport increases alongside the increased use of carsharing. According to Loose (2010), this happens for two main reasons: given the cost transparency of carsharing, users choose their transport mode on a case-by-case basis, and they may use other means of transport as an alternative to the car, such as bicycle, walking, public transports. Additionally, often carsharing companies offer mobility package deals with public transport providers and special rates to regular public transport users.

Newer studies show that the positive environmental impacts of free-floating carsharing per carsharing participant are lower than those for station based carsharing, but this effect is compensated, for example in Germany, by the significantly higher number of participants (DLR 2016). However, Hülsmann et al. (2018) have shown that the introduction of free-floating carsharing alone does not lead to a reduction of greenhouse gas emissions of the city transportation system. One of the reasons relates to the fact that, according to this study, free-floating carsharing did not lead to a reduction in the total number of cars in the pilot regions. Only 3% of users gave up on having their own private cars after switching to free-floating carsharing. The abatement of private cars was lower than the number of cars used in the free-floating carsharing system.

Financial services

Financial services include retail banking, commercial and corporate banking, asset management and insurances (GRI 2005). The indirect environmental impacts associated with financial services can be significantly greater in scale than the direct environmental impacts of the operations of financial institutions (e.g. energy consumed or waste generated; GRI (2005) including their supply chain (see e.g. BSR (2015)). A still small part of the market is specialized on ethical financial services, e.g. ethical investments fulfilling defined environmental and social criteria in addition to the usual criteria on risks and return on investment.

Several studies have been carried out on GHG emissions and financial services as well on the methodology for calculating the environmental impacts of companies. Weber et al. (2018) point out that banks play different roles in financing economic activities, with varying effects on the contribution to climate problems and solutions. The identification of the role of a specific bank is challenging and the contribution of different banks may vary significantly: money lent to households and companies can be used to increase or to reduce GHG emissions, while investment products and investment banking activities can help shift large pools of investment assets toward climate solutions or contribute to climate problems.

In CSSP (2016), the annual GHG emissions (scope 1 and scope 2) of the 100 largest Global and European mutual equity funds, ranked by aggregate fund value, with a sales registration for Austria, France, Germany, the Netherlands, Sweden or Switzerland as of 31.12.2015 have been assessed. As most of the funds were registered in multiple countries, the double counting was reduced resulting in 148 assessed funds with a total of 380 billion Euros of assets under management. In order to allocate the company's GHG emissions to a fund, the value of the share held by the fund was set in relation to the company's market capitalization. This ration was then multiplied with the total GHG emission of the company which resulted in the emissions owned by the respective investors. The results are expressed in total GHG emissions and in GHG emissions per 1 million Euros invested. They show that in 2015 the total annual GHG emissions of all considered funds accounted for 56.0 million t $CO_{2\text{-eq}}$. An average of 155.2 t $CO_{2\text{-eq}}$ was emitted per 1 million Euros invested. The span of the emissions per fund ranged from 1.6 to 1,280.1 t CO $CO_{2\text{-eq}}$ per 1 million Euros invested.

The span was larger in 2016 compared to 2014 (2014: 2.3 to 837.3 t CO $CO_{2\text{-eq}}$ per 1 million Euros). Funds with a geographic focus on Europe were on average emissions more intense than the global ones.

Data Centers

A study conducted by the Oeko-Institut and Technical University of Berlin on behalf of the European Commission, DG Communications Networks, Content and Technology, showed that the electricity consumption of data centres was forecasted to increase by almost 35% from 52 TWh in 2011 to 70 TWh in 2020 (Prakash et al. 2014). At the same time, the electricity consumption of telecommunication networks was forecasted to increase exorbitantly by 150% from 20 TWh in 2011 to 50 TWh in 2020. The largest growth was expected for mobile networks due to the immense growth of mobile data traffic by factor 30 caused by the ever more intensive use of mobile internet services. The main drivers of this trend are new cloud-based services (storage in the cloud, software as a service, Apps), longer online durations (at home and mobile) with new end-user devices, increased use of videos – uploads and downloads (YouTube, online streaming, video on demand, IPTV in high definition), social media with frequent "status updates", photo uploads, etc. This is made possible by

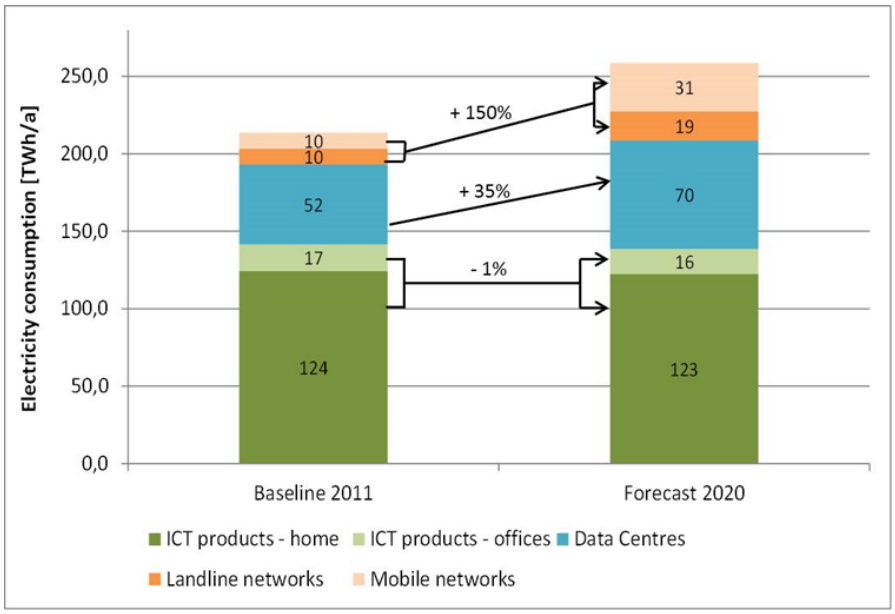
more capable mobile networks (LTE technology) as well as an increasing number of mobile devices with significant computing power (smartphones, tablets).

Compared to the massive increase in mobile traffic, the landline traffic growth was relatively moderate by factor 3. According to Prakash et al. (2014), a higher growth of electricity consumption of data centres is expected due to the increased data traffic per subscriber of about 22 EB per month in 2016, which is reflected in the fixed data traffic forecast from Cisco. The demand for cloud services like SaaS (Software as a service) or PaaS (Platform as a service) is thus expected to grow dramatically within the near future. Such a trend will not only influence the server market, but also the storage market which has already shown a very strong growth over the last years. Therefore, the resultant increase of internet and cloud services usage and along with the electricity consumption of data centres and networks, can be termed as one of the logical consequences of an increasing digitalization of our daily lives.

The collective share of data centres and telecommunication networks in the total ICT related electricity consumption in EU-27 is expected to increase from 33% in 2011 to about 46% in 2020. In other words, data centres and telecommunication networks would contribute to about 3.8% of total electricity consumption in EU-27 in 2020, compared to 2.6% in 2011 (Prakash et al. 2014).

As far as the total electricity consumption of ICT in EU-27 is concerned, the modelling and calculations carried out by Prakash et al. (2014) show that the total ICT-related electricity consumption (excluding manufacturing) in EU-27 is expected to increase from 214 TWh in 2011 to 259 TWh in 2020 (Figure 6).

Figure 6 - Comparison of the ICT-related electricity consumption in EU-27 in 2011 & 2020(excluding ICT manufacturing). *Source:* Prakash et al.(2014).



Thus, the share of ICT-related electricity consumption, in the use phase, in EU-27 is expected to increase from 7.7% in 2011 to 8.1% in 2020 (Prakash et al. 2014). The 214 TWh electricity consumed by ICT in 2011, correspond to the yearly consumption of more than 61 million households.

To recapitulate, in Table 15 are PGs emerged from the environmental relevance analysis.

Table 15 - PGs suggested by the analysis of the environmental relevance listed in alphabetical order.

Product Group			
Base stations	Electric motors	Industrial equipment	Reinforcing steel, ceramic tiles
Building Automated Control Systems	Electricity	Leisure and recreation services / holiday and tourism	Replacement tyres
Buildings	Electronics	Lifts	Road surface
Car repairs and servicing	Fabricated metal products	Lighting equipment	Rubber products
Civil aviation	Furniture	Meat-based products	Services of beauty and hairdressing salons
Clothing/ Textiles	Greenhouse covers	Milk-based products	Signage displays
Construction materials	Hair dryers	Motor vehicles (road)	Telephone, telex and communications services/ Smartphones/ Mobile Phones
Construction works and services	Hand dryers	Navigation (maritime)	Transformed (processed) food products
Cooling equipment	Health and social work	Packaging	Transport, and auxiliary transport services
Data centres	Heating equipment	Pesticides/herbicides/fungicides and agricultural chemicals for household use; Soil Culture	Vending machines
Detergents & sanitation products	High pressure cleaners	Plastic components & products	Water pumps
Domestic toasters	Hotel and restaurant services / Food and catering services	Products of agriculture, forestry and fishing	Water supply and sewerage systems
Drugs/ Pharmaceuticals	Household audio and video equipment	Public administration, defence and social security services	Wholesale and retail services
Edible fats and oils	Household water appliances	PV inverters	Windows
Electric Kettles	Household white goods	Refrigerated containers	Wireless chargers for consumer electronics

2.5 *Summary of Task 1*

Through the analysis of the "BCG Global Green Consumer Survey"[49], the project team investigated the willingness to pay a premium price for green products across different product categories.

Food, beverages and over-the-counter drugs, **shoes and apparel**, **household appliances and electronics**, **lotions, detergents and creams**, **paper products, household detergents, mobility and financial services** are the product groups most frequently purchased for their green features ("attitude of consumers"). **The analysis clearly showed that the willingness to pay for green products depends not only on the product category but also on the level of perceived benefit associated with a product.**

[49] Source: BCG Global Green Consumer Survey, 2008.

The analysis of the market context has been carried out through a statistical analysis based on EUROSTAT data encompassing the Household Budget Surveys. **The analysis of household budget consumption has shown that "Housing, water, electricity, gas and other fuels", "Transport", "Food and non-alcoholic beverages", "Miscellaneous goods and services", "Restaurants and hotels", "Recreation and culture" are the main consumption categories in terms of total household expenditure** ("consumers' demand"). The limitations of the study are mainly related to data availability and to the fact that not all sectors fall within the scope of the EU Ecolabel.

According to the analysis of the top ten sectors in terms of public demand ("public procurement demand"), **the main potential product groups of interest for a future strategy for the EU Ecolabel are "Basic pharmaceutical products"** (currently excluded according to the EU Ecolabel regulation), **"Education services", "Electricity, gas, steam and air conditioning" and "Human health services"**.

If we would exclude those PGs not included in the scope of the EU Ecolabel, the analysis of both the EU consumers' demand and of Public Procurement's demand shows that the main potential PGs for a future development of EU Ecolabel criteria are: **accommodation services, education services, electronic equipment, financial services, household maintenance products and services, medical products, personal care products, recreational and cultural services, restaurant and catering services, transport services, etc.**

Thanks to the comparative analysis between the EU Ecolabel and other officially recognized national or international EN ISO 14024 Type I Ecolabelling schemes (Nordic Swan, Blue Angel, Austrian Ecolabel, Korean Ecolabel, Environmental Choice - New Zealand, TCO Certified) we identified **'Electronic Equipment' and 'Furniture' as the product categories of the EU Ecolabel those are weakly performing, as compared to the performance of products of similar scope under several other ecolabelling schemes. 'Indoor and Outdoor paints and varnishes' and 'Paper Products' are the strongest in terms of number of EU ecolabelled products**. Other potential PGs with good performance under other ecolabelling schemes were identified (e.g. cosmetic products, education services, meetings and events, restaurant and catering service, toner and cartridges, financial products, etc.).

The analysis of the environmental relevance clearly shows that **food, housing and mobility sectors are responsible for most of the environmental burden of European consumption ("high environmental relevance")**. In the food sector, meat and meat products have the highest environmental importance, followed by dairy products. **Food products were found to be the priority cluster for environmental aspects related to emissions (air, water & soil), water use and land use**. In the housing sector, **energy use for heating, hot water, and electric appliances and construction of housing was the dominating factor**. In particular, electricity was found to be one of the major contributors in terms of environmental impact in this sector. Within the mobility sector, **driving motor vehicles and passenger cars was the main factor contributing with almost 80% to the overall impact**. Furthermore, the impact of air transport for recreation (holidays, tourism) has been steadily increasing. Additionally, restaurants and hotels contribute significantly to several environmental impacts. In terms of hazardous content, pharmaceuticals, detergents and sanitation products, pesticides and plastics and synthetic rubber had the highest human toxicity potential. Packaging was important from the perspective of waste generation and lifespan, while

textiles were found to be a priority for addressing land use, water use and lifespan. Lastly, it was found that **services have an increasing environmental impact in the EU**.

Table 16 – Products identified in Task 1 to be further assessed for EU Ecolabel potential

PGs	Angle of analysis applied in task 1					
	Attitude of consumers	Consumers' demand	Public procure-ments' demand	Comparative analysis with other ecolabels	High environ-mental relevance	Products of interest for further analysis
Accommodation services		X			X	XX
Actual rentals for housing	X					X
Base stations					X	X
Beauty products	**X**	**X**		**X**		**XXX**
Blocks, Tiles and Panels				X	X	XX
Building Automated Control Systems					X	X
Building Insulants				X		X
Buildings					X	X
Candles				X		X
Car and Boat Care Products				X		X
Car repairs and servicing					X	X
Catering services		X			X	XX
Chemical Building Products				X	X	XX
Civil aviation	**X**	**X**			**X**	**XXX**
Construction materials				X	X	XX
Construction works and services					X	X
Cooling equipment		X				X
Data centres					X	X
Detergents and sanitation products (Household chemicals)					X	X
Disposable products for the home	X					X
Drinks	X	X				XX
Drugs/ Pharmaceuticals*		**X**	**X**		**X**	**XXX**
Edible fats and oils					X	X
Education			X	X		XX
Electric motors					X	X
Electricity, gas and other fuels		X	X			XX
Electronics and appliances	**X**	**X**		**X**	**X**	**XXXX**
Fabricated metal products					X	X
Financial services	**X**	**X**		**X**		**XXX**
Fresh meat and vegetables	X				X	XX
Frozen food	X				X	XX
Furniture	**X**			**X**	**X**	**XXX**
Greenhouse covers					X	X
Health products		X				X
Heating equipment					X	X
Heat Pump Systems				X		X
High pressure cleaners					X	X
Hospital services		X	X			XX
Household maintenance products and services		X			X	XX
Imputed rentals for housing		X				X
Industrial equipment					X	X
LED Lighting Luminaire				X	X	XX
Lifts					X	X
Meetings and events				X		X
Motor vehicles (road)					X	X
Navigation (maritime)	**X**	**X**			**X**	**XXX**
Other major durables for recreation and culture		X				X
Other recreational items and equipment, gardens and pets		X				X
Out-patient services		X	X			XX
Packaged food	X					X
Packaging					X	X
Paper and Packaged Products	X					X

PGs	Angle of analysis applied in task 1					
	Attitude of consumers	Consumers' demand	Public procure-ments' demand	Comparative analysis with other ecolabels	High environ-mental relevance	Products of interest for further analysis
Pesticides/herbicides/fungicides and agricultural chemicals for household use; Soil Culture					X	X
Pets food	X					X
Plastic components & products					X	X
Public administration, defence and social security services					X	X
PV inverters					X	X
Recreational and cultural services		X			X	XX
Recycled Construction Materials				X		X
Recycled Plastics Products				X		X
Refrigerated containers					X	X
Replacement tyres					X	X
Residential care services			X			X
Restaurant and ready to eat meals	**X**			**X**	**X**	**XXX**
Road surface					X	X
Rubber products					X	X
Services of beauty and hairdressing salons					X	X
Signage displays					X	X
Social protection		X				X
Stoves				X		X
Supplies for Microfibre Based Cleaning				X		X
Textiles and clothing	**X**			**X**	**X**	**XXX**
Thermal Insulation				X	X	XX
Toner and ink cartridges				X		X
Toys and Games	X	X				XX
Transport equipment	X	X				XX
Transport services	**X**	**X**			**X**	**XXX**
Water-Saving Articles				X	X	XX
Water supply and miscellaneous services relating to the dwelling		X			X	XX
Windows and Auxiliary Parts for Windows				X	X	XX
Wholesale and retail services					X	X
Wood heaters				X		X

**Currently excluded from the EU Ecolabel scope, according to the EU Ecolabel regulation.*

3. Task 2 - Identification and assessment of scenarios for the EU Ecolabel and monitoring activities

Key findings:

- The identified scenarios for the EU Ecolabel are based on the results of Task 1, on the online consultation and on further analysis;
- In addition to the Baseline Scenario (EU Ecolabel status quo), three scenarios have been identified. Scenario 1 with a very focused market approach (consumable products with strong health/well-being connotation), Scenario 2 with a focused market coverage (Scenario 1 + relevant services) and Scenario 3 with a broad market coverage (Scenario 2 + durable products);
- After comparing the impact of the 3 scenarios vs the baseline scenario, we recommend adopting a twofold strategy: to pursue Scenario 1 in the short term, by 2023, and Scenario 2 in the long term, by 2028.
- As for the monitoring system, an adequate assessment of the performance of the EU Ecolabel shall be based first of all on data on market penetration and related environmental benefits.

3.1 Identification of elements for the definitions of the scenarios for the EU Ecolabel

Several possible scenarios for the future development of the EU Ecolabel can be identified and a selection is needed on the basis of the constraints and trade-offs arising.

The sets of elements gathered within Task 1 “Evidence gathering and analysis of the EU Ecolabel market context” and of Task 4 “Stakeholders’ Consultation” of this study (see Annex A) represent the main sources used for the identification of possible scenarios for the EU Ecolabel.

The assessment of the EU Ecolabel market context under Task 1 (mainly private and public consumption of good and services, consumers’ attitude toward environmentally friendly products, comparative analysis of other Type I ecolabels and environmental relevance) provided useful insights for increasing the uptake of the EU Ecolabel and strengthening its role within the full set of tools of the EU Circular Economy policy. This analysis together allowed to identify room for improvements for the EU Ecolabel, above all in terms of economic categories (including representative potential goods and services – refer to Table 1 in Annex F) for consideration by the EU Ecolabel:

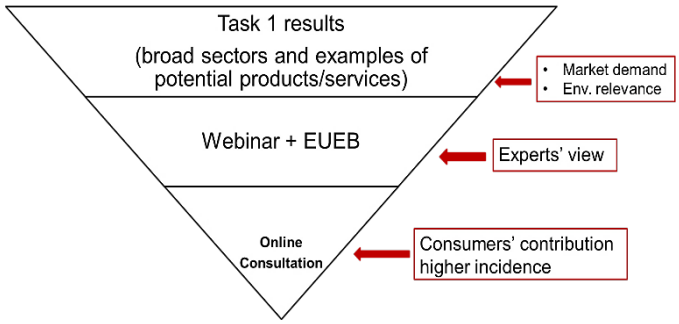
- private and public demand for the products which fall within these categories is relatively high (and businesses may want to meet this demand);
- consumers show a growing interest in the environmental impact of products and services which fall into these categories;
- the selected categories show evidence of an environmental relevance;
- other recognized ISO Type I ecolabels provide insights on the possible successful product groups not yet covered by the EU Ecolabel.

The identified windows of opportunities were presented with a wide range of stakeholders through a dedicated webinar and through the participation in periodical meetings of the European Union

Ecolabelling Board (EUEB). Moreover, a dedicated and extensive online consultation was launched on 31st January and run until March 3rd, 2019 (see Annex A). The survey was designed to address all relevant issues for the study and helped us involve all relevant EU Ecolabel stakeholders. It included, among others, questions on the potential composition of the EU Ecolabel portfolio of products and services and on options for a monitoring system for the scheme. It is important to stress that the online consultation targeted a wide range of stakeholders including private consumers (EU citizens).

The preliminary list of potential PGs was further refined and narrowed down on the basis of a **set of strategic considerations** and issues which took into account our experts' view and the insights provided by stakeholders during consultation events (ad hoc webinar, EUEB meetings and online consultation).

Figure 7 – Flow chart of the strategy for the definition of the scenarios.



Our recommendations for a shorter set of product/service groups for scenarios (taking into account also the set of existing EU policies)

In addition, a set of strategic issues was agreed with the European Commission and is presented in Table 17 below. A more detailed analysis of strategic issues can be found in Annex F.

Table 17 – Strategic issues considered for the definition of the scenarios.

1	**Should the EU Ecolabel be awarded to a homogenous or heterogeneous group of products and services?**
2	**Should the EU Ecolabel focus mainly on consumable goods or on durable goods?**
3	**Should the EU Ecolabel focus mainly on products with a health connotation (direct and indirect)?**
4	**Should the EU Ecolabel cover more products and services relevant for Green Public Procurement?**
5	**Should the EU Ecolabel cover more B2B products and services?**
6	**Should the EU Ecolabel be extended to more services while focusing on circular economy aspects?**
7	**Should the EU Ecolabel cover Ecodesign / EU Energy Label products?** *E.g. household appliances, …*
8	**How should the EU Ecolabel position itself in respect to other Type I ecolabels?** *- Differentiate on the market?* *- Cover the same successful product groups and seek better harmonisation?*
9	**Should the EU Ecolabel focus more on construction & building?** *e.g. building materials, …*
10	**Should the EU Ecolabel cover more types of personal care products?** *E.g. cosmetics, toothbrushes, …*
11	**Should the EU Ecolabel cover food, feed and non-alcoholic beverages?** *e.g. selected processed food (relevant from a life cycle point of view) products, namely dairy products, bread, non-alcoholic beverages, processed fish food, …*
12	**Should the EU Ecolabel cover recreation & culture?** *e.g. meetings & events; toys …*
13	**Should the EU Ecolabel cover mobility services?** *e.g. car sharing, bike sharing, food delivery services, taxi …*
14	**Should the EU Ecolabel cover mobility-related products?** *e.g. small & light vehicles, spare parts, …*

The outcome of the above-mentioned combination of Task 1 analysis, the results of Stakeholders' consultation and our recommendations led to a set of **key overarching strategic considerations** used for the identification of the scenarios for the EU Ecolabel. The considerations listed below are the result of a careful brainstorming and discussion with the EC on the possible future strategic approaches for increasing the uptake of the EU Ecolabel. In Annex F we reported, issue by issue, the main findings and the detailed recommendations emerged from stakeholders' consultation. These considerations are:

- The **heterogeneous/diversified approach** for the definition of the EU Ecolabel portfolio is more strategic because it allows greater market coverage and greater brand visibility, even though it may require more effort and resources;
- The EU Ecolabel should **focus on consumable goods** and give priority to non-energy-related durable products;
- The EU Ecolabel should **focus on the health/well-being connotation** of products and use it as market leverage while remaining a label of environmental excellence;
- **Services** may represent a valuable opportunity for the increasing uptake of the EU Ecolabel, also thanks to their «rebound» effect on other EU Ecolabel and environmentally friendly products (e.g. car cleaning services on car cleaning products; catering services on organic food and drink, etc.);
- For energy-related durable products covered by the EU Ecodesign and the EU Energy Label, the EU Ecolabel should **focus only on circular economy aspects** (durability, repairability, re-use, recyclability, hazardous substances);
- When deciding if developing EU Ecolabel criteria for new products/services, GPP strategic consideration should be taken into account anytime possible;
- EU Ecolabel should seek for further PGs' harmonization[50] with strong national labels, always pursuing its own EU-wide market strategies.

As a result of the above-mentioned analysis the following scenarios were identified:

- Scenario 1: EU Ecolabel with a very focused market approach *(consumable products with strong health/well-being connotation);*
- Scenario 2: EU Ecolabel with a focused market coverage (*Scenario 1 + relevant services);*
- Scenario 3: EU Ecolabel with a broad market coverage (Scenario 2 + durable non-energy products + durable energy-related products with focus on circular economy aspects).

3.1.1 Main findings of the stakeholders' consultation

Almost all of the 442 respondents have shown a high level of awareness and knowledge of the EU Ecolabel. Nevertheless, the sample of consumers is characterized by a high level of education and this aspect, probably, influenced the results.

According to the survey, the main EU Ecolabel PGs purchased by consumers are "Cleaning Up", "Paper Products" and "Indoor and outdoor paints and varnishes". On the contrary, "Lubricants" and all "industrial" products obtained less attention from consumers. Consumers also recognise a lack of

[50] EU Ecolabel should cover successful PGs for which criteria under other national Ecolabelling schemes exist and show satisfactory levels of uptake.

availability of EU Ecolabel products on the market, despite their strong interest in buying them. Nevertheless, even though LH (licence holders) and NLH (non-licence holders) companies identify a high demand for environmentally friendly products, they do not recognize the same level of interest for the products bearing the EU Ecolabel. This trend is also confirmed by retailers and others[51]. The latter also highlight a lack of visibility of the EU Ecolabel products on the market.

As regards the criteria that should be present in a PG in order to obtain the EU Ecolabel, EU citizens recognize an interest in energy efficiency and in avoiding hazardous substances. Nevertheless, only a limited number of NLH companies considers the impossibility to comply EU Ecolabel criteria as a barrier to its adoption. The main barriers are the non-existence of EU Ecolabel criteria for their products and retailers' lack of interest in selling EU Ecolabel products in their market segments. NLH companies also identify some drivers which could push them to join the EU Ecolabelling scheme. The visibility given by retailers to EU Ecolabel products is recognised as the main drivers. An increase of the marketing and promotion of the EU Ecolabel by the European Commission and the EU Member States and a higher priority given products bearing the EU Ecolabel in public procurement are some of the actions that would increase NLH companies' interest in adopting the EU Ecolabel for their products.

LH companies adopt the EU Ecolabel mostly thanks to its ability to respond to consumers' demand for greener and eco-labelled products and to differentiate from other products in their market segment. For these reasons, they use the EU Ecolabel logo as a marketing tool to improve their reputation and to boost their competitiveness on the market. On the same line of thinking, we find the retailers, who indicate the market differentiation ability and the improved reputation provided by the European Ecolabelling scheme as the main drivers for the sales of EU Ecolabel products. Moreover, retailers are willing to sell more EU Ecolabel products either under their own brand or under other brands.

All the groups of respondents suggest that the EU Ecolabel continues to include a diverse range of products, instead of focussing on fewer and more homogeneous types of products. There is also a broad consensus on including more products of interest for public procurers in order to further the diffusion of EU Ecolabel.

Furthermore, in order to maximise the uptake of the EU Ecolabel, all the respondents suggest that EU Ecolabel criteria should be applied to products with the highest environmental improvement potential, products with a high market/consumer demand and products those are in line with EU policies (e.g. circular economy, EU Plastic Strategy, etc.).

Regarding the future PGs that should be covered by the EU Ecolabel, the results provided by respondents are quite homogeneous, especially with regard to the "most recommended" PGs. For instance, personal care and cosmetic products are almost always indicated as the most desired for the future development of the EU Ecolabel. Also toys and products for household maintenance receive very good feedback from all respondents. Overall, respondents have the same opinion, also regarding the "less recommended" PGs: for instance, "Food & catering services" and "Food & beverage products" are the less recommended product categories.

[51] For "others" we mean NGOs, Public authorities, consumers' organisations and business associations.

All respondents also agree on the criteria that can be representative of the success of the European Ecolabelling scheme. In fact, almost all of them indicate that consumers' and economic actors' awareness of the EU Ecolabel as well as the use of EU Ecolabel products in green public procurement represent the best features which can identify the success of the EU Ecolabel.

Also, with regard to the EU Ecolabel monitoring strategy, there is a general homogeneity in the answers: data on sales, on production quantity and on market share of EU Ecolabel products is considered to be the most important that should be collected in order to measure the impact of the European Ecolabelling scheme.

3.2 Description and assessment of the identified scenarios for the EU Ecolabel

The following issues have been described for each scenario for the EU Ecolabel:

- the positioning of the EU Ecolabel in the market;
- the goods and services which the EU Ecolabel should cover;
- the relation with the existing EU circular economy tools / role in the EU Circular Economy;
- strategic objectives at 2023/2028;
- procedural implications;
- elements in the EU Ecolabel Regulation which could represent a barrier for the uptake of the EU Ecolabel.

A more detailed description of the scenarios can be found in Annex G.

3.2.1 Baseline Scenario

The baseline scenario represents the status quo of the EU Ecolabel, i.e. no policy change from the actual situation. The EU Ecolabel provides a science-based, ambitious ecolabelling scheme covering an EU-wide geographical and market area and delivering consumers a reliable tool for informing their environmentally responsible purchase choices. In terms of products and services, the EU Ecolabel is quite well positioned in selected market segments referring to product/service groups such as e.g. tissue paper, textile, rinse-off cosmetics, indoor and outdoor paints and varnishes, detergents, hard coverings, tourist accommodations, etc. Interestingly, these product groups share a main feature: they all directly relate to health, hygiene and well-being in general. However, considering the market analysis performed in Task 1, the baseline scenario does not include the main categories emerged in Task 1 as the most important and consumed in the EU Market.

In terms of uptake, the EU Ecolabel is performing unevenly across the different product/service groups. Although the number of EU Ecolabel awarded licenses and labelled products has increased since the EU Ecolabel Regulation revision in 2010, the EU Ecolabel uptake varies significantly across the different product groups (see Annex J). Nevertheless, the 2017 EU Ecolabel Regulatory Fitness Check (EC, 2017a) highlighted that there is no evidence supporting that the effectiveness and value-added of the EU Ecolabel are limited by the existence of other strong national/regional ecolabels.

EU Ecolabel criteria are currently established for 24 goods and service groups[52]. In addition, those already covered, and in line with the "Commission Action Plan: Financing Sustainable Growth" (EC, 2018a), EU Ecolabel criteria for "**Financial products**" are under development. The European

[52] EU Ecolabel website: http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

Commission is also considering the possibility to develop EU Ecolabel criteria for "**Solar Photovoltaic modules, inverters and systems**" and for "**Toys**" and to extend the scope of existing criteria to "Rinse-off cosmetics" to "**Rinse-off and skin care products**"[53].

The EU Ecolabel Work Plan 2016-2018 provided a list of product groups for which EU Ecolabel criteria could be developed in the future. However, it did not specify any timing for their development. Rather, the EC stated that "*given the resource constraints both in the EC and in the Member States, future efforts will focus on improving the uptake of existing criteria, rather than developing new ones*" (EC, 2016).

As regards the quantitative target related to 2023 and 2028 timing milestone, we based our hypothesis on the data of the past trends of the EU Ecolabel. Nevertheless, it is important to highlight that both the trend of number of licences and, above all, the trend of number of labelled products are characterized by a strong variability. This feature makes particularly difficult estimating realistic quantitative targets.

Table 18 – EU Ecolabel strategic objectives at 2023 and 2028 in the Baseline Scenario[54].

Strategic objective	2023	2028	KPIs
EU Ecolabel Criteria (an average of 2 years criteria development process[55])	New criteria development for: • Financial products • Rinse-off and skin care products Consider discontinuation under this scenario: • Electronic Equipment	New criteria development for: • Toys	Number of discontinued criteria. Number of criteria developed
EU Ecolabel licenses	+15% EU Ecolabel licences	+ 30% EU Ecolabel licences	Overall number of licenses; Number of EU Ecolabel licenses related to the newly developed criteria;
Products bearing the EU Ecolabel	+10% EU Ecolabel labelled products	+20% EU Ecolabel labelled products	Number of products bearing the EU Ecolabel in the new product groups. Overall number of products bearing the EU Ecolabel
Consumers' awareness[56]	Increase in consumers' EU Ecolabel awareness	Increase in consumers' EU Ecolabel awareness	% of EU citizens declaring to know the EU Ecolabel logo and its meaning; % of EU citizens declaring to use the EU Ecolabel to inform their choices about products which are environmentally and health friendly.

[53] Work has already started, and the criteria are planned to be published by end 2021.
[54] The quantitative targets have been estimated considering the evolution of EU Ecolabel in the previous year (see Annex J) conjecturing, as explained in the Baseline scenario, no significant variation in the trend.
[55] Source: EU Ecolabel official website. http://ec.europa.eu/environment/index_en.htm
[56] Due to the lack of representative quantitative data on this aspect, we deem to not assume specific objectives.

Even though we adopted the same structure for all the scenarios in order to ensure comparability, the sections “Procedural implications” and “Elements in the EU Ecolabel Regulation which could be barrier for increasing uptake” have not been included in the Baseline Scenario. We made this choice because we do not hypothesize any significant change related to these aspects in the evolution of the Baseline Scenario apart from those which was already established by EC.

In Annex G we presented an assessment of the Baseline Scenario using the SWOT methodology for the identification of strengths, weaknesses, opportunities and threats for the EU Ecolabel. Table 19 summarizes the results of the SWOT analysis.

Table 19 - SWOT matrix and resulting considerations for the Baseline Scenario.

<table>
<tr><td rowspan="2">External factors

Internal factors</td><td>Opportunities
(external, positive)</td><td>Threats
(external, negative)</td></tr>
<tr><td rowspan="2">Consumer’s demand for green products</td><td>Poor adherence to actual market changes</td></tr>
<tr><td>Proliferation of environmental labels</td></tr>
<tr><td>Strengths
(internal, positive)</td><td rowspan="3">Which strengths can be used to maximize opportunities?
○ Reinforcing its health-related connotation with an ambitious approach that aims at eliminating/substituting potentially harmful chemical substances with innovative, organic/bio-based raw materials, whenever possible;
○ Boosting the uptake of EU Ecolabel even in those MS which are less successful in terms of number of labelled products</td><td rowspan="3">How can strengths be used to minimize threats?
○ Selling the EU Ecolabel as a science-based ecolabel;
○ Improving the marketing and communication strategies of the EU Ecolabel in order to make its message clearer and more appealing to consumers;
○ Focusing on those PGs which have already obtained good results in terms of number of labelled products in order to become the top green influencer in those sectors.</td></tr>
<tr><td>Influencer of purchasing decisions</td></tr>
<tr><td>EU-wide environmental label</td></tr>
<tr><td>Weaknesses
(internal, negative)</td><td rowspan="3">What actions can be taken to minimize the weaknesses, using the opportunities identified?
○ EC and CBs should develop an ambitious communication strategy for the EU Ecolabel covering all EU Member States;
○ Allocating more responsibilities for communication and promotion of the EU Ecolabel to national Competent Bodies;
○ Identifying a specific budget allocation for EU Ecolabel promotion across the EU.</td><td rowspan="3">How to minimize weaknesses and to avoid the threats identified?
○ Selling the EU Ecolabel as a publicly endorsed, independent ecolabel in order to distinguish it in the market and increase trust in it;
○ Boosting communication in the retail sector through specific trade agreements/cooperation;
○ Constantly measuring, at least every two years, consumers’ awareness through dedicate representative surveys.</td></tr>
<tr><td>No adequate marketing and communication</td></tr>
<tr><td>Low consumers’ awareness</td></tr>
</table>

For the assessment of the scenarios, we analysed possible economic, environmental, policy and social impacts. Even though the impacts considered for each scenario are always the same in order to ensure their comparability, we assess each impact taking into consideration the peculiarity of each scenario.

The assessment of the economic impacts was carried out through a qualitative cost-benefit analysis, in both public and private sectors. A qualitative cost-benefit analysis differs from quantitative one in drawing on a range of evidence of costs and benefits, not all converted to monetary value, and therefore not producing a final ratio of costs to benefits. For instance, the analysis also considered the impacts on SMEs, including the impacts on jobs, especially when it comes to "green jobs" and the contribution to companies' corporate social responsibility.

The environmental and sustainability impacts of each scenario were assessed through the measurement of the "Improvement of environmental performance", which includes impacts on resource efficiency and climate change aspects. Moreover, we considered the "Effects on Circular Economy" to highlight the linkages between environmental and policy impacts. Within the Policy aspect, we assessed the effectiveness and efficiency of the EU Ecolabel considering its evolution in terms of number of licences and labelled products. Furthermore, the aspect related to "Coherence & EU Added value" took into account the effects of the scenarios on the EU policy context considering the interconnection, either both positive (EU added value) and negative (overlap).

As regards the social impacts, we included impacts on consumers' and other stakeholders' awareness and knowledge of the EU Ecolabel, and of the relationship between the EU Ecolabel and other ecolabelling schemes.

The description of the impacts and of the methodology adopted for the assessment of the impacts are shown in Annex G.

Baseline Scenario have been used as benchmark for the comparison of the scenarios. It is noteworthy to remember that Baseline Scenario should represent the status quo, i.e. the actual EU Ecolabel with no policy or requirement change. For this reason and due to the underlying logic used in the construction of the rating scale adopted in the methodology for the impacts' assessment, it is reasonable to assume a final assessment equal to zero, where the zero represents, exactly, the BAU scenario, i.e. the benchmark for the comparison analysis of the scenarios.

3.2.2 Scenario 1

Scenario 1 deals with an **EU Ecolabel focusing strongly on consumable goods with a health/well-being connotation** and aiming primarily at meeting consumers' demand for such products, with priority assigned to personal care/cosmetic products.

Scenario 1 draws primarily on two of our main recommendations for a more strategic approach to the EU Ecolabel:

- including more consumable goods;
- strengthening those successful existing EU Ecolabel product groups – namely, "Rinse-off cosmetics" and "Indoor paints and varnishes"– related to personal care, health and well-being by including mass market consumables.

Health/well-being is a major trigger for consumers' purchasing decisions and in the case of environmentally friendly products, consumers perceive well-being/health benefits as strictly related for the protection of the natural environment. Additionally, purchases of such consumable goods (Leave-on cosmetics, Oral hygiene, etc.) are generally rapid and recurring acts.

Thanks to Art. 6(6)[57] of the EU Ecolabel Regulation, the EU Ecolabel provides, while the focus is on the environmental performance of products (and services), that, for those products presenting relevant health aspects, potential impacts should be minimized. The EU Ecolabel is therefore a label of environmental excellence that also provides benefits in terms of consumers' health and well-being.

The last two decades have witnessed a proliferation of ethical/sustainability standards for health-related products as companies have become eager to appeal to the growing number of environmentally/health conscious consumers. In such a context, the EU Ecolabel has the chance to stand out as a reputable environmental labelling scheme with effective and stringent criteria.

When ecolabels are well designed, marketed, trusted and perceived by consumers as enabling a real change, they can represent a powerful tool to guide and shape consumer's behaviour towards more environment-friendly choices[58].

As regards development of new criteria, Scenario 1 would strongly focus on the development of criteria for the following end-consumer cosmetics:

- Leave-on cosmetics
  - *Leave on skin care products (e.g. creams, sunscreens, aftershave etc.);*
  - *Leave on haircare products (e.g. shampoo, hair oil, etc.);*
  - *Make up products (e.g. facial toners, moisturizers, etc.);*
- Cleansing products
  - *Cleansing products & make up removers (such as cleansing lotions, products for external intimate hygiene; hand sanitizers, eye make-up removers, nail polish removers, skin exfoliants, etc.);*
- Perfuming products
  - *Perfumes and deodorants (e.g. anti-perspirants; eau de Cologne, etc.);*
- Oral hygiene products
  - *Toothpaste and oral rinses;*
  - *Depilatories.*

Moreover, although not covered by *Regulation (EC) No 1223/2009*, *shampoos and conditioners for pets* have a similar composition to the rinse-off products for human use and may be in this scenario.

[57] *The EU Ecolabel may not be awarded to goods containing substances or preparations/mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR) […]*, in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures nor to goods containing substances referred to in Article 57 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency".

[58] Consumer Market study on environmental claims for non-food products. GfK, 2014.

In addition, the European Commission may consider the development of criteria for the following DIY home improvement products which present an indirect health/well-being connotation along with environmental relevance:

- *Consumable do-it-yourself chemical products for household maintenance and renovation (e.g. wood oils, waxes & polishes, adhesives, binders, sealants, coating materials, etc.).*
- *Consumable chemical products for gardening (e.g. plant protection products, pest control, etc.).*
- *Consumable recreational products (e.g. toys).*

Under this scenario, the EU Ecolabel would continue focus on those product groups which:

- show high relative uptake[59] in terms of number of labelled products;

and/or

- are in line with the health/well-being connotation of the EU Ecolabel under this scenario and cause direct and indirect effect on consumers, in order to increase the overall coherence and create a self-sustaining and improving effect for all product groups.

Table 20 - List of product categories/groups of the EU Ecolabel under Scenario 1, number of labelled products and licenses. Source: EU Ecolabel official website, http://ec.europa.eu/environment/ecolabel/facts-and-figures.html; some data deriving from a direct contact with Dr. Sylvie Ludain (EU Directorate-General for Environment "B1 - Sustainable Production, Products & Consumption Unit"). Data refer to March 2018.

Product Category – Product Group	**N° of products**	**%[60]**	**N° of licences**	**Keep / consider for discontinuation**
Cleaning Up	**5,557**	**7.99**	**479**	
Dishwashing Detergents	215	0.31	24	Keep
Hand Dishwashing Detergents	676	0.97	119	Keep
Hard Surface Cleaning Products	3,596	5.17	248	Keep
Industrial and Institutional Automatic Dishwasher Detergents	271	0.39	28	Consider discontinuation under this scenario
Industrial and Institutional Laundry Detergents	112	0.16	8	Consider discontinuation under this scenario
Laundry Detergents	687	0.99	52	Keep
Coverings	**4,453**	**6.40**	**16**	
Hard Coverings	3,822	5.49	15	Keep
Wood-cork- and Bamboo-based Floor Coverings	631	0.91	1	Keep
Do-It-Yourself	**36,604**	**52.60**	**128**	Include other DIY products such as consumable products for house improvement (e.g. wood oils, waxes & polishes, etc.)
Indoor and outdoor paints and varnishes	36,604	52.60	128	Keep
Electronic Equipment	**4**	**0.01**	**1**	

[59] The uptake of a PG has been estimated considering its percentage weight on the total of the labelled products and the trend of the PG since it was established.
[60] The percentage has been calculated on the total of the EU Ecolabel labelled products.

Product Category – Product Group	**N° of products**	**%**[60]	**N° of licences**	**Keep / consider for discontinuation**
Personal, notebook and tablet computers	0	0.00	0	Consider discontinuation under this scenario
Televisions	4	0.01	1	Consider discontinuation under this scenario
Furniture	**38**	**0.05**	**1**	
Furniture	38	0.05	1	Consider discontinuation under this scenario
Gardening	**106**	**0.15**	**16**	Include "Plant care/pest control products"
Growing media, soil improvers and mulch	106	0.15	16	Keep
Lubricants	**433**	**0.62**	**112**	Keep
Other Household Items	**53**	**0.08**	**3**	Include "Toys"
Bed Mattresses	53	0.08	3	Consider discontinuation under this scenario
Paper Products	**16,691**	**23.98**	**362**	
Converted paper products	2,577	3.70	6	Keep
Copying and Graphic Paper	4,470	6.42	71	Keep
Printed paper	586	0.84	129	Keep
Tissue Paper	9,058	13.02	156	Keep
Personal care products	**2,224**	**3.20**	**111**	Include other personal care products (e.g. cleansing products, leave on cosmetics, perfuming products, oral hygiene, etc.)
Absorbent hygiene products	19	0.03	4	Keep
Rinse-off Cosmetic Products	2,205	3.17	107	Keep
Textiles and footwear	**2,688**	**3.86**	**57**	
Footwear	63	0.09	3	Consider discontinuation under this scenario
Textile Products	2,625	3.77	54	Keep
Services	**704**	**1.00**	**681**	
Tourist Accommodation	704	1.00	681	Keep
Indoor cleaning services	0	0	0	Keep

The detailed explanation of the reason of the discontinuation are shown in Annex G.

Table 21 - EU Ecolabel strategic objectives at 2023 and 2028 in Scenario 1.

Strategic objective	**2023**	**2028**	**KPIs**
EU Ecolabel Criteria (an average of 2 years criteria	Criteria developed for: • Cleansing products & make-up removers; • Leave on cosmetics; • Oral hygiene products;	Criteria developed for: • Consumable chemical products for gardening; • Consumable do-it-yourself chemical products for	Number of new criteria developed; Number of discontinued criteria.

Strategic objective	2023	2028	KPIs
development process[61])	• Perfuming products. <u>Consider discontinuation:</u> • Electronic Equipment.	household maintenance and renovation; • Toys. <u>Consider discontinuation:</u> • Bed Mattresses; • Footwear; • Furniture; • Industrial and Institutional Automatic Dishwasher Detergents; • Industrial and Institutional Laundry Detergents.	
EU Ecolabel licenses	+18% EU Ecolabel licences	+25% EU Ecolabel licences	Number of licenses; Number of EU Ecolabel licenses related to the newly developed criteria;
Products bearing the EU Ecolabel	+25% EU Ecolabel labelled products	+39% EU Ecolabel labelled products	Number of products bearing the EU Ecolabel in the new product groups.
Consumers' awareness[62]	Increase in consumers' EU Ecolabel awareness	Increase in consumers' EU Ecolabel awareness	% of EU citizens declaring to know the EU Ecolabel logo and its meaning; % of EU citizens declaring to use the EU Ecolabel to inform their choices about products that are environmentally and health friendly.

The main considerations which should be taken into account with regards to the potential procedural implications for the EU Ecolabel in this scenario are related to Article 6(6) on hazardous substances and Article 6(3) on social and ethical aspects. Article 6(6) on hazardous substances is also considered as a possible element in the EU Ecolabel Regulation that could be a barrier to the EU Ecolabel increasing uptake (see Annex G for further details).

In Annex G we present an assessment of Scenario 1 using the SWOT methodology for the identification of strengths, weaknesses, opportunities and threats for the EU Ecolabel. Table 22 summarizes the results of the SWOT analysis.

[61] Source: EU Ecolabel official website. http://ec.europa.eu/environment/index_en.htm

[62] Due to the lack of representative quantitative data on this aspect, we deem to not assume specific objectives.

Table 22 - SWOT matrix and resulting considerations for Scenario 1.

External factors / Internal factors	**Opportunities** (external, positive)	**Threats** (external, negative)
	Meet consumer demand for products which are good both for health and the environment	*Proliferation of environmental/ethical labels*
	Become the EU flagship voluntary tool for environmental excellence in the cosmetic and household chemicals sector	
	Addressing EU circular economy priorities	*Retailers not playing a key role*
	Promote innovative circular economy solutions	
Strengths (internal, positive)	Which strengths can be used to maximize opportunities? ○ *Developing more criteria for personal care/cosmetic products;* ○ *Continuing to be an environmental label while reinforcing its health-related connotation with an ambitious approach to the elimination/substitution of chemical substances of high concern, whenever possible with innovative, organic/bio-based raw materials;* ○ *Including ethical criteria such as animal welfare, labour standards, fair-trade, etc., going beyond mandatory requirements whenever feasible.*	How can strengths be used to minimize threats? ○ *Selling the EU Ecolabel as a science-based ecolabel that is good for health and the environment;* ○ *Marketing and communicating extensively the EU Ecolabel by "tuning" messages in order to make it clear and appealing to consumers;* ○ *Involving retailers with dedicated initiatives, voluntary agreements and support aimed at increasing both availability and visibility of EU Ecolabel products.*
Environmental excellence and health preservation		
Industry and consumers' acceptance		
EU wide coverage		
Weaknesses (internal, negative)	What actions can be taken to minimize the weaknesses, using the opportunities identified? ○ *EC and CBs should develop an ambitious communication strategy for the EU Ecolabel covering all EU Member States;* ○ *Allocating more responsibilities for communication and promotion of the EU Ecolabel to national Competent Bodies;* ○ *Identifying a specific budget allocation for EU Ecolabel promotion across the EU.* ○ *Providing fiscal incentives for adopters.*	How to minimize weaknesses to avoid the threats identified? ○ *Selling the EU Ecolabel as a publicly endorsed, independent ecolabel in order to distinguish it in the market and increase trust in it tackling counterfeiting and face fake labels especially in the cosmetics sector;* ○ *Involving retailers in the EU Ecolabel strategy for promotion and communication;* ○ *Taking into account product groups' criteria of other ecolabelling schemes to foster the release of EU Ecolabel product groups.*
No adequate marketing and communication		
Cost of compliance with EU Ecolabel criteria		

The detailed description of the impacts is shown in Annex G. Table 23 shows the impact assessment matrix of Scenario 1.

Table 23 - Impact assessment matrix of Scenario 1.

Type	Impact	Intensity of impact
Economic	Economic resources needed at EC Level	-1
	Economic resources needed at CBs level	-1
	Economic resources needed by businesses	0
	Economic impact on SMEs	+1
	Market and competitive benefits for producers and retailers	+1
Total economic (sum)		***0***
Policy	Effectiveness & Efficiency	+1
	Coherence & EU Added value	+1
Total policy (average)		***+1***
Environmental	Effects towards a Circular Economy	+1
	Improvement of environmental performance	+2
Total environmental (average)		***+1.5***
Social	Consumers' awareness	+2
	Stakeholders' recognition	+2
	Relationship with competitors	+1
Total social (average)		***+1.66***
Total (average)		***1.04***

3.2.3 Scenario 2

In order to facilitate the comparison between different scenarios, we structured all scenarios in the same way and, when possible, we connected them together. For instance, Scenario 2 first incorporates Scenario 1 and then provides a more widespread market coverage in terms of possible future EU Ecolabel PGs.

In addition to the focus on consumable goods with a health/well-being connotation presented in Scenario 1, the present scenario suggests **to strongly focus on services in environmentally relevant sectors**.

In developing Scenario 2, we included those products meeting consumer's demand with a priority assigned to personal care/cosmetic products, as we did in Scenario 1. Moreover, we included those services meeting the demand of consumers, public institutions and businesses to businesses (B2B) for services, with a priority assigned to food services, housing services, transport services, education services, personal care, recreation and cultural services. We also considered the inclusion of financial products and services for which criteria are currently under development and are expected to be released by 2021.

With regard to personal well-being and health, consumers give great importance to the environmental benefits of their purchasing decision on food services, personal care and beauty services, housing services, transport services, education services, recreation and cultural services and financial products and services. Consumers are paying increasing attention to environmental issues placed for the purchase of services. Since the service sector is not overcrowded with green labels, the EU Ecolabel could be the first to design an integrated and systemic approach for the certification of green services. Moreover, by developing a series of specific criteria dedicated to

services it would provide a comprehensive approach to all areas of sustainability (economic, social, environmental). In this way, it would help consumers find their way around the vast market of services and truly sustainable companies to differentiate themselves. Through a structured and integrated approach in the various areas of sustainability, the European environmental label will be able to become a fundamental pillar of the certification of green services.

Therefore, in addition to the PGs already examined in Scenario 1, in order to enlarge the scope of the EU Ecolabel, we have included services and financial products in Scenario 2.

In developing new criteria, under Scenario 2, the EU Ecolabel would strongly focus on the following services:

- Education, recreation and culture:
  - Meetings and events;
  - School and nursery services;
- Finance:
  - Products and Services (Investment funds, bank, insurance, etc.).
- Food/drink related services:
  - Restaurants and cafés;
  - Supermarket and food retail;
  - Catering services.
- Housing:
  - Laundry services;
- Mobility:
  - Car cleaning services;
- Personal care:
  - Services of beauty and hairdressing salons.

In the current EU Ecolabel portfolio of PGs, we recommend discontinuing fewer PGs, differently from what we suggested in Scenario 1. This choice was made considering that Scenario 2 focuses on a B2B approach and for this reason PGs such as "Industrial and Institutional Automatic Dishwasher Detergents" and "Industrial and Institutional Automatic Dishwasher Detergents" were not included in the list of PGs for discontinuation. A detailed analysis of the reasons for the discontinuation of PGs already covered by the EU Ecolabel can be found in Annex G.

The following table summarizes the EU Ecolabel existing product groups and the number of labelled products, their relative percentage and the number of licenses under Scenario 2. The PGs suggested for discontinuation are marked in red.

Table 24 - List of product categories/groups of the EU Ecolabel under Scenario 2, number of labelled products and licenses. *Source*: EU Ecolabel official website, http://ec.europa.eu/environment/ecolabel/facts-and-figures.html; some data derives from a direct contact with Dr. Sylvie Ludain (EU Directorate-General for Environment "B1 - Sustainable Production, Products & Consumption Unit"). Data refer to March 2018.

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Cleaning Up	**5,557**	**7.99**	**479**	

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Dishwashing Detergents	215	0.31	24	Keep
Hand Dishwashing Detergents	676	0.97	119	Keep
Hard Surface Cleaning Products	3,596	5.17	248	Keep
Industrial and Institutional Automatic Dishwasher Detergents	271	0.39	28	Keep
Industrial and Institutional Laundry Detergents	112	0.16	8	Keep
Laundry Detergents	687	0.99	52	Keep
Coverings	**4,453**	**6.40**	**16**	
Hard Coverings	3,822	5.49	15	Keep
Wood-cork- and Bamboo-based Floor Coverings	631	0.91	1	Keep
Do-It-Yourself	**36,604**	**52.60**	**128**	Include other DIY products such as consumable products for household maintenance (e.g. wood oils, waxes & polishes, etc.);
Indoor and outdoor paints and varnishes	36,604	52.60	128	Keep
Electronic Equipment	**4**	**0.01**	**1**	
Personal, notebook and tablet computers	0	0.00	0	Consider discontinuation under this scenario
Televisions	4	0.01	1	Consider discontinuation under this scenario
Furniture	38	0.05	1	Consider discontinuation under this scenario
Gardening	**106**	**0.15**	**16**	Include “Plant care/pest control products”
Growing media, soil improvers and mulch	106	0.15	16	Keep
Lubricants	**433**	**0.62**	**112**	Keep
Other Household Items	53	0.08	3	Include “Toys”
Bed Mattresses	53	0.08	3	Consider discontinuation under this scenario
Paper Products	**16,691**	**23.98**	**362**	
Converted paper products	2,577	3.70	6	Keep
Copying and Graphic Paper	4,470	6.42	71	Keep
Printed paper	586	0.84	129	Keep
Tissue Paper	9,058	13.02	156	Keep
Personal care products	**2,224**	**3.20**	**111**	Include other personal care products (e.g. cleansing products, leave-on cosmetics, perfuming products, oral hygiene, etc.)
Absorbent hygiene products	19	0.03	4	Keep

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Rinse-off Cosmetic Products	2,205	3.17	107	Keep
Textiles and footwear	**2,688**	**3.86**	**57**	
Footwear	63	0.09	3	Consider discontinuation under this scenario
Textile Products	2,625	3.77	54	Keep
Services	**704**	**1.00**	**681**	Include "Food/drink related services", "Housing services", "Education, recreation and culture", "Mobility services", "Financial services".
Tourist Accommodation	704	1.00	681	Keep
Indoor cleaning services	0	0	0	Keep

Table 25 shows the strategic objectives of the EU Ecolabel at 2023 and 2028 for the present scenario.

Table 25 - EU Ecolabel strategic objectives at 2023 and 2028 in Scenario 2.

Strategic objective	**2023**	**2028**	**KPIs**
EU Ecolabel Criteria (an average of 2 years criteria development process[63])	Criteria developed for: • Financial products; • Other personal care products. Consider discontinuation: • Electronic Equipment.	Criteria developed for: • All services suggested under scenario 2; • Consumable chemical products for gardening; • Consumable do-it-yourself chemical products for household maintenance and renovation; • Toys. Consider discontinuation: • Bed Mattresses; • Footwear • Furniture	Number of new criteria developed; Number of discontinued criteria.
EU Ecolabel licenses	+28% EU Ecolabel licences	+35% EU Ecolabel licences	Number of licenses; Number of EU Ecolabel licenses related to the newly developed criteria;
EU Ecolabelled products	+35% EU Ecolabel labelled products	+50% EU Ecolabel labelled products	Number of products bearing the EU Ecolabel in the new product groups.

[63] Source: EU Ecolabel official website. http://ec.europa.eu/environment/index.en.htm

Strategic objective	2023	2028	KPIs
Consumers' awareness[64]	Increase in consumers' EU Ecolabel awareness	Increase in consumers' EU Ecolabel awareness	% of EU citizens declaring to know the EU Ecolabel logo and its meaning; % of EU citizens declaring to use the EU Ecolabel to drive their choices about services which are environmentally, socially and human-health friendly.

The main consideration that should be taken into account when considering the potential procedural implications for the EU Ecolabel in this scenario are related to Article 6(6) on hazardous substances, Article 6(3) on social and ethical aspects and Article 6(5) on food. These aspects of the EU Ecolabel Regulation may be considered as a possible barrier to a greater uptake of the EU Ecolabel (see Annex G for further details).

In Annex G we presented an assessment of Scenario 2 using the SWOT methodology for the identification of strengths, weaknesses, opportunities and threats for the EU Ecolabel. In Table 26, we report the summary of the results of the SWOT analysis'.

Table 26 - SWOT matrix and resulting considerations for Scenario 2.

External factors / **Internal factors**	**Opportunities** (external, positive)	**Threats** (external, negative)
	Consumers' demand for services which present positive health, environmental and social aspects	*Proliferation of environmental/ethical labels*
	Potential to become the EU flagship voluntary tool for services	*Retailers not playing a key role*
	Addressing EU circular economy priorities and promote innovative circular solution	*Green finance's lack of clarity*
	Capital flows led by EU Ecolabel towards sustainability	
Strengths (internal, positive)	Which strengths can be used to maximize opportunities?	How can strengths be used to minimize threats?
Boosting sustainability through EU Ecolabel	○ *Developing criteria for new service groups;* ○ *Becoming a label of sustainability while boosting its health, environmental and social connotations;* ○ *Including ethical criteria such as animal welfare, labour standards, fair-trade, etc., going beyond*	○ *Selling the EU Ecolabel as a science-based ecolabel;* ○ *Improving the marketing and communication strategy of the EU Ecolabel in order to make its message clearer and more appealing to consumers;* ○ *Overcoming the intermediary role of retailers by developing criteria*
Industry and consumers' acceptance		
EU wide coverage		

[64] Due to the lack of representative quantitative data on this aspect, we deem to not assume specific objectives.

	mandatory requirements whenever feasible.	*for services which are directly promoted by companies.*
Weaknesses (internal, negative)	What actions can be taken to minimize the weaknesses, using the opportunities identified?	How to minimize weaknesses to avoid the threats identified?
No adequate marketing and communication	○ *Allocating more responsibilities for communication and promotion of the EU Ecolabel to national Competent Bodies;* ○ *Identifying a specific budget allocation for EU Ecolabel promotion across the EU.* ○ *Providing fiscal incentives for adopters.* ○ *Developing a strategic approach to boost the diffusion of the new service groups all over EU Countries.*	○ *Becoming a landmark in the overcrowded world of environmental labels and the avant-garde in the certification of the services and financial products;* ○ *Taking into account service groups' criteria of other ecolabelling schemes to foster the release of EU Ecolabel service groups.*
Cost of compliance with EU Ecolabel criteria		
Cost of development and verification of the criteria		

The detailed description of the impacts is shown in Annex G. Table 27 shows the impact assessment matrix of the Scenario 2.

Table 27 - Impact matrix assessment of Scenario 2.

Type	Impact	Intensity of impact
Economic	Economic resources needed at EC Level	-2
	Economic resources needed at CBs level	-2
	Economic resources needed by businesses	-2
	Economic impact on SMEs	+3
	Market and competitive benefits for producers and retailers	+2
Total economic (sum)		***-1***
Policy	Effectiveness & Efficiency	+2
	Coherence & EU Added value	+3
Total policy (average)		***+2.5***
Environmental	Effects towards a Circular Economy	+2
	Improvement of environmental performance	+2
Total environmental (average)		***+2***
Social	Consumers' awareness	+2
	Stakeholders' recognition	+3
	Relationship with competitors	+2
Total social (average)		***+2.3***
Total (average)		***1.45***

3.2.4 Scenario 3

In addition to the focus on consumable goods with a health/well-being connotation presented in Scenario 1 and on food, housing, mobility, education, recreation and cultural services and financial products of Scenario 2, the present scenario suggests **to strongly focus on housing, mobility and education, recreational and cultural products**.

Developing Scenario 3, we included those products meeting consumer's demand with a priority assigned to household appliances not covered by the EU Energy Label. We decided not to consider those PGs already covered by the EU Energy Label (although circularity aspects are not entirely covered by the EU Energy Label due to economic reasons and are being addressed only recently in the revised measures). Scenario 3 would require strong efforts in terms of economic and human resources. We believe it is important to distribute these efforts towards different EU tools without overlapping. Moreover, we not only included those products meeting consumer's demand, but also those PGS meeting the demand of public institutions and businesses to businesses (B2B) with a priority assigned to mobility equipment and education, recreational and cultural products.

If we add these new PGs, the EU Ecolabel would be able to cover almost all the sectors listed in the ranking by household expenditure presented in Task 1, with the only exception, as mentioned above, of electric and electronic appliances. This is compensated by the high demand for environmentally friendly electric and electronic appliances. The analysis performed in Task 1 showed that consumers' willingness to pay more for green products increased for this kind of products. In Scenario 3, the inclusion of PGs in the educational, recreational and cultural sectors, would allow the EU Ecolabel to meet the high demand for health and environmentally friendly products. In particular, in Scenario 3 the EU Ecolabel would include not only those PGs with a direct health/well-being connotation (e.g. personal care products, etc.), but also those PGs with an indirect health/well-being connotation (e.g. pets care products, etc.). Moreover, Scenario 3 would allow to significantly create synergies with other main EU policies (e.g. EU Energy Label, circular economy, etc.) without overlapping their actions.

Therefore, in Scenario 3, in addition to the PGs considered in Scenario 1 and Scenario 2, the EU Ecolabel would strongly focus on the development of criteria for the following PGs:

- Housing:
  - Other household appliances (e.g. kettles, irons, etc.) not covered by the EU Energy Label;
- Education, recreation and culture:
  - Smartphones;
  - Durable gardening products;
  - Durable pet products;
  - Cartridges;
- Mobility:
  - Vehicles spare parts

In Scenario 3, the EU Ecolabel would get a much wider market coverage than in Scenario 2. Unlike previous scenarios, in Scenario 3 we recommend keeping all the PGs already covered in order to obtain the largest possible portfolio.

Table 28 - List of product categories/groups of the EU Ecolabel under Scenario 3, number of labelled products and licenses. Source: EU Ecolabel official website, http://ec.europa.eu/environment/ecolabel/facts-and-figures.html; some data derives from a direct contact with Dr. Sylvie Ludain (EU Directorate-General for Environment "B1 - Sustainable Production, Products & Consumption Unit"). Data refer to March 2018.

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Cleaning Up	**5,557**	**7.99**	**479**	

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Dishwashing Detergents	215	0.31	24	Keep
Hand Dishwashing Detergents	676	0.97	119	Keep
Hard Surface Cleaning Products	3,596	5.17	248	Keep
Industrial and Institutional Automatic Dishwasher Detergents	271	0.39	28	Keep
Industrial and Institutional Laundry Detergents	112	0.16	8	Keep
Laundry Detergents	687	0.99	52	Keep
Coverings	**4,453**	**6.40**	**16**	
Hard Coverings	3,822	5.49	15	Keep
Wood-cork- and Bamboo-based Floor Coverings	631	0.91	1	Keep
Do-It-Yourself	**36,604**	**52.60**	**128**	Include other DIY products such as consumable products for household maintenance (e.g. wood oils, waxes & polishes, etc.);
Indoor and outdoor paints and varnishes	36,604	52.60	128	Keep
Electronic Equipment	**4**	**0.01**	**1**	Include "Smartphones", "Cartridges" and "Other household appliances not covered by the EU Energy Label"
Personal, notebook and tablet computers	0	0.00	0	Consider discontinuation under this scenario
Televisions	4	0.01	1	Consider discontinuation under this scenario
Furniture	**38**	**0.05**	**1**	
Furniture	38	0.05	1	Keep
Gardening	**106**	**0.15**	**16**	Include "Plant care/pest control products" and "Durable gardening products"
Growing media, soil improvers and mulch	106	0.15	16	Keep
Lubricants	**433**	**0.62**	**112**	Keep
Other Household Items	**53**	**0.08**	**3**	Include "Toys", "Durable pet products" and "Vehicles spare parts"
Bed Mattresses	53	0.08	3	Keep
Paper Products	**16,691**	**23.98**	**362**	
Converted paper products	2,577	3.70	6	Keep
Copying and Graphic Paper	4,470	6.42	71	Keep
Printed paper	586	0.84	129	Keep

Product Category – Product Group	**N° of products**	**%**	**N° of licences**	**Keep / consider for discontinuation**
Tissue Paper	9,058	13.02	156	Keep
Personal care products	**2,224**	**3.20**	**111**	Include other personal care products (e.g. cleansing products, leave-on cosmetics, perfuming products, oral hygiene, etc.)
Absorbent hygiene products	19	0.03	4	Keep
Rinse-off Cosmetic Products	2,205	3.17	107	Keep
Textiles and footwear	**2,688**	**3.86**	**57**	
Footwear	63	0.09	3	Keep
Textile Products	2,625	3.77	54	Keep
Services	**704**	**1.00**	**681**	Include "Food/drink related services", "Housing services", "Education, recreation and culture", "Mobility services", "Financial services".
Tourist Accommodation	704	1.00	681	Keep
Indoor Cleaning Services	0	0	0	Keep

By avoiding discontinuation of unsuccessful PGs, we remain coherent with the overarching strategic approach proposed. Our strategic approach is also in line with the recommendation, expressed in Task 4, to have a broad portfolio in order to avoid that the EU Ecolabel "closes" in a too limited and "homogeneous" set of products. A limited portfolio may hamper visibility on the market and decrease the uptake by businesses. For these reasons, under this scenario, the EU Ecolabel would keep almost all the PGs already covered in order to have a very large portfolio.

Table 29 shows EU Ecolabel strategic objectives at 2023 and 2028 for the present scenario.

Table 29 - EU Ecolabel strategic objectives at 2023 and 2028 in Scenario 3.

Strategic objective	**2023**	**2028**	**KPIs**
EU Ecolabel Criteria (an average of 2 years criteria development process[65])	Criteria developed for: • Cartridges; • Financial products; • Other personal care products. Consider discontinuation: • Electronic Equipment.	Criteria developed for: • All the services suggested under scenario 2; • Consumable chemical products for gardening; • Consumable do-it-yourself chemical products for household maintenance and renovation; • Durable pet products;	Number of new criteria developed; Number of discontinued criteria.

[65] Source: EU Ecolabel official website. http://ec.europa.eu/environment/index_en.htm

Strategic objective	2023	2028	KPIs
		• Durable gardening products; • Other household appliances non covered by EU Energy Label; • Smartphones; • Toys; • Vehicles spare parts.	
EU Ecolabel licenses	+24% EU Ecolabel licences	+ 36% EU Ecolabel licences	Number of licenses; Number of EU Ecolabel licenses related to the newly developed criteria;
EU Ecolabelled products	+37% EU Ecolabel labelled products	+44% EU Ecolabel labelled products	Number of products bearing the EU Ecolabel in the new product groups.
Consumers' awareness[66]	Increase in consumers' EU Ecolabel awareness	Increase in consumers' EU Ecolabel awareness	% of EU citizens declaring to know the EU Ecolabel logo and its meaning; % of EU citizens declaring to use the EU Ecolabel to drive their choices

The main consideration that should be taken into account when considering the potential procedural implications for the EU Ecolabel in this scenario are related to Article 6(6) on hazardous substances, Article 6(3) on social and ethical aspects and Article 6(5) on food. These aspects of the EU Ecolabel Regulation may be considered as a possible barrier to a greater uptake of the EU Ecolabel (see Annex G for further details).

Annex G presents an assessment of Scenario 3 using the SWOT methodology for the identification of strengths, weaknesses, opportunities and threats for the EU Ecolabel. Table 30 summarizes the results of the SWOT analysis.

Table 30 - SWOT matrix and resulting considerations for Scenario 3.

External factors / **Internal factors**	**Opportunities** (external, positive)	**Threats** (external, negative)
	Consumers' demand for products and services which have positive health and environmental aspects	*Proliferation of environmental/ethical labels*
	Become the leader of the green labels	*Heterogeneous portfolio and rarefied distribution of resources*
	Boosting EU policies	*Retailers' low contribution to EU Ecolabel dissemination*

[66] Due to the lack of representative quantitative data on this aspect, we deem to not assume specific objectives.

Strengths (internal, positive)	Which strengths can be used to maximize opportunities? ○ *Boosting PGs related to GPP and circular economy;* ○ *Continuing being an environmental label while reinforcing its health-related connotation with an ambitious approach;* ○ *Transmitting confidence to consumers through the reliability of their own criteria.*	How can strengths be used to minimize threats? ○ *Selling the EU Ecolabel as a science-based ecolabel with a very broad scope;* ○ *Improving the marketing and communication strategy of the EU Ecolabel in order to make its message clearer and more appealing to consumers;* ○ *Improving the role of retailers in the promotion of EU Ecolabel products.*
Environmental and health excellence		
Stakeholders' expectation		
Revitalize unsuccessful consumable products already covered by EU Ecolabel		
EU and portfolio-wide coverage		
Weaknesses (internal, negative)	What actions can be taken to minimize the weaknesses, using the opportunities identified? ○ *EC and CBs should develop an ambitious communication strategy for the EU Ecolabel covering all EU Member States;* ○ *Establishing a strategy for facilitating the subscription procedure to the EU Ecolabel from an economic point of view.*	How to minimize weaknesses to avoid the threats identified? ○ *Identifying a specific budget allocation for each single PGs;* ○ *Developing a common approach with retailers and other stakeholders to boost the marketing campaign of the EU Ecolabel and reduce the costs for the European Commission*
No adequate marketing and communication		
Cost of compliance with EU Ecolabel criteria		
Cost of development and verification of the criteria		

The detailed description of the impacts is shown in Annex G. Table 31 shows the impact assessment matrix of the Scenario 3.

Table 31 - Impact assessment matrix of Scenario 3.

Type	Impact	Intensity of impact
Economic	Economic resources needed at EC Level	-3
	Economic resources needed at CBs level	-3
	Economic resources needed by businesses	-2
	Economic impact on SMEs	+2
	Market and competitive benefits for producers and retailers	+3
Total economic (sum)		***-3***
Policy	Effectiveness & Efficiency	+2
	Coherence & EU Added value	+2
Total policy (average)		***+4***
Environmental	Effects on Circular Economy	+2
	Improvement of environmental performance	+3
Total environmental (average)		***+2.5***
Social	Consumers' awareness	+1
	Stakeholders' recognition	+2
	Relationship with competitors	+2
Total social (average)		***+1.6***
Total (average)		***+1.275***

3.3 Identification of the most favourable scenario for the EU Ecolabel

Drawing on the considerations resulting from the assessment of the proposed scenarios for the EU Ecolabel, we present here **the most favourable scenario for the EU Ecolabel.**

The identification of the most favourable scenario for the EU Ecolabel is not an easy task as each scenario has its own strengths and weaknesses and may be considered suitable for the EU Ecolabel. Moreover, we have to consider the underlying logic adopted to create the scenarios: each scenario incorporates the previous one and, so, Scenario 2 is based on Scenario 1, while Scenario 3 is based both on Scenario 1 and Scenario 2.

Obviously, each scenario changes from the previous one due to the inclusion of new potential PGs and due to the possible discontinuation of already covered PGs. The three possible scenarios are based on a progressive increase in the number of product and service groups covered. In such a way, we aimed to increasingly expand the range of coverage on the European label market. In Annex H it is possible to find a summary of the analysis of the scenarios performed in the previous paragraphs and used for the identification of the most favourable scenario for the EU Ecolabel.

Table 32 summarizes the three scenarios with the related PGs to be included, the PGs suggested for discontinuation, the expected targets and the main findings of the assessment.

Table 32 - Summary of the three scenarios.

Scenario	PGs to be included	PGs suggested for discontinuation	Expected targets		Main findings of the assessment
			2023	2028	
Baseline Scenario	• Financial products; • Rinse-off and skin care products; • Toys.	• Electronic Equipment.	• +15% EU Ecolabel licences; • +10% EU Ecolabel labelled products.	• + 30% EU Ecolabel licences; • +20% EU Ecolabel labelled products.	Economic: 0 Policy: +0.5 Environmental: +0.5 Social: +0.66
Scenario 1	• Consumable chemical products for gardening; • Consumable do-it-yourself chemical products for household maintenance and renovation;	• Bed Mattresses; • Electronic Equipment; • Footwear; • Furniture; • Industrial and Institutional Automatic	• +18% EU Ecolabel licences; • +25% EU Ecolabel labelled products.	• +25% EU Ecolabel licences; • +39% EU Ecolabel labelled products.	Economic: 0 Policy: +1

Scenario	PGs to be included	PGs suggested for discontinuation	Expected targets		Main findings of the assessment
			2023	2028	
	• Cleansing products & make-up removers; • Leave-on cosmetics; • Oral hygiene products; • Perfuming products; • Toys.	• Dishwasher Detergents; • Industrial and Institutional Laundry Detergents.			Environmental: +1.5 Social: +1.66
Scenario 2	• All the PGs of Scenario 1; • Education, recreation and culture services; • Financial services; • Food/drink related services; • Housing services; • Mobility services; • Personal care services.	• Bed Mattresses; • Electronic Equipment; • Footwear; • Furniture.	• +28% EU Ecolabel licences; • +35% EU Ecolabel labelled products.	• +35% EU Ecolabel licences; • +55% EU Ecolabel labelled products.	Economic: -1 Policy: +2.5 Environmental: +2 Social: +2.3
Scenario 3	• All the PGs of Scenario 1; • All the PGs of Scenario 2; • Cartridges; • Durable pet products; • Durable gardening products; • Other household appliances; • Smartphones; • Vehicles spare parts.	• Electronic Equipment.	• +34% EU Ecolabel licences; • +37% EU Ecolabel labelled products.	• +44% EU Ecolabel licences; • +64% EU Ecolabel labelled products.	Economic: -3 Policy: +4 Environmental: +2.5 Social: +1.6

These scenarios can be assessed either through an in-depth analysis of all considered sub-impacts or through a comparison of the scenarios' average results for each impact.

Figure 8 – "Radar" representation of the scenarios.

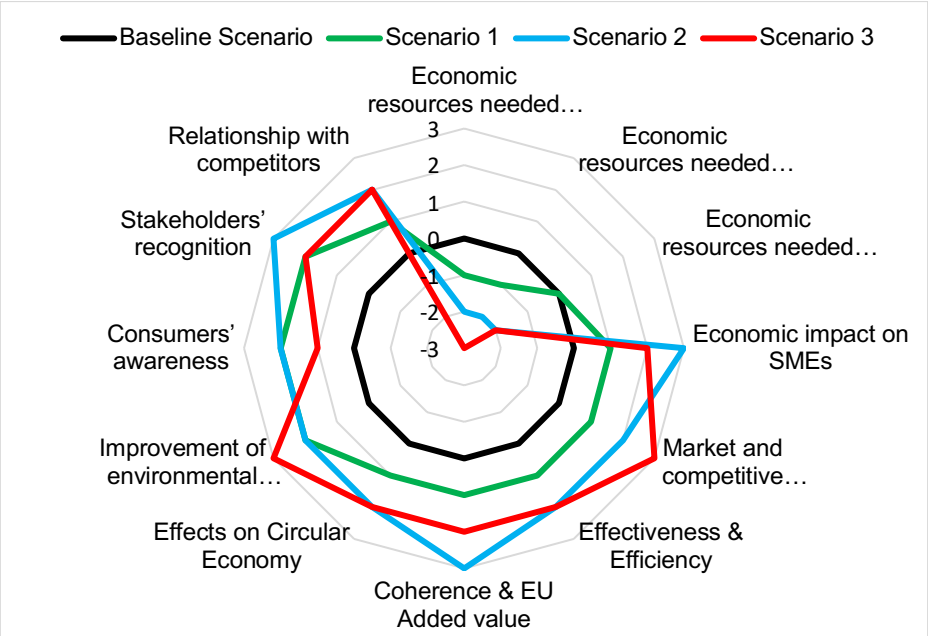


Figure 8 shows the results of the assessment of the scenarios for each sub-impact. Looking at the radar clockwise, we find the economic (top right), policy (bottom right), environmental (bottom left) and social (top left) impacts. The figure also shows that these scenarios do not respect the same order in the final output. There are several points of intersection between the various radars, which demonstrates that there is no direct correlation between the increase in the number of PGs covered and the increase in benefits (e.g. "Effectiveness & Efficiency", "Economic impact on SMEs", "Coherence & EU Added value", "Effects on Circular Economy", "Consumers' awareness", "Stakeholders' recognition", etc.).

Rather than providing a general overview of the impacts, the graphical representation used in Figure 13 is useful for comparing the scenarios at the level of sub-impacts.

From an initial superficial analysis, it could be hypothesized that Scenario 3, given the high number of products and services covered, would bring the greatest benefits in all aspects. However, Figure 13 shows how this prediction applies exclusively to the "Environmental Impact". Indeed, if we expand the analysis to the other impacts, we realise that Scenario 3 less performing than Scenario 2 with regard to all other impacts, albeit in a limited way for the political and social impacts.

Even though the different scenarios sometimes overlap, Scenario 3 is clearly the one with the greatest "Environmental" impact, but the "Economic" impact of Scenario 3 is extremely lower in a negative sense. In fact, despite Scenario 3 provides economic benefits to SMEs and the market, the costs for the development of this scenario, borne by the EC, the CBs and by companies, are so high that they could not be offset by the expected benefits.

Furthermore, a considerable increase in the number of the licenses and products covered by the EU Ecolabel in the long term, would be possible only if adequately supported by sufficient economic and human resources made available by the various stakeholders, and above all through a massive communication and information campaign. Moreover, in the short term, if we consider the high number of new PGs listed in Scenario 3, it is reasonable to think that, in the face of an enormous

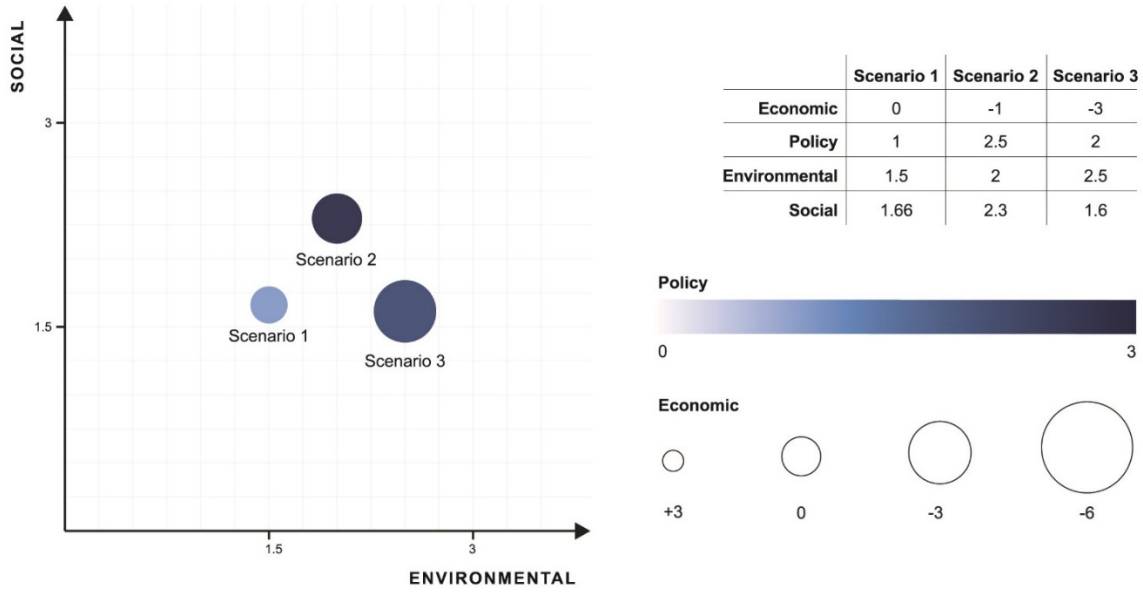
initial investment by EC and CBs, companies would need more time to fulfil the criteria set by the EU Ecolabel. This may lead to a delay in the economic returns foreseen in terms of fees.

Focusing on the other scenarios, we note that the expected situation for the Baseline Scenario is static, i.e. equal to 0. This static situation could lead to a period of "stagnation" in which the EU Ecolabel would continue to exist without being able to integrate the suggestions from the various stakeholders, but also from previous studies (e.g. Fitness Check, etc.). This effect would seem to drag on even in the long run, if no significant changes are expected.

The Baseline Scenario and Scenario 3 are the two extreme positions, diametrically opposite to each other. In the Baseline scenario everything is left unchanged. On the contrary, Scenario 3 overturns everything: it invests drastically on the EU Ecolabel, expanding its scope and spreading on the market, trying to cover the greatest number of products and services. Unlike these two scenarios, Scenario 1 and Scenario 2 are more balanced.

Although Scenario 1 registers the lowest impacts for all identified aspects, it is the most stable and balanced, while Scenario 3 requires a greater effort in terms of resources in order to reach its levels of "Environmental", "Social" and "Policy" impacts. On the contrary, Figure 15 shows that Scenario 2 has a small increase in the economic impacts compared to Scenario 1, but allows great resource savings compared to Scenario 3. Therefore, similar results to Scenario 3 can be achieved (or even higher in the case of "Policy" and "Social" impacts).

Figure 9 – Final assessment of the scenarios.



	Scenario 1	Scenario 2	Scenario 3
Economic	0	-1	-3
Policy	1	2.5	2
Environmental	1.5	2	2.5
Social	1.66	2.3	1.6

Figure 9 allows us to fully compare the different scenarios, taking into account all the identified impacts. The table at the top right of the figure summarizes the final scores obtained for each impact considered in every scenario. Below this table, there is a legend for the "Policy" and "Economic" impacts. "Policy" is represented by the colour blue. The gradation of the colour, from light to dark, is directly proportional to the level of impact: the greater the impact, the darker the blue. A similar reasoning is applied to "Economic". For the representation of this impact we used the point size: the greater the impact, the greater the point size. Finally, for the "Environmental" and "Social" impacts we have used a graphic representation, placing them on the x axis and on the y axis respectively.

This representation mode allows a clearer comparison between scenarios. We did not represent the baseline scenario because it is equal to zero, so it can be easily located at the intersection of the main axes.

Considering the qualitative approach on which this study is based, the identification of the best scenario also results from a qualitative analysis.

After eliminating the Baseline Scenario and Scenario 3, due to their "extreme" characteristics, Scenario 1 and Scenario 2 remain the possible solutions. Again, looking at the graph, Scenario 2 may seem beyond doubt the best possible scenario.

However, in Scenario 2 we should also consider the strong impact of economic aspects. **In order to obtain that level of success for policy, social and environmental aspects, all stakeholders (not only EC or CBs, but also businesses) need an important allocation of funds and economic resources those may not be available in the short term.**

Each scenario has its pros and cons (see Annex G). It is really difficult to establish *a priori* which one is the best although they can be directly compared through the qualitative-quantitative evaluation presented in this chapter. Nevertheless, thanks to the underlying logic used for building the scenarios, these can be easily disassembled and assembled. In fact, each scenario includes a list of possible future product and service groups and a list of PGs already covered by the EU Ecolabel those have been suggested for discontinuation.

As seen, all scenarios are based on an "incremental approach", i.e. the groups of products and services increase in each subsequent scenario and consequently the market coverage of the EU eco-label also increases.

As regard the new PGs, **we recommend adopting a twofold strategy: one for the short-term (considering 2023 as timing milestone) and one for the long-term (considering 2028 as timing milestone)**.

Scenario 1 requires a lower economic effort compared to Scenario 2. Thus, we recommend adopting its strategy for the short-term and, at the same time, allocating resources for the long-term strategy. Indeed, considering the underlying logic on which we based the scenarios, Scenario 2 firstly incorporates Scenario 1 and then provides additional specific PGs. As already specified above and in Table 24 of Annex G, **we recommend to pursuit Scenario 1 in the short term, by 2023, and Scenario 2 in the long term, by 2028**.

As regards the PGs suggested for discontinuation, **we also recommend adopting a twofold strategy: one for the short-term (considering 2023 as timing milestone) and one for the long-term (considering 2028 as timing milestone)**.

Scenario 2 requires discontinuing fewer PGs than Scenario 1. Thus, a greater economic effort would be made by the EC in order to pursue this scenario. For this reason, we propose a mixed approach between Scenario 1 and Scenario 2 for the discontinuation of PGs. "*Industrial and Institutional Automatic Dishwasher Detergents*" and "*Industrial and Institutional Laundry Detergents*" would be discontinued in Scenario 1 in line with its B2C approach, but not in Scenario 2 which adopts a B2B approach. Considering the twofold strategy mentioned above, our final recommendation is not to discontinue these two PGs. On the contrary, considering that "*Electronic Equipment*" would be discontinued under both scenarios, **we would recommend discontinuing "Electronic Equipment" in the short term**. Moreover,

considering the low connection with the proposed strategy and the low trend obtained in the previous year, **we would suggest discontinuing "Footwear" in the short term**. On the contrary, the other two PGs suggested for discontinuation, i.e. "*Bed Mattresses"* and "*Furniture*", present an indirect health/well-being connotation, which is strictly linked with the underlying logic that we used for creating the scenarios. Moreover, "Furniture" emerged as one of most important sectors both in terms of market demand and in terms of environmental relevance. For these reasons, **our recommendation is not to pursue the discontinuation of "Bed Mattresses" and "Furniture" in the short term, but to further analysis their possible discontinuation only in the long term considering the economic resources available by the EC and their trend in terms of number of labelled products and number of licences in the next ten years**.

Considering the methodology adopted for the definition of the scenarios, the EC would be able to select the PGs it prefers from all the scenarios. In this way the EC would be able to create a new scenario that can be evaluated and compared using the same methodology adopted for the scenarios presented in this study. In fact, the structure of the scenarios allows a continuous remodelling of the PGs those compose it. The EC would be able to evaluate and compare any additional scenario.

In this way, the inevitable degree of subjectivity in the qualitative-quantitative assessment of the scenarios, which constitutes the weakness of this methodology, becomes a strength once the tool is used directly by the policymaker.

To conclude the analysis for the identification of the most favourable scenario for the implementation of the EU Ecolabel, we summarize the main findings deriving from the adoption of the suggested scenario.

Table 33 - Recommended future strategy for the EU Ecolabel considering the two milestone of 2023 and 2028.

	2023	2028
New PGs	• Financial products; • Rinse-off and skin care products.	• Consumable chemical products for gardening; • Consumable do-it-yourself chemical products for household maintenance and renovation; • Education, recreational and culture services; • Food/drink related services; • Housing services; • Mobility services; • Other personal care products • Personal care services; • Toys.
PGs suggested for discontinuation	• Electronic Equipment.	• Bed Mattresses; • Footwear; • Furniture[67].
Expected targets[68]	• + 17% EU Ecolabel licences;	• + 28% EU Ecolabel licences;

[67] The 3 PG may be subject to an assessment of a confirmed and continuous low level of uptake on the market.

[68] Estimated considering the average of the expected target of Scenario 1 and Scenario 2.

	2023	2028
	• + 18% EU Ecolabel labelled products.	• + 30% EU Ecolabel labelled products.

3.4 Proposal for a monitoring system of the EU Ecolabel

The 2017 Fitness Check called for the development of an adequate monitoring system for the EU Ecolabel, based on the evidence that after 25 years since its first establishment there is not a systematic set of indicators to adequately assess the performance of the scheme. Moreover, it is important to underline that the EU Ecolabel regulation does not set clear targets for the scheme, nor any mandatory reporting requirement[69]. Although the results of the Fitness Check highlighted that the EU Ecolabel is playing a relevant role within the full set of EU Circular Economy Policy tools, its effectiveness in reducing the environmental impact of consumption and production in the EU cannot be fully assessed because of:

- the lack of a commonly agreed method to quantify and benchmark **the environmental performance of products**. This means that the systematic comparison of products bearing the EU Ecolabel with "standard" products in the market is not always possible;
- **the lack of market data** (e.g. sales) for EU Ecolabelled products, that is not easy to determine to what extend the EU Ecolabel has actually penetrated the market and, consequently, to what extend it is potentially able to influence consumption.

Similarly, data on the performance and impacts of the EU Ecolabel would be necessary for measuring the overall efficiency of the Scheme, to be evaluated considering the benefits (e.g. in terms of environmental impact) with respect to the economic and human resources invested (cost/benefit analysis).

3.4.1 Challenges in establishing effective monitoring systems for ecolabels

The available research relating to the monitoring mechanisms for ISO Type I ecolabelling schemes agrees that the design and implementation of an adequate and feasible **set of indicators** is not easy and that a shared methodology/approach for determining the success of an ecolabel has not yet been developed at the international and regional level (Thidell et al., 2015a).

Much of the current debate focuses on the assumption that an adequate assessment of the performance of ecolabels **shall be grounded on data on market penetration and related environmental benefits** (Prakash and Rüdenauer, 2018). However, there is a series of barriers, such as **data accessibility/availability, the lack of an appropriate methodology and resource constraints of the ecolabelling schemes** (Thidell et al., 2015b). The market share of ecolabelled products poses particularly high challenges since this kind of data is generally very difficult to obtain for ecolabelling institutions. This is due to the fact that companies consider data on sales and market share as sensitive information that deserve confidentiality. Moreover, even if available such data must be purchased from market research agencies and this requires a considerable investment.

The lack of data on market penetration for ecolabelled products is, in turn, hampering the assessment of actual environmental benefits achieved by ecolabelling schemes, even though

[69] However, Annex I of the regulation regarding the Procedure for the development and revision of the EU Ecolabel criteria, indicates that "*draft criteria shall correspond indicatively to the best 10-20% products available on the Community market in terms of environmental performance at the moment if their adoption*".

valuable Life-Cycle Assessment (LCA) methods and standards exist to measure environmental impacts.

Even in the case of indirect positive effects of ecolabelling schemes on policy, business and society, several challenges arise when trying to measure them (Prakash and Rüdenauer, 2018). The indirect effects concern issues related, for example, to the use of ecolabel criteria in Green Public Procurement (GPP), the definition of minimum mandatory environmental requirements, the definition of standards for driving manufacturers towards eco-innovation, etc. The literature recognizes that, although the indirect benefits of ecolabelling schemes are significant, there are several obstacles establishing a feasible set of indicators for their regular and systematic assessment.

3.4.2 The existing performance indicators under the EU Ecolabel

At present the EU Ecolabel uses the following parameters as key performance indicators:

- number of EU Ecolabel licenses which companies hold and their evolution overtime;
- number of products for which these companies were awarded the EU Ecolabel and their evolution overtime;

Number of EU Ecolabel licenses

The EU Ecolabel Regulation (EC) 66/2010 provides that the EU Ecolabel can be awarded to a legal market operator - which can be a producer, manufacturer, importer, service provider, wholesaler or retailer – and that only one EU Ecolabel license shall be granted for each product group[70] and operator, according to the principle "*one* license for *one* product group and *one* operator". If an operator presents a new application for the same product group, the same license number is issued, even if the number of products has changed. In the case of wholesalers and retailers, they can sell EU Ecolabel products of other operators, but they can request, by presenting a separate application, an EU Ecolabel license for products under their own brand. However, if an operator applies for the EU Ecolabel for different product groups (e.g. for tissue paper as well as for copying and graphic paper), then different licenses will be awarded and counted separately.

Number of EU Ecolabel products

Art. 2 of the EU Ecolabel Regulation (EC) 66/2010 provides that the scheme "*shall apply to any goods or services*[71] *which are supplied for distribution, consumption or use on the Community market […]*". As for the EU Ecolabel approach to report statistical information for labelled products and services, the following principles are applied (Prakash and Rüdenauer, 2018):

- when an EU Ecolabel product/service is placed in the market under different commercial names/brands, then each of them is counted as a separate product;
- if the same product is sold with (even slightly) different names (e.g. because of the translation of the name into the different national languages of the countries where the product is marketed), then each of them is counted as a separate product;

[70] Product groups means "*a set of products that serve similar purposes and are similar in terms of use, or have similar functional properties, and are similar in terms of consumer perception*". Art. 2 EU Ecolabel Regulation (EC) 66/2010.
[71] Both referred to as "products" in the Regulation.

- when the same product is sold with the same name, but the information displayed on the EU Ecolabel is translated into the different national languages of the countries where the product is marketed, then "*x*" products shall be reported;
- not only (identical) products marketed under different names are counted as different products, but also different volumes/sizes or colors/tints count as different product;
- when a wholesaler/retailer applies for the EU Ecolabel for a product already holding an EU-Ecolabel license, but with another commercial name/brand, then those products will be counted separately.

Data collection and elaboration for both indicators are carried out by EU Ecolabel Competent Bodies (CBs) responsible for managing the Scheme at the EU Member States level, while at the EU aggregated level statistical reporting is managed by the European Commission. Since 2012 the quality of these data has improved thanks to the improvement standardized reporting from all CBs (Nuttall et al., 2017).

3.4.3 How do other ecolabelling schemes monitor their performance

At the international level, ISO Type I ecolabelling schemes use a diverse and non-standardized set of indicators to monitor and evaluate their performance.

Table 34 below presents a summary recapitulation of the key performance indicators (KPIs) used by selected ISO Type I ecolabelling schemes (Prakash and Rüdenauer, 2018). KPIs, such as

- the number of licenses;
- the number of ecolabelled products;
- consumers' awareness;
- the number of technical criteria;

are covered by all or almost all the schemes considered. On the other hand, indicators such as

- the number of license holders;
- the evolution of the number of licenses;
- the evolution of the number of license holders;
- the evolution of the number of products over time;
- recognition among producers;
- recognition among professional purchasers;
- the market share of ecolabelled products;
- the environmental benefits;
- etc.

are adopted by very few or no scheme.

Table 34 - Use of key performance indicators by selected ecolabelling schemes. *Source*: Prakash S., Rüdenauer I. 2018.

Indicator	Blue Angel	Nordic Swan	EU Ecolabel	Thai Green	Korean Ecolabel
Environmental benefits					
Market share of ecolabelled products					
Number of licenses					
Number of license holders (companies)					
Number of ecolabelled products					
Number of criteria documents					
Changes (over time), number of licenses					
Changes (over time), number of products					
Changes (over time), number of companies					
Consumers recognition and perception					
Recognition among professional purchasers					
Recognition among producers					

**Green cells:* Yes*; Red cells:* No*; Yellow cells:* To some extent *or* Not clear.

These data suggest that almost no international ISO Type I ecolabelling scheme has yet established a comprehensive monitoring mechanism to systematically monitor its development and effectiveness. Nevertheless, it is important to underline that other ecolabelling schemes may adopt other definitions or methods of counting the 'number of ecolabelled products' and other indicator taken into consideration.

It is worth noting that most ecolabelling schemes do not assess neither the environmental benefits nor the market penetration of their ecolabelled products and services. These kinds of KPIs are considered burdensome in terms of resources needed (time and financial), methodologically difficult or not feasible/unrealistic because data - such as market share, sales, turnover - is not readily accessible to ecolabelling organizations (Thidell et al., 2015b).

However, while the assessment of environmental benefits is still rather at a preliminary stage, several attempts have been made to estimate market penetration (Prakash and Rüdenauer, 2018). In order to calculate the ecolabelling fee, license holders under the *German Blue Angel* are required to declare only **the range of their turnover** and not the exact amount. Moreover, although the market share is not measured on a regular basis, **market data** were collected for a selection of products (hygienic paper, paints) within the project "*Green products in Germany*" (Umwelt Bundesamt, 2014).

In the case of Good Environmental Choice Australia (GECA) **the market share is estimated on the basis of the turnover of the certified products that license holders must declare**. Thus, the share of labelled products on the total turnover in that product category can be determined in relation to the total revenues in the category as listed in the national bureau of statistics. The number of certified products is determined either through additional information that must be presented by the license holders or on the basis of the average prices of the certified products in order to calculate the number of products from the turnover. The data are made anonymously and the contracts have strong confidentiality clauses. The information is mainly used for calculating the environmental benefits of the ecolabel.

In the case of *Taiwan Green Mark*, license holders **are required to declare the production quantity of ecolabelled products**. The market share (sold units) is then calculated on the basis of (national) statistical data (total sales, considering imports and exports). The data are managed with high confidentiality and mainly used to calculate the environmental benefits.

As for the indirect benefits of ecolabels, *Taiwan Green Mark* is **monitoring the use for GPP purposes**, but it should be taken into account that it is mandatory for Taiwanese public purchasers to buy a share of environmentally friendly products in many product categories. Since the *Taiwan Green Mark* is included in the official procurement system, the purchasing body can easily choose products with the ecolabel. In general terms, however, most ecolabelling schemes do not track the use of their criteria in GPP since GPP is not generally mandatory and implementation varies greatly depending on the level at which public purchasers operate (national, regional, local).

GECA and *TCO Certified*[72] use **regular face-to-face meetings and surveys to assess the level of awareness and trust among professional purchasers** (purchasers, retailers, etc.) (Prakash and Rüdenauer, 2018).

The *Nordic Swan*, the *German Blue Angel* and the *Taiwan Green Mark* conduct **consultations** on a regular basis to assess consumers' awareness, trust and even their influence on purchasing decisions. In general terms, the level of awareness and the relevance of the label for purchasing decisions are relatively easily assessed. Of course, this indicator is based on consumers' declarations, so the results do not provide accurate information on market performance or on the actual environmental benefits of ecolabelling schemes.

3.4.4 Proposal for a monitoring system for the EU Ecolabel

As shown in the previous chapters, developing a monitoring mechanism for ecolabelling schemes is not an easy task because of resource constraints, limited data availability, difficulties in engaging companies, etc. (please see previous chapter "Challenges in establishing effective monitoring systems for ecolabels").

Nevertheless, we deem that there is a strong demand and support among stakeholders for developing a structured system for collecting and presenting information as indicators of performance and effectiveness of the scheme. Moreover, from the stakeholders' consultation it has emerged that data on sales, production quantity and market share of EU Ecolabel products are the main information that should be collected in order to measure the trends of the European ecolabelling schemes. (see Annex A).

As part of the identification of elements for a future Strategy for the EU Ecolabel, we present here a proposal for a set of indicators together with the identification of responsibilities for measurement and monitoring.

Which Key Performance Indicators (KPIs)?

Performance indicators should be chosen in order to:

- build a well-adapted system for the EU Ecolabel, with the aim of gathering useful information to support the management, development and improvement of the Scheme;

[72] TCO Certified is an international third-party sustainability certification for IT products.

- be feasible in terms of available human and financial resources, both at the national and at the EU level. At the national level, the EU Ecolabel Competent Bodies require public support to maintain their operations, even if license fees from producers are the most important financial revenue. In general terms, evidence suggests that resources are quite limited (Nuttall et al., 2017).

After these initial considerations, we believe it is useful to underline that the EU Ecolabel is, first of all, a market-based label of environmental excellence, which identifies the products with the best environmentally performance on the European market, from a life-cycle perspective. **Therefore, an adequate assessment of the performance of the EU Ecolabel should be based first of all on data on market penetration and on the related environmental benefits.**

Table 35 below presents the proposed set of indicators for the EU Ecolabel for each of the categories of information listed above.

Table 35 - List of *proposed Key Performance Indicators (KPIs) for the EU Ecolabel.*

Performance in terms of availability of EU Ecolabel products and services
Number of EU Ecolabel licenses
Number of EU Ecolabel products
Market penetration of EU Ecolabelled products and services
Market share (turnover/number of sold units) of EU Ecolabel products
Awareness and recognition of the EU Ecolabel by market actors
Consumers, companies, retailers and public purchasers' awareness and trust of the EU Ecolabel
Environmental benefits related to the EU Ecolabel
Direct environmental benefits[73]

KPIs should first of all measure:

- The performance in terms of availability of EU Ecolabel products and services.

As seen in the chapter dedicated to the "Existing performance indicators under the EU Ecolabel", the number of EU Ecolabel PGs and their evolution overtime are measured by the EU Ecolabel through a systematic counting method developed in 2012. **We recommend keeping the current approach for counting licenses (*one* license for *one* product group and *one* operator)** since the EU Ecolabel license is the result of a contract that has to be signed by a legal entity (producer, brand owner, operator, etc.). Moreover, this approach is widely adopted among international ecolabelling schemes (Prakash and Rüdenauer, 2018).
As regards the **number of products**, the EU Ecolabel adopts a small-scale counting approach, according to which products those are identical but marketed under different names are counted as different products. Moreover, different volumes/sizes or colors/tints are counted as different products. Such approach does not always provide a clear and realistic picture of the most "successful EU Ecolabel product" groups as, for example, the PG "Indoor and outdoor paints and varnishes" has a high number of labelled products due to the different volumes/sizes, colors/tints, commercial names, while other product groups are counted only on the basis of the different commercial names. Other ecolabelling schemes use other larger-scale approaches for counting products with some degrees of ambiguity in defining the characteristics which determine whether a product should be

[73] Direct environmental benefits of EU Ecolabel should be estimate through specific LCA or PEF studies on each PGs.

counted separately. Moreover, there are no commonly agreed methods at the international level, therefore, **we would suggest that the EU Ecolabel continues with its current approach**.
Both these internal indicators (number of EU Ecolabel licenses and number of EU Ecolabel products) are easy to track as information relates to the management of the Scheme and is readily available to CBs and the European Commission.

- The market penetration of EU Ecolabelled products and services;

Data on market share of ecolabelled products poses major challenges in terms of availability, because information holders (companies, retailers) are not ready to provide them or because obtaining data from market research companies is expensive.

During the stakeholders' consultation carried out for this study we asked market actors - such as EU Ecolabel License Holders, Retailers and even companies not bearing any EU Ecolabel License – about their willingness to provide market data on EU Ecolabel products. Surprisingly, **60% of the responding EU Ecolabel License Holders declared to be ready to provide data on sales of EU Ecolabel products, while 55% declared to be willing to provide data on production quantities and turnover**. As for the companies those do not hold any EU Ecolabel license, around 60% declared to be willing to provide data on sales of EU Ecolabel products if they were License Holders. 6 out of 7 surveyed Retailers declared that they were ready to provide information on the sales of EU Ecolabel products (both under their brand and under other brands) and then market share of EU Ecolabel products under their own brand. Of course, it should be noted that this data reflects "declared intentions" of respondents. Experience suggests that businesses consider market data to be "sensitive information" that they are generally unwilling to provide.

Nevertheless, we deem that the most cost-effective approach to estimate the market share of labelled products is **to ask EU Ecolabel License Holders and Retailers for the data (turnover or number of sold units) for each product group and to calculate the market share, using (national) statistical data**. It should be noted that in the past EU Ecolabel License Holders were strongly incentivized – and used – to provide data on turnover because this information was used by CBs for calculating the annual fee they had to pay. A wrong estimation of their turnover made by CBs could have resulted in EU Ecolabel License Holders paying higher fees[74]. In 2010, the EU Ecolabel adopted a new fee structure, based on a flat rate (dependent on the size of the organisation) for the use of the EU Ecolabel (Nuttall et al., 2017).

We also suggest including **a mandatory requirement for data provision in the contract with EU Ecolabel License Holders**. Such approach would not only facilitate data collection for the calculation of the market share and the environmental benefits of EU Ecolabel products, as well as the overall effectiveness of the EU Ecolabel scheme, but it would also allow a more efficient use of human/financial resources for both the management and the monitoring of the scheme by the CBs and the EC. Of course, it should be considered that such a mandatory approach may discourage companies from applying for the EU Ecolabel and, as a consequence, it may have a negative impact on uptake. For this reason, **we recommend the mandatory provision by License Holders to the**

[74] As result of the Amendment to Annex III to EU Ecolabel Regulation (EC) No 66/2010, the annual fee is now paid on the base on a fixed rate, although it may also be paid as a percentage of the annual sales. The annual license fee also varies within the EU-Member States. Micro enterprises, SMEs and enterprises operating in developing countries are able to get a reduction in the annual license fees if the member countries operate with a fixed annual fee.

EC of data concerning their turnover/number of sold units. Since this may rise possible resistances based on confidentiality issues on data disclosure, we would suggest requesting only data related to the range of turnover/number of sold units. In this case, the purchase of external data could be used to verify the information provided by the License Holders.

- Awareness and recognition of the EU Ecolabel by market actors (producers, consumers, retailers, public purchasers; etc.)

Being a market-based policy instrument, the EU Ecolabel depends on market actors' awareness, recognition and trust. Market actors include consumers, producers, retailers and public purchasers. For the EU Ecolabel to be successful, these actors need to know and trust it. Many ecolabelling schemes conduct **stakeholders' surveys every two/three years in order to assess the level of recognition and trust of their ecolabel**. The number and the type of issues surveyed, the methods used and the time intervals between the different surveys may vary from one ecolabelling scheme to another. Nevertheless, surveys/consultations are generally considered useful instruments to get a reliable picture of how ecolabels are perceived and how their perception changes overtime (Thidell et al., 2015b).

The level of awareness, trust and overall perception of the EU Ecolabel among EU citizens/consumers, companies and public purchasers is usually assessed by the European Commission through EU-wide public consultations as part of stakeholders' consultation activities related to EU Ecolabel evaluation studies and/or studies on other EU policy tools. The last comprehensive survey on the awareness of market actors of the EU Ecolabel was conducted as part of this study and, before this, as part of the 2015 EU Ecolabel "*Project to Support the Evaluation of the Implementation of the EU Ecolabel Regulation*" (Nuttall et al., 2017). A more targeted survey was carried out as part of the study "*Towards an EU Product Policy Framework contributing to the Circular Economy"* developed for the European Commission. Moreover, EU citizens' awareness of the EU Ecolabel was investigated, more specifically, also through Special Eurobarometer[75] on public attitude towards the environment. An example for this is the *Special Eurobarometer 468* whose activities were carried out in September/October 2017. However, such consultations are not conducted on a regular basis and according to a well-designed and coherent plan of consultations. Therefore, **we recommend defining a strategic plan for consultation to be carried out on a regular basis (every 2-3 years) and in line with available resources.** Such consultations should be conducted across the EU and should be carried out and managed by the European Commission with the support of CBs for dissemination and communication.

- Environmental benefits related to the EU Ecolabel.

[75] Since the early seventies the European Commission's Standard Eurobarometer are regularly monitoring the public opinion in the European Union member countries at times. Interviews are conducted face-to-face, every spring and autumn, always based on new samples ("repeated cross-section" design). The standard modules ask about citizens' attitude towards European unification, institutions and policies, complemented by measurements for general socio-political orientations, as well as by respondent and household demographics. Individual trends already count up to some 100 measurement points (e.g. general life satisfaction). Intermittently Eurobarometer extensively address special topics, such as environment, technology, health or family issues, social or ethnic exclusion etc.

In order to calculate the environmental benefits, both data on the number of EU Ecolabel products sold or on their market share and data on the difference in environmental impact between certified products and non-certified ('reference') products are required.

Provided that market data has been collected, **the measurement of the environmental impact of products can be performed either by conducting an LCA study or by relying on the available literature.** Of course, a complete LCA study is more expensive in terms of human and financial resources (including costs for software, purchase of data or external experts/reviewers) and in terms of time needed compared to a simple literature research. Given the limited availability of resources, a third possible approach that would require less economic effort **would be to simplify the LCA study by quantify an approximate difference between EU Ecolabel and average market products. Moreover, we would suggest focusing only on the categories with the highest environmental impact and/or by identifying key indicators those may influence the environmental performance of products (e.g. product life-span, use-time, etc.).** The EC could also apply the PEF methodology, in case PEFCR exist for the concerned PG. By multiplying the resulting difference between ecolabelled and reference products and the number of ecolabelled products, the environmental benefits of ecolabelled products compared to conventional ones can be calculated quite easily.

Who should be responsible for what?

The establishment of a monitoring system for the EU Ecolabel will require the definition of clear responsibilities for data collection and elaboration between Competent Bodies and the European Commission. If the implementation of an EU Ecolabel monitoring mechanism is deemed potentially effective and feasible by the European Commission, **any possible revision of the EU Ecolabel Regulation will have to include an *ad hoc* provision to make it mandatory for Competent Bodies and for applicants to establish a system to collect market data on EU Ecolabel licensed products and services**.

The revised EU Ecolabel Regulation should specify the following:

- the data collection must avoid bureaucratic overload and additional costs for applicants;
- the features of the system (electronic database, etc.);
- the type of data to be collected (turnover, range of turnover, sold products, etc.) in order to ensure the harmonisation and consistency of data across all EU Member States;
- data collection must be subject to the mandate of Competent Bodies;
- applicants will have to provide data as part of the contract signed with the Competent Bodies and covering the terms of use of the EU Ecolabel;
- management of data by the Competent Bodies must guarantee the confidentiality of the data provided.

Moreover, the European Commission will be responsible for aggregate data collection (from Competent Bodies), for their elaboration at the EU level and for using the available information for:

- assessing the evolution of the environmental performance of EU Ecolabel products and services overtime and using such data as an additional useful tool for an effective and efficient development of criteria;

- measuring the performance of the Scheme in terms of market benefits delivered to EU Ecolabel Licence Holders (e.g. sales, turnover, etc.);
- evaluating the performance of the EU Ecolabel with respect to other national and Type I ecolabels after developing a common methodology;
- designing appropriate promotional campaigns for the EU Ecolabel in order to inform the largest number of stakeholders on the advantages of holding an EU Ecolabel licence and, therefore, contribute to increase awareness and reputation of the Scheme.

Competent Bodies should be responsible for the implementation of the EU Ecolabel monitoring mechanism at the national level. First of all, Competent Bodies should support and work closely with the European Commission in the designing phase of the system and subsequently they will be responsible for:

- setting up a national system to collect data on EU Ecolabel products and services;
- collecting data from EU Ecolabel Licence Holders (including Retailers) on market penetration and disseminate surveys targeting consumers, retailers, companies and public purchasers within national borders;
- data processing and, every year, carrying out an analysis/assessment of the EU Ecolabel in terms of environmental and market performance at national level.

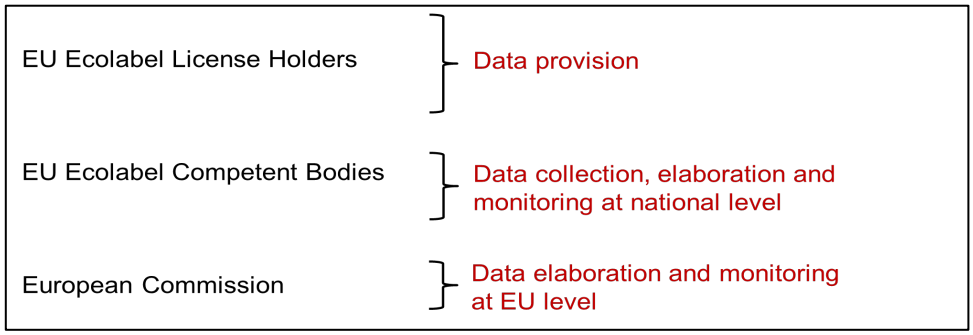
EU Ecolabel Licence Holders will play a key role in providing data and making the whole system work. By signing the contract for the use of the EU Ecolabel, EU Ecolabel License Holders will formally engage to systematically provide data about the market performance of their EU Ecolabel products and services (range of turnover, units sold, etc.) to Competent Bodies through the mechanism established at national level.

This tracking/monitoring strategy would be useful for measuring the performance of the scheme and its impact against the objectives identified for each possible future scenario in the previous chapters. Obviously, as already said before, the adoption of this new monitoring strategy would increase the costs required not only to set up the new system, but also to maintain and use it. Nevertheless, adopting these four strategies will help to assess the performance of the EU Ecolabel:

- **requesting data from EU Ecolabel License Holders and Retailers (turnover or number of sold units) for each product group and calculating the market share through (national) statistical data;**
- **including a mandatory requirement for data provision in the contract with EU Ecolabel License Holders;**
- **defining a strategic plan for consultation to be carried out on a regular basis (every 2-3 years) in order to measure consumers' awareness;**
- **quantifying an approximate difference between EU Ecolabel and average market products by simplifying the LCA.**

Figure 10 summarizes the responsibilities of the EC, CBs and License Holders on the main tasks needed for the development of the proposed EU Ecolabel monitoring system.

Figure 10 – Responsibilities for data provision, collection and elaboration in the proposed monitoring system for the EU Ecolabel.



4. Task 3 - Identification of product/service groups on which the EU Ecolabel should focus

Key findings:

- We provide six criteria constructed using quantitative and qualitative data derived from Task 1 and from further desk research. These criteria allow to evaluate the selection of the PGs for the development of EU Ecolabel future portfolio as well as the discontinuation of already covered PGs;
- Products and services related to cosmetic and personal care, products with a direct or indirect health/well-being connotation, financial services, construction products, food and mobility services are recommended as future EU Ecolabel PGs;

4.1 Methodology for the identification and the discontinuation of EU Ecolabel product and service groups

In this chapter we provide a methodology aimed at identifying the product and service groups (PGs) those could be possible candidates for the EU Ecolabel. This method will be applied to analyse the suggested PGs derived from Task 1 and from the stakeholders' consultation in order to identify the most promising ones, hence, those with the "highest potential" for the EU Ecolabel. This methodology derives from project-specific considerations for a pragmatic, but sound approach to select the relevant products and services for the EU-Ecolabel. Annex I shows an ideal process for selecting products and services for the EU Ecolabel.

The EU Ecolabel cannot develop criteria for all the PGs currently on the EU market. Therefore, the scheme must prioritize those PGs for which the use of the EU Ecolabel could offer added value and make a significant contribution to more sustainable production and consumption. These criteria allow us to identify the PGs those could be included in the future EU Ecolabel portfolio as well as those PGs already covered by the EU Ecolabel which should be discontinued.

Decision regarding the methodology for the discontinuation of PGs

Within this project, we propose the same methodology for the selection and discontinuation of PGs. Even though, theoretically, evidence on the performance of products over time in the EU Ecolabel portfolio can be assessed using specific criteria (n° of licences, n° of labelled products, etc.), we would recommend using only a qualitative assessment[76] for decision-making purpose regarding

[76] For qualitative assessment we mean considering the trends in terms of number of licenses and number of labelled products of each PG.

discontinuation of PGs. Such an approach is justified by the fact that a scientific and rational definition of the thresholds for the evaluation of the criteria related to the historical evidence is not possible. (see Annex I for further details).

Aspects related to consumer expenditure and public procurement

Focusing on the methodology, although consumer expenditure and public procurement demand are important, the current list of products emerged from our analysis (see Task 1, Analysis of the Market context) contains a number of sectors which are not relevant for the EU Ecolabel (e.g. imputed rentals for housing, social protection, out-patient services, defence services, water supply etc.). The level of aggregation at the sectoral level for consumer expenditure and public procurement demand is of little help (see chapter 2.3.5 and 2.3.6). The sectors are too broad and not comparable with each other. It is not possible to harmonize the definitions and scopes of product groups between different sources within this project. For these reasons, considering limitations linked to data that were found available for the present study, we have decided to exclude the criteria relating to consumer expenditure and public procurement and not to consider them for the assessment of the selection and/or discontinuation of products groups and services for the EU Ecolabel. (see Annex I for further details).

Anyway, so far as data related to market demand and public procurement may be available and suitable for this methodology, we recommend adding these two criteria in the "Filtering" section (see Table 36) in addition to the criteria on policy opportunity, stakeholders' expectations and circular economy priority.

Criteria for the selection and discontinuation of PGs

The selection process is based on several criteria with different features but the "**Environmental relevance**" criterion should be considered the most important. This criterion should be the starting point of the analysis. The analysis of the environmental relevance should serve to establish a first long-list of PGs.

The criterion relating to consumers' preference in green purchase, "**Green consumption relevance**", is important as it shows consumer's willingness to buy specific green alternatives. Therefore, this criterion will be used to complement the long-list of environmentally relevant products and services.

We consider also the criterion "**Other ecolabelling schemes".** By **"Other ecolabelling schemes**", we mean those product categories which have been indicated as successful under other ecolabelling schemes, in terms of number of labelled products, in the comparative analysis performed in Task 1. This criterion will also serve to complement the long-list of environmentally relevant products and services.

We decided to add to the PGs emerged from the analysis of the environmental relevance also the PGS derived from the green consumption analysis and from the comparative analysis with other ecolabelling schemes. The "Green consumption relevance" PGs may have a not so high environmental relevance, but thanks to their high demand on the market may allow to guide consumers' choice and, thus, obtain environmental benefit thanks to the high volume of products exchanged on the market. A same reasoning can be applied to "Other ecolabelling schemes" PGs. Even though they may not have a significant environmental relevance, thanks the high diffusion in

the national context, they allow us to assume a positive diffusion also in the European market. Thus, we may be able to intercept and provide environmental benefit thanks to the high volume of products exchanged in the market.

We should check whether the long-list includes all the products and services already covered by the EU-Ecolabel. If this is not the case, we will add the missing EU Ecolabel products and services to the long-list. This step will ensure the use of a harmonized methodology for taking decisions on the selection or discontinuation of products and services.

At this stage, we will come out with a long-list of environmentally relevant products and services that need to be assessed according to the three criteria of "**Policy Opportunity**", "**Stakeholders' Expectations**", and "**Circular Economy Policy Priority**".

"Policy opportunity" considers if a product group is already covered by EU policies other than the EU Ecolabel or the circular economy. Under "Policy opportunity", it is possible to assess whether existing instruments and policies relate to those PGs. For "Stakeholders' Expectations" we mean the sectors/products which are expected to be included in the EU Ecolabel scheme by relevant stakeholders (e.g. the corresponding industry).

In addition, we also consider the "Circular economy policy priority" criterion. By "Circular economy policy priority" we mean those categories of products which have been identified as priorities and on which it is necessary to invest in order to boost the circular economy in the EU market. This criterion will also serve to evaluate the long-list of environmentally relevant products and services.

Table 36 summarizes the methodology for the identification of PGs of interest for the EU Ecolabel emerged within this project.

Table 36 - Methodology for the identification of PGs of interest for the EU Ecolabel.

Step 1-4 **Product selection**	Step 1: Environmental Relevance Criteria (1st Long-List)
	Step 2: Complement the list of Step 1 with the criterion on Green consumption relevance (2nd Long-List)
	Step 3: Complement the list of Step 2 with the criterion on "Other Ecolabelling Schemes" (3rd Long-List)
	Step 4: Add current EU-Ecolabel PGs, if missing after step 3 (4th Long-List).
Step 5-7 **Filtering**	Step 5: Policy Opportunity
	Step 6: Analysis of Stakeholders' Interest and Expectations
	Step 7: Circular Economy Priority
Step 8-9 **Policy proposal**	Step 8: Proposal of a consolidated list of products and services for the EU-Ecolabel
	Step 9: Decision-Making by the European Commission, including proposed refined scope

4.1.1 "Environmental relevance" – Criterion 1

The first criterion that we have established for the evaluation of product and service groups is the "Environmental relevance" (EnR) based on Task 1. From the long-list presented in Task 1, we removed those PGs which are not coherent with the EU Ecolabel scope. Even though harmonizing the different methodologies used in the selected studies was very difficult, we combined quantitative,

qualitative and semi-quantitative information, wherever possible, to draw **the long-list of the PGs which are relevant in terms of environmental impact** (see Table 16, and Table 1 of Annex I).

4.1.2 "Green consumption relevance" – Criterion 2

The second criterion that we have defined for the evaluation of PGs is the "Green consumption relevance" (GcR) (see table 16). It refers to **consumers' preference in green purchase by product categories.** The criterion is based on the analysis by Boston Consulting Group, (2009) which investigated green shopping habits (see Table 16 and Table 2 of Annex I).

4.1.3 "Other ecolabelling schemes" – Criterion 3

The third criterion defined for the definition of the long-list of PGs is "Other ecolabelling schemes" (Oes). It refers to **the best PGs, in terms of labelled products, of the ecolabelling schemes considered in the comparative analysis of Task 1** (see Table 16 and Table 3 of Annex I). It is important to highlight that some of the PGs may have obtained success in terms of number of labelled products due to the particular conditions of the national markets in which they are prevalently sold. It may be possible that some PGs may be more successful in some specific national contexts and less successful in the EU context. Nevertheless, all these PGs are bearing an ecolabel and this means that they are relevant from an environmental point of view. More detailed and specific studies will be needed in order to evaluate if these PGs would have more success in terms of number of labelled products and number of licences in the EU Ecolabel scheme. At this level of analysis, we decided to include them in order to avoid overlooking any relevant PG.

4.1.4 "Policy Opportunity" - Criterion 4

The fourth criterion, which is the first criterion used for assessing the long-list of PGs, is "Policy Opportunity" (PO). This criterion includes those PGs already considered in the main EU policies. In particular, we include the following EU policies[77]:

- Ecodesign (Directive 125/2009) and Voluntary agreements under the Ecodesign legislation
- Energy Label (Directive 30/2010)
- EU Organic Label (Regulation 834/2007)

In addition to these three policies, we have also included two environmental impacts which are well covered by EU policies:

- The environmental impacts (mainly related to the use-phase) of road transportation (mainly passenger cars) are well covered by other EU regulations, such as 443/2009/EC, 333/2014/EC and 459/2012/EC;
- The environmental impacts of buildings (mainly use-phase), which are covered by other EU regulations, such as the EU directive on the energy performance of buildings (2010/31/EU; 2018/844/EU) and the energy efficiency directive (2012/27/EU).

Table 7 of Annex I shows the results obtained by applying Criterion 4 "Policy Opportunity". Each PG has obtained a "Yes or No" output depending on its presence in the list of the PGs covered by the identified policies. Therefore, if PGs are not covered by other EU policies obtain "Yes", otherwise they obtain "No".

[77] See Table 4, 5 and 6 of Annex I for PGs covered by these EU policies.

4.1.5 *"Stakeholders' expectations"– Criterion 5*

The criterion "Stakeholders' expectations" (StE) aims to reward the PGs those the EU Ecolabel Stakeholders have considered as the most important. By "Stakeholders' Expectations" we mean the sectors/products which stakeholders (including the industry) would like to include in the EU Ecolabel.

To apply this criterion, we have made a list of "expected" PGs according to the following sources (see Table 8 of Annex I):

- EUEB-meetings;
- Webinars
- Online survey "Identification of elements for a future Strategy for the EU Ecolabel"

Each PG has obtained a "Yes or No" output depending on their presence in the list of the PGs identified by the stakeholders. Therefore, listed PGs obtained "Yes", while those PGs which were not in the list obtained "No".

4.1.6 *"Circular economy policy priority" – Criterion 6*

For "Circular economy policy priority" we mean those product categories which constitute policy priorities for increasing circularity in the EU. The criterion is based on chapter 4 of "Sustainable Products in a Circular Economy" (EC, 2019a) which lists the priority product categories for the Circular Economy (see Table 10 of Annex I). All the listed PGs can be linked to a main product category and hence, can be considered as relevant or not for the "Circular economy policy priority" criterion. Therefore, PGs related to a priority product category for the Circular Economy obtained "Yes", while PGs which are not related obtained "No".

4.2 *Final evaluation*

The application of the methodology leads to a final output (FO) that can be used to assess the potential of each PG. The FO will also receive a "Yes or No" output deriving from the sum of the outputs of each criterion. If the number of "Yes" outputs assigned in each criterion is higher than (or equal to) the number of "No" outputs, we will assign a "Yes" Output. On the contrary, if the number of "No" outputs is higher than the number of "Yes" outputs, the FO will be "No" (see Table 12 of Annex I).

4.2.1 *PGs' prioritisation*

In Table 13 of Annex I we have listed the PGs deriving from the criteria "Environmental relevance", "Green consumption relevance" and "Other ecolabelling schemes".

In Table 14 of Annex I we have reported the application of the methodology to the PGs listed in Table 13 of Annex I. When possible, we put together similar PGs in one single PG in order to eliminate the duplicates. Moreover, the PGs already covered by the EU Ecolabel, but not included in the long-list, have been added. Table 37 shows the final list of recommended PGs.

Table 37 - List of the recommended PGs for a future implementation of the EU Ecolabel[78].

Product Group			
Absorbent hygiene products	Detergents for dishwashers	Indoor and Outdoor paints and varnishes	Services of beauty and hairdressing salons
Bed mattresses	Detergents and sanitation products	Industrial and institutional automatic dishwasher detergents	Supplies for Microfibre Based Cleaning
Blocks, Tiles and Panels	Financial products and services	Industrial and Institutional laundry detergents	Telephone, telex and communications services/ Smartphones/ Mobile Phones
Building Insulants	Food catering services	Laundry detergents	Textiles (apparel and fabrics)
Car and Boat Care Products	Footwear	Lubricants	Thermal Insulation products
Chemical Building Products	Furniture, bedding and wood products	Paper and packaged products	Tissue Paper
Cleaning services	Green Meetings and Green Events	Pesticides/herbicides/fungicides and agricultural chemicals for household use; Soil Culture	Toner and Ink Cartridges
Construction materials	Growing media, soil improvers and mulch	Pet food	Toys and games
Converted paper	Hand dishwashing detergents	Printed paper	Transport and auxiliary transport services
Copying and Graphic paper	Hard surface cleaning products	Recycled Construction Materials	Wholesale and retail services
Cosmetic Products	Health and beauty products	Restaurants services	
Data centres	Hotel and accommodation services	Rinse-off cosmetics products	

Table 38 summarizes the results deriving from the application of the methodology.

Table 38 - Summary of the prioritization of the product and service groups divided in clusters.

Cluster	Final Score (FO)	N° of PGs	% of the total
Not recommended	FO = No	46	49.46 %

As shown in the table above, the two clusters are very similar in terms of volume. “Recommended” PGs outweigh “Not recommended” PGs for a single. They both account for around 50% of the total. 46 PGs have obtained a FO equal to “Yes” and were classified as “Recommended”, while 47 PGs were classified “Not recommended”. This does not mean that these 47 PGs are not relevant for the

[78] Products already included in the EU Ecolabel scheme are marked grey.

EU Ecolabel. It is important to highlight that our analysis has focused first of all on the environmental relevance, the green consumption and the success that some PGs have obtained in other ecolabelling schemes in order to identify the PGs which should be included in the long-list. Instead, the other three criteria ("Policy Opportunity", "Stakeholders' expectations" and "Circular economy policy priority") have been used to classify the PGs in the long-list based on the relevance for the EU Ecolabel. As explained in the first part of this chapter, we provided a project-specific methodology for a pragmatic, but solid approach for selecting the relevant PGs for the EU Ecolabel.

The slightly lower percentage of "Recommended" PGs is due to the "rigid" criteria identified in the methodology. On the one side, the "Yes or No" approach simplifies the methodology, but on the other side it makes the process of selection quite rigorous. Nevertheless, taking into consideration the limited resources available to the committee for the development of future PGs, this methodology is useful and relevant, as it allows to identify a number of PGs, meeting the requirements EU ecolabel PGs should have.

This methodology was built following the suggestions provided by stakeholders during meetings, webinars, but especially in the online survey. Stakeholders have identified "high environmental relevance", "high market/consumer demand" and "high level of synergy with EU policies" as the main features that PGs should have in order to obtain the EU ecolabel. All these aspects were taken into account for the development of the methodology, including economic, environmental and policy opportunity relevance criteria. Moreover, we added a specific criterion related to stakeholders' expectations.

However, in order to develop a methodology that includes both the economic and the environmental aspects, and that has also a specific focus on circular economy and other EU policies, something had to be sacrificed in terms of precision. In fact, the variety of selection criteria depends on the variety of products, services, sectors and / or categories identified as relevant by the chosen sources[79]. By variety we do not mean a mere different mode of denomination or the large quantity of references, but it is determined by the technical criteria of each product, service, sector and / or category that allows to understand which kind of specific products/services can be traced back to them.

Even though we excluded those PGs deriving from "Environmental relevance", "Other ecolabelling schemes" and "Green consumption relevance" which were less suitable and coherent for the scope of the EU Ecolabel, the final long-list of recommended PGs may still include some PGs which are quite "broad" if compared to the actual PGs covered by EU Ecolabel. This long-list should be used as a starting point and it should be further evaluated through more detailed analysis and in-depth stakeholders' consultation.

The criteria identified for the methodology present both strengths and weaknesses. In fact, while this "diversity" makes it possible to include a very large number of PGs, at the same time, the breadth of coverage sometimes makes it difficult to understand which PGs have the highest priority in the identified category.

By analysing more in detail, the two main clusters "Recommended" and "Not recommended", it is possible to identify some common trends.

[79] The detail of each criteria sources was explained in the relative criteria paragraph.

For example, in food and transport sectors, we note that services obtained higher scores in the final ranking than products from the same sectors. On the contrary, in building and construction sector, products are more recommended than services because there is a specific reference to "product" made in "*Sustainable Products in a Circular Economy - Towards an EU Product Policy Framework contributing to the Circular Economy*" (see Table 10).

For food sector, it is exactly the opposite. Even though in the document on Circular Economy there is only a generic reference to "Food", stakeholders have highlighted their preference for the services rather than for single products. Moreover, food products are already covered by the EU organic label.

All electrical and electronic equipment products, with the only exceptions of "Data centres" and "Telephone, telex and communications services/ Smartphones/ Mobile Phones", are not recommended due to the fact that, even though they are considered as priority categories for the Circular Economy, they are already covered by the EU Energy Label or by the Ecodesign Directive. Moreover, stakeholders do not consider these two categories as relevant for the EU Ecolabel.

Products and services related to cosmetics, personal care or with a direct or indirect (Furniture, Bed mattresses, Toys, etc.) health/well-being connotation also belong to the recommended group.

In conclusion, despite the limitations mentioned above, the methodology allows to assess PGs according to four main aspects, i.e. environmental, economic, policy opportunity and stakeholders' expectations. In this way, the methodology is aligned, albeit with some differences, to the inclusion criteria of the Ecodesign directive 2009/125/EC. In fact, art. 15 highlights all the aspects that we have considered in the development of the methodology: economic aspects, (comma 2, point a and b), social aspects (comma 4, point b) and environmental aspects, both from the point of view of potential improvement in terms of products environmental impact (comma 2, point c) and considering the life cycle of the product and all its significant environmental aspects (comma 4, point a).

In addition, the methodology includes two criteria referred to EU policies, one of which refers specifically to the Circular Economy.

The specific references to the circular economy in the technical criteria of EU Ecolabel is certainly an interesting aspect worthy of further specific study. Obviously, the inclusion of circularity aspects must be placed within a broader group of interventions by the European Commission which are able to influence consumption, but above all the production phase, in an even more direct and concrete way.

A final aspect that needs to be taken into consideration is that each criterion considered for the application of the methodology can be updated regularly. Each criterion should be constantly updated in order to reflect the real situation of the market, in terms of consumer's green purchasing preferences and of environmental impacts.

Lastly, it is important to remember that this methodology is only the starting point for a more detailed analysis that may lead to the final recommendation for a future strategy of the EU Ecolabel. Indeed, more qualitative assessments, according to what have been provided in Task 2, have been performed on each PG in order to define the final long-list of potential future PGs (please see Annex I).

5. Conclusions

The EU Ecolabel is an essential policy tool within the EU product policy framework and, particularly, in the prospect of the policy measures to boost the circular economy. As highlighted by previous studies, in order to strengthen the ability of the scheme to be active part in this framework and, namely, to reduce the overall environmental impacts of products and services, it is important to address the following key-issues:

- How to optimize the **market uptake** of the product and service groups that can be a catalyst in prompting the development of the scheme?
- How to manage the EU Ecolabel more efficiently and effectively in the future (e.g.: **reducing the overall efforts and costs** connected to the management and application of the scheme)?
- How to fill policy gaps with the help of the EU Ecolabel (by reinforcing the **linkages with other policy instruments**)?

The present study had the main aim to define a strategy related to the development of the product groups in the scheme.

On the basis of the outcome of our study, in order to effectively address the abovementioned issues, we strongly recommend relying on three main pillars for action:

1. To develop a selected (and not too broad) portfolio of new product groups of services and consumable goods that, despite heterogeneous, do have a strong focus in common: they are all characterised by a **health/wellbeing connotation** (which results to be a strong driver for consumer purchasing preferences);
2. To strongly improve and increase the intensity of **the promotion activities** for the EU Ecolabel at all levels, especially in Member States with currently weak national ecolabels;
3. To accelerate **harmonisation and integration with other EU policies** and to develop a common communication strategy for their promotion.

With regard to the first pillar of the future strategy for the EU Ecolabel - i.e. focussing mainly on services and consumer goods with a health/well-being connotation – we recommend the adoption of a two-sided strategy.

On one side, in the short-term (by 2023), we suggest developing the criteria for the following main cluster of product groups:

- Personal care consumable goods (Leave-on and Rinse-off cosmetics, Cleaning and Hygiene-related products);
- Toys;
- Consumable Do-It-Yourself and chemical products for household maintenance and renovation;
- Consumable chemical products for gardening;
- Sustainable financial products.

All these PGs are related to health and well-being of consumers and have been tested and approved through the methodology of Task 3. Moreover, as already mentioned, some of the

suggested PGs for the short-term strategy are currently under development or already exist. This means that substantial additional resources will not be required and can be devoted to pillars 2 and 3 of the recommendations.

In the long-term strategy, by 2028, we recommend extending the scope of the EU Ecolabel to services. In particular, we recommend focusing on food sector services (e.g. restaurants and cafés, supermarkets and food retail, and catering services) as well as laundry services, car cleaning services, financial services, meetings and events, but also products such as toner and ink cartridges, smartphones and other mobile phones.

The second pillar of our recommendations refers to promotion activities. Since the EU Ecolabel is still suffering from a low level of awareness and knowledge among consumers, a stronger effort is required to strengthen the diffusion of the scheme. Particularly, incentives to sustain and support the choice of eco-labelled products can be envisaged, both at the EU and MS level. In Member States with weak national ecolabels, the EU Ecolabel should adopt a more proactive and comprehensive communication strategy to act as the main label for selected product groups. At the same time, competition with strong national ecolabels for well-established product groups should be avoided.

The third pillar of our recommendations concerns the interaction of the EU Ecolabel with other EU policies. The Commission should create synergies and foster harmonisation between the EU Ecolabel and other EU policies. Specifically, in the short term, we recommend a stronger integration between the EU Ecolabel and the PEF – Product Environmental Footprint method, as hypothesized in the recent Circular Economy Plan. Furthermore, we suggest including more "circular criteria" in the EU Ecolabel requirements for existing and future Product Groups, such as recycle content, recyclability, durability, "right to repair" and extended guarantee, etc., within the PGs criteria. We also recommend to further develop the use of the EU Ecolabel in GPP, increasing and improving the GPP criteria for the purchase of products bearing the EU Ecolabel.

It is important to highlight that all three pillars mentioned above must be pursued together and in a co-ordinated way for an effective overall strategy.

Finally, as additional to the three pillars, in the long term we recommend using a common methodology for identifying environmentally relevant products and services as well as their respective impacts on the markets, in terms of potential demand and interest shown by consumers and customers, in order to select the priorities to support the further development of the three pillars. Such an approach would be more effective and efficient for an integrated and harmonized EU product policy framework and would enable to exploit the synergies among the different EU policies. An example is offered by the legislative proposal on substantiating green claims that has been announced in the Circular Economy Plan by the Commission: this offers a relevant opportunity for integrating the EU Ecolabel and the Product Environmental Footprint method as a univocal approach to support companies in conceiving and using effective and correct claims in their advertising campaign, grounded on a synergetic adoption of the EU Ecolabel and the PEF.

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