



NL Agency
Ministry of Infrastructure and the
Environment

Cradle to Cradle and Sustainable Public Procurement

>> Focus on environment



Table of contents

1. Introduction	4
2. What is Cradle to Cradle?	4
3. How does the Government refer to Cradle to Cradle?	6
4. Cradle to Cradle and sustainable public procurement	6
4.1 Making the way the organisation operates Cradle to Cradle-proof	7
4.2 Choosing a suitable procurement strategy	8
4.3 Procuring Cradle to Cradle products that meet the minimum requirements for public sustainable procurement	8
4.4 Applying the Cradle to Cradle-related criteria from the criteria documents	9
Appendix 1 Points of focus for C2C procurement	10
Appendix 2 Sample C2C criterion	12

1. Introduction

Sustainable public procurement is all about taking environmental and social aspects into account during every stage of the procurement process. Together with local authorities, the Government wants to stimulate the market for sustainable products by leading by example and by itself adopting sustainable procurement practices. Organisations will be able to procure products and services sustainably by including sustainability criteria in all of their calls for tenders and procurement processes. The Ministry of Infrastructure and the Environment, together with the authorities, has drawn up sustainability criteria for a number of product groups. These sustainability criteria can be downloaded from www.agentschapnl.nl/duurzaaminkopen.

These sustainable procurement criteria will form the basis for the sustainability that the Government wishes to put into practice. But much more is possible. Some Government organisations want to go further than these criteria. For those organisations, the adoption of the sustainability criteria is already common practice and their sustainability aspirations are more far-reaching. They are likely to get acquainted with Cradle to Cradle at some point. In any case, for these and other organisations this brochure explains how the Cradle to Cradle philosophy can be applied to the procurement process.

2. What is Cradle to Cradle?

Cradle to Cradle (C2C) is a new approach to design and production that combines innovation and sustainability. The name C2C refers to the continuous cycle in which materials should remain in circulation, essentially creating systems that are waste-free. Furthermore, C2C focuses on the function of the particular product – that is, what is its purpose? Products are rarely intended to be harmful to the environment, this is a mostly unwanted side effect. C2C encourages people to redesign products or to design them in such a way that they achieve their intended purpose in the best way possible without any negative side-effects, or rather with positive side-effects. C2C signifies a shift away from the more classical approach, i.e. minimising the damage to the environment, towards actually increasing the quality of life and the quality of the environment.

C2C therefore advocates a new way of designing products and services. C2C-designed products will be valuable to the economy and to the environment because they are:

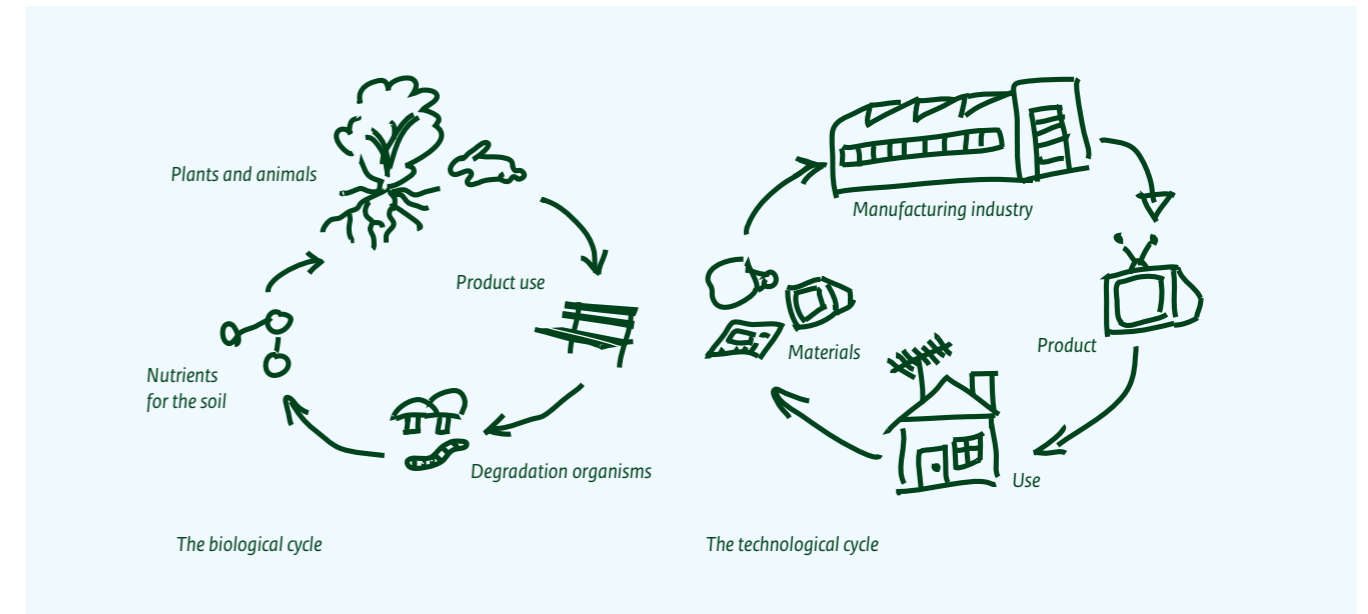
- practical and functional for the user, increasing the chance of the product being purchased.
- healthy for everybody and anything that comes in contact with them.

According to the C2C philosophy, qualitative improvement is based on three principles:

- 1 Everything is intended as a nutrient for something else (Waste equals Food).
- 2 Use energy created from solar energy and gravity.
- 3 Embrace diversity (as a concept, culturally, and in terms of biodiversity).



Solar panels



The essence of Cradle to Cradle (C2C) is the metaphor: Waste equals Food. Products belong to one of the following two cycles:

- The biological cycle

In this cycle, products are designed to be safely consumed by nature. When (parts of) these products wear out, evaporate, dissolve or are buried in the soil, they 'feed' the biological system.

- The technological cycle

In this cycle, materials and products (or product components) are re-used again and again in a new product generation. These products must be chemically stable during use. Moreover, after they have fulfilled their function it must be possible to break them down into usable new raw materials. The ingredients of these technical nutrients must be carefully defined.

Cradle to Cradle is therefore primarily a strategy for product design and an approach that essentially suits suppliers. For the Government, however, sustainable public procurement is a customer-oriented strategy, devised and realised from the perspective of procurement officers working for Government organisations (or rather the team of managers, employees, advisers that are involved in procurement and calls for tenders, hereinafter referred to as 'procurement teams'). Needless to say, these two groups are related to each other, and this brochure describes how C2C can be stimulated through Government procurement.

For more information about what C2C has to offer to suppliers, see the C2C information chart on www.agentschapnl.nl/cradle-to-cradle.

3. How does the Government refer to Cradle to Cradle?

The C2C concept is closely related to developments that have taken place in environmental policy over the past 15 years – for example, in the context of integral chain management and eco-design. In a number of recent Government documents, Cradle to Cradle is referred to as an inspiring concept – for example, in the Sustainable Development Government policy, in the 2008 Industry letter

and in the National Waste Management Plan (LAP2). At present, C2C is also playing a role in the development of materials policy and the formulation of criteria for sustainable public procurement. For more information about C2C's compatibility with various Government incentive schemes, see www.agentschapnl.nl/cradle-to-cradle.

4. Cradle to Cradle and sustainable public procurement

Sustainable public procurement by the Government is based on the commitment made by Government organisations to take sustainability aspects into consideration when making decisions on procurement and calls to tender. They will henceforth choose to procure relatively sustainable goods and services and in that way increase the market share of sustainable products and services: from the margins to the mainstream. Procurement teams working for the Government can stimulate the C2C approach by:

- making the way their own organisation operates C2C-proof
- choosing a suitable procurement strategy
- procuring C2C products
- using the C2C-related call for tenders criteria recorded in the criteria documents.

These points are worked out in detail in the sections below.

4.1 Making the way the organisation operates Cradle to Cradle-proof

Before actually procuring a product, the procurement team can ask itself whether the procurement will help to realise a C2C-oriented future. What are the sustainability targets of this Government organisation and how do they link up with the C2C principles? Does this organisation have concrete long-term aspirations to improve water and air quality, for example? How do these aspirations translate to this specific, planned procurement of a product or service? The example on the page opposite displays the aspirations for the renovation of the Ministry of Infrastructure and the Environment building at Rijnstraat 8 in The Hague.

A description of the customer's aspirations for a product or service enables the market to come up with creative solutions. It is a good idea to formulate procurement criteria after market consultation in order to take optimal advantage of the latest innovative developments. In the case of

The importance of recording aspirations:

Rijnstraat 8

The clients have described their wishes in an aspiration document. The renovated building must have the following qualities:

- Green: not less bad but good: the building must have a positive ecological footprint.
- Intelligent: the building must have a modern and varied office concept based on 'the New Way of Working' (a Dutch policy document).
- Vital: the building must help to stimulate the vitality of the users, the organisation and the urban area in which it is located.

These three aspirations are worked out in detail in the aspiration document. For example, 'Green' means that the building must supply clean energy, supply cleaner air and water than came into the building and must be future-proof, etc.

The full aspiration document can be downloaded from:
<http://www.rgd.nl/onderwerpen/de-gebouwen/vernieuwing-rijnstraat-8>



Ministry of Infrastructure and the Environment Rijnstraat 8

'Rijnstraat 8', market parties were asked what they had to offer to realise these aspirations before a call for tenders in order to test the feasibility of the aspirations in advance.

However, Cradle to Cradle involves much more than defining how a product should be procured. Changes will also have to be made in the company's own business operations. This then makes it necessary, for example, to consider how products will be conveyed away/processed after use by the Government institution so that the materials used in the product are indeed returned to the intended biological or technological cycle.

It may also be necessary to re-examine internal working methods. For example, budgets may need to be organised in a different way so that the costs during use are also taken into account during the procurement process (Total Cost of Ownership, TCO). For example, can the organisation lease office

furniture instead of procuring it? In this way, the logistics for returned goods are easier to organise.

Can devices be repaired or can they fulfil a new useful function elsewhere after use? Can workplaces be organised differently so that it is possible to procure better products? By thinking explicitly and creatively about which need must be satisfied, the number of possible C2C-proof solutions will increase.

These choices have the best chance of success if the organisation has clear sustainability objectives and translates them into procurement objectives. Cradle to Cradle procurement requires personnel to be well-informed. Personnel can acquire (more) knowledge about sustainability and C2C by taking part in training courses and workshops.

4.2 Choosing a suitable procurement strategy

Prior to procuring a product or service, the procurement team can choose one of the procurement strategies approved by European law, such as private procurement, MEAT, public or non-public calls for tenders, DBFMO contracts (Design Build Finance Maintain Operate), a design contest, competition-oriented dialogue, call for tenders by negotiation, etc. Every strategy is linked to its own regulations and provides a greater or lesser amount of space for the following, for example:

- pre-selection of (C2C-oriented) suppliers
- rewarding sustainability when awarding tenders
- innovative proposals by suppliers
- interaction/cooperation between supplier and customer.

For more information on this subject, see the 'Sustainable Public Procurement Manual', which can be downloaded from <http://www.pianoo.nl> and the report 'Sustainable Public Procurement, version 2.0', which can be downloaded from <http://regelingen.agentschapnl.nl/content/rapport-duurzaam-inkopen-versie-20-dpk>

C2C will benefit most from open processes that include numerous options for creative solutions and close cooperation between suppliers, procurement officers and possible other stakeholders. Particularly projects in the area of construction and building renovation, GWW (groundwork, road and hydraulic engineering) procedures and regional development can benefit from this approach. It is in these areas that the Government can exercise a strong influence during the design stage. These types of projects are traditionally often put out to tender with very detailed specifications, and are awarded to the lowest bidder. However, this working method restricts the C2C-oriented approach.

The tendency in recent years has been to define functional specifications for these types of projects. Numerous pilots have been launched with a C2C-oriented design approach. One procurement/tender strategy that particularly links up well with C2C is the competition-oriented dialogue, which is often but not always combined with a design contest.

For more information about learning experiences with C2C in the road-building and hydraulic engineering sector, go to: www.agentschapnl.nl/

[cradle-to-cradle/publicaties/index.asp](http://www.cradle-to-cradle/publicaties/index.asp). Specifically for the construction sector, the 2009 Tendering Guidelines for Construction Contracts (Leidraad Aanbesteden Bouwopdrachten 2009) specifies various tendering techniques. This guideline is issued by Regieraad Bouw (the Dutch Council for Innovation in Building and Construction) and is available on <http://www.leidraadaanbesteden.nl>.



The brochure 'Cradle-to-Cradle in regional development'

4.3 Procuring Cradle to Cradle products that meet the minimum requirements for public sustainable procurement

Certain products have already been certified by MBDC, the company run by McDonough and Braungart, who are the originators of the C2C approach. The certificates are issued by MBDC's consultancy division and by the MBDC partner organisations. The C2C certificate can be regarded as a hallmark with an (as yet) untested legal status. In the meantime, talks are taking place about an independent product certification process that can be submitted to the Dutch Accreditation Council, both nationally and internationally, but this still requires a great deal of time. MBDC's certification requirements are not specified for a particular product group but rather for four

levels: Basic, Silver, Gold and Platinum C2C certificates. On the one hand, these certificate levels reflect the radical C2C ambition to achieve completely closed cycles (the technological and biological cycles), the banning of toxic substances and the switch to sustainable sources of energy, and on the other hand they reflect the pragmatic C2C working method based on step-by-step progression. For example, for the Basic and Silver C2C hallmarks only product information is required (detailed knowledge of the materials that make up the product and the energy used to produce the product), plus the intention (Basic) or a strategic plan (Silver) to tackle the problematic aspects related to the product.

Public authorities are not permitted to make hallmarks/certificates compulsory for a product,



A C2C table

as this would conflict with European tender regulations. However, a hallmark/certificate for a procurement can serve as proof that the product complies with measurable minimum requirements derived from that hallmark. Several product groups have Government procurement criteria based on elements incorporated into the more common hallmarks such as the European Eco label, the Nordic Swan, Blaue Engel, etc. In a similar way, there are some elements of C2C for which the procurement team can include a criterion (see also the following section). Criteria based on these elements should reward the suppliers of C2C-certified products for their efforts by improving their chance of being awarded a tender. The current market supply of C2C certified products relevant for Dutch customers is actually very limited.

The available products are displayed on the MBDC website, www.mbdc.com.

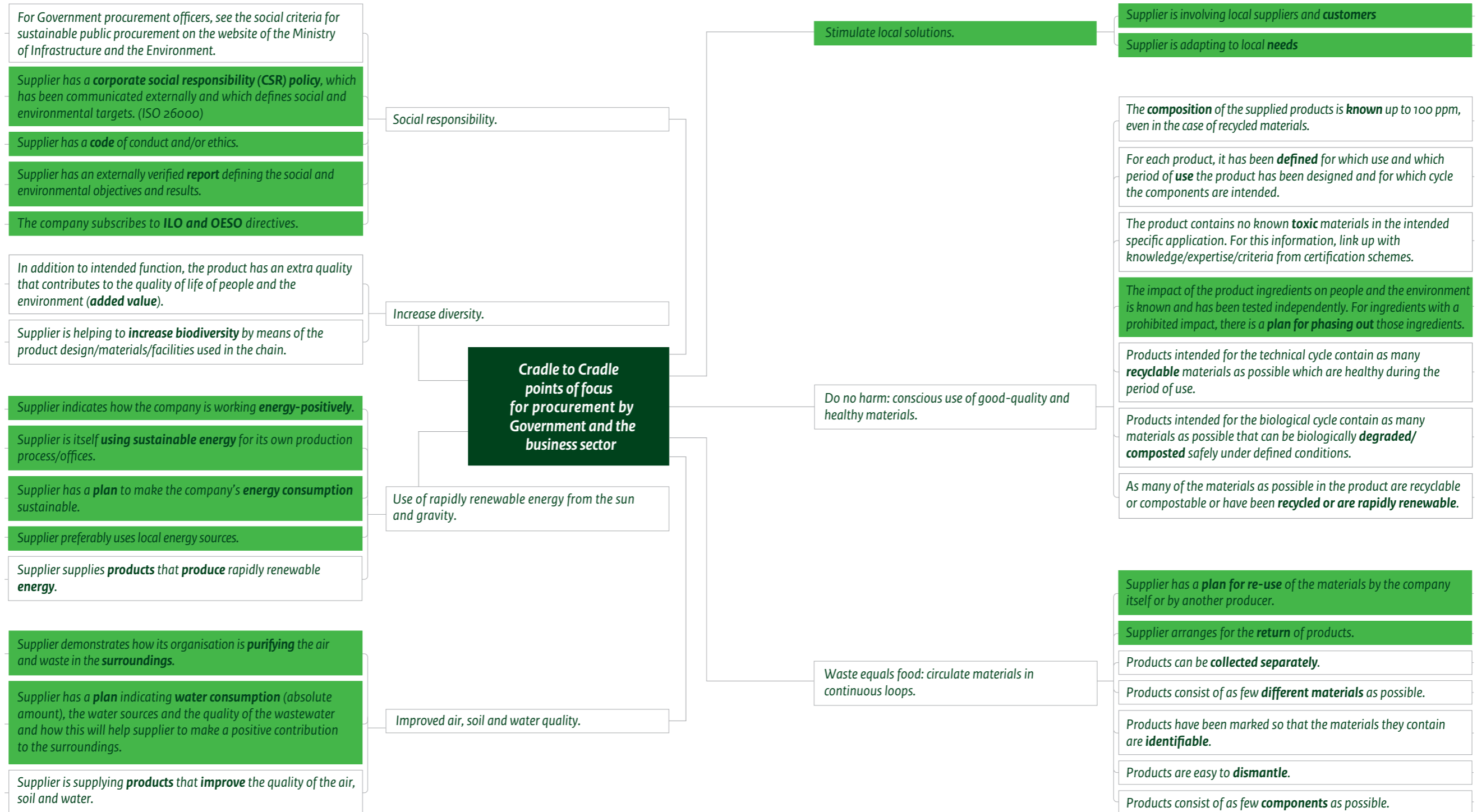
4.4 Applying the Cradle to Cradle-related criteria from the criteria documents

Procurement teams do not have to restrict themselves to the current supply of C2C products on the market (tested according to DI minimum requirements). The Government's sustainability criteria also include requirements and wishes inspired by the philosophy behind the C2C approach. Appendix 1 contains a range of C2C aspects according to which C2C trendsetters in the market can distinguish themselves. This appendix was compiled in consultation with the C2C Learning Community, a group of leading Dutch companies that are closely involved with Cradle to Cradle. For each product, procurement teams can develop criteria that are consistent with these aspirations. The points of focus in Appendix 1 can therefore also be used by procurement staff at companies that often have more options open to them in their procurement process due to different tender regulations.

Appendix 2 includes an example of a C2C-inspired award criterion based on a number of C2C elements. This criterion is aimed at providing products that are suitable for future re-use with an advantage. It is an example of an award criterion that helps Cradle to Cradle product and services providers to stand out from their competitors during a procurement process. This sample criterion is intended to inspire. For each product, the procurement officer must assess whether all points in the award criterion are appropriate for the product to be procured. Or whether it is possible to actually include extra elements derived from C2C (see Appendix 1). It is obvious that this criterion will be easier to apply to products with just a small number of different components and materials. For example, it is easier for the suppliers of garden seats to specify how their product satisfies these criteria than for television producers.

In addition, it is still important that procurement officers are aware of the market supply and make sure that the requirements comply with the legal frameworks of the European tender regulations.

Appendix 1 Points of focus for C2C procurement



Procurement officers working for the authorities and the business sector can use these C2C points of focus to formulate criteria specific to the product. The points of focus have largely been derived from the current C2C certification. The most important aspect is the level of cohesion – that is, the more points of focus that can be included in the procurement, the better.

N.B.: Government procurement officers should be extra careful with the points of focus displayed in the green rectangles. In view of the European legislation on proportionality, these points will not always be suitable for formulating criteria.

Appendix 2 Sample C2C criterion


This sample criterion is intended to be inspirational. For each product, the procurement officer will have to assess whether all of the points in the award criterion are suitable for the product to be procured. In addition, the procurement officer must always be aware of the market supply and make sure that the requirements comply with the legal frameworks of the European tender regulations.

Award criterion	<p>Design aimed at the (re)use of sustainable materials</p> <p>The more (in weight percentage) the products comply with the following aspects, the higher the rating of the registration:</p> <ol style="list-style-type: none">1. The extent to which the chemical composition of the product is known. This is determined by the percentage of the weight of the materials that have been defined up to 100 ppm in relation to the weight of the total product (with the exception of the unprocessed natural materials such as wood, cotton, etc.). It is indicated whether the materials were designed for the technological and/or the biological cycle.¹⁾2. The extent to which the components and the materials in the product can be separated from each other without having to use additional substances or materials that cannot be re-used in the process.3. The extent to which the materials in the product can be recycled at the end of the intended life span without losing their original quality²⁾ or are biologically degradable or compostible³⁾.4. The extent to which the materials are rapidly renewable⁴⁾ or recycled materials. <p>¹⁾ Materials that belong to the biological cycle are materials that are used by living organisms or cells to continue life processes such as growth, cell division, the synthesis of carbohydrates or other complex functions. Biological materials are usually based on carbon compounds that can be returned to the soil as nutrition.</p> <p>Materials that belong to the technological cycle are materials created by people and are designed to circulate safely in technical and/or industrial processes for an indefinite period. These materials must be chemically stable and must be carefully defined.</p> <p>²⁾ In this context, a material is regarded as recyclable if there is at least one commercial plant in existence that is recycling the material. By original quality is meant that at the end of the product's life span the material can be used again for the same type of product.</p> <p>³⁾ In Europe, the degradability of plastic is assessed according to the harmonised 13432 European Norm for plastic packaging. For other materials, it is important that the materials can be broken down in a limited time by the natural activity of micro-organisms such as bacteria and fungi into water, CO₂, anorganic compounds and biomass that can be used as nutrition for the soil.</p> <p>⁴⁾ By rapidly renewable is meant vegetable or animal materials that can be sustainably replenished by nature in less than 10 years.</p>
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Information for the procurement officer	<p>Proof:</p> <ol style="list-style-type: none">A. A standard form filled in by the supplier as comprehensively as possible, as included in the appendix.B. Certificates that demonstrate that the relevant section(s) is/are being complied with.C. Documents with chemical analyses of the materials used in the product.D. REACH documentation for the chemical substances/materials used, such as Safety Data Sheets. <p>This award criterion is derived from the "Cradle to Cradle" design theory.</p> <p>In order for materials to circulate safely in cycles (without a hazardous toxic impact on people and the environment), it is necessary to define strict requirements regarding the quality of the materials. To do this, the exact composition of the materials must be known. In principle, it must be possible for every product to record this type of information. This is because the European REACH substances legislation (Registration, Evaluation, Authorisation and restriction of Chemical substances) promotes the exchange of information about chemical substances in products throughout the chain. The aim of REACH is to protect people and the environment against risks posed by chemical substances. REACH holds companies liable for surveying the risks of the use of substances they utilise in their products, based on information about the characteristics, use and exposure to these substances, and on that basis to take the necessary measures to protect people and the environment. Every user may only use substances whose use has been documented by the manufacturer of the substance. For more information about REACH, go to www.reach-helpdesk.nl.</p> <p>If suppliers appeal to a Non Disclosure Agreement (NDA) on the chemical composition of the product, the supplier can still comply with Part 1 of this award criterion by asking an independent party, such as a certification institute, to fill in the appendix without revealing the names of the substances.</p> <p>A procurement officer is free to define more far-reaching requirements for the characteristics of the chemical substances used in the product being procured. However, the procurement officer will require a high level of expertise in order to evaluate which of the materials/products that were supplied are the most sustainable/healthy. Procurement officers should therefore comply as much as possible with the substance requirements documented in (international) hallmarks.</p> <p>Verification of proof:</p> <ol style="list-style-type: none">A. No further verification.B. A document to be appended to this registration, which has been issued and signed by an independent third party expert and which shows how this award criterion has been complied with.
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Example of (fictitious) completed standard form

1 Product <i>Chair</i>	2 Components easy to separate? (relevant for criterion section 2)	3 Materials in each component? (relevant for criterion section 2)	4 Weight percentage of materials in relation to total product? (relevant for all criterion components)	5 Materials easy to separate from each other? (relevant for criterion section 2)	6 Designed for technological or biological cycle or not known?? (relevant for criterion section 1 and 3)	7 Biologically degradable/compostable or recyclable while retaining quality? (relevant for criterion section 3)	8 Recycled or rapidly renewable materials? (relevant for criterion section 4)	9 Composition of material known up to 100 ppm or a natural material? (relevant for criterion section 1)	10 What is the chemical composition of the materials? (relevant for criterion section 3)	11 Safety data sheet enclosed for the chemical substances? (relevant for criterion section 3)	12 NDA enclosed? (relevant for criterion section 3)	13 Data known to independent party? (relevant for criterion section 3)	14 Total score: add up the scores in column 5, 7, 8, 9, and 11
A Seat	Yes	Aluminium	10%	No	Technological	Yes, recyclable while retaining quality	No, virgin	Yes	Chemical substance X	Yes			
		Foam	45%	No	Technological	No, not recyclable while retaining quality	Yes, recycled	No	Chemical substance Z	No			
		PLA	20%	Yes	Biological	Yes, compostable	Yes, rapidly renewable	Yes	Chemical substance A	Yes			
									Chemical substance B	No			
B Arm-rests	Yes	Wood	15%	Yes	Biological	Yes, biologically degradable	Yes, rapidly renewable	Yes, natural material	Not applicable	Not applicable			
C Legs	No, glued with D	Plastic	5%	No	Technological	Yes, recyclable while retaining quality	No, virgin	Yes	Secret	Yes, indirectly known	Yes	Yes	
D Wheels	No, glued with C	Plastic	5%	No	Not known	Non-recyclable	No, virgin	No	Secret	No	No	No	
Score (if yes, add up the corresponding weight percentages in column 4)			100%	Sum of weight percentage of easily separated materials 20 + 15 = 35		Sum of weight percentage compostable/biologically degradable/recyclable materials 10 + 20 + 15 + 5 = 50		Sum of weight percentage rapidly renewable/recycled material 45 + 20 + 15 = 80	Sum of weight percentage materials known up to 100 ppm 10 + 20 + 15 + 5 = 50		Sum of weight percentage materials for which safety data sheet is available 10 + 20 + 5 = 35		Total score 35 + 50 + 80 + 50 + 35 = 250 250% : 5 = 50%



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The division NL Environment stimulates the achievement of sustainability goals by creating alliances, assessing environmental legislation and providing finance, information and advice.