

PILOT STUDY

IMPACTS OF THE CRADLE TO CRADLE CERTIFIED PRODUCTS PROGRAM

Ecover Company Narrative



ACKNOWLEDGEMENTS

The study represents pilot research designed to contribute an initial evidence base for the *Cradle to Cradle Certified™* Products Program and stimulate thought about how the making of things can be transitioned into a positive force for people, planet and profit. While the study is not intended to provide scientific verification or demonstrate causality, it does provide an initial indication of the very significant economic, environmental and social potential of the program. More granular research, considerate of a wider sample of companies, is needed to strengthen the pilot findings. The *Pilot Study* report series is available to download at www.c2ccertified.org/impact:



Roy Vercoulen led the study on behalf of the Cradle to Cradle Products Innovation Institute. Please direct comments and questions to roy@c2ccertified.org

Tom Domen is the Innovation Manager at Ecover and was the key contact for the narrative. For any questions regarding the analysis please contact domen.tom@ecover.com for the product involved and specific questions about Ecover Professional please contact Marijnissen.lies@ecover.com

The Cradle to Cradle Products Innovation Institute is a non-profit organization, created to bring about a new industrial revolution that turns the making of things into a positive force for society, economy, and the planet. The Institute administers the publicly available *Cradle to Cradle Certified* Product Standard, currently in its third version, along with the *Cradle to Cradle Certified* Products Program to support it. It also audits the product assessments conducted by its Accredited Assessment Bodies, and issues the product certificates. The Institute is also responsible for selecting, training and accrediting these assessment bodies worldwide.

The *Cradle to Cradle Certified* Product Standard is a continuous improvement quality standard gifted to the Institute by William McDonough and Michael Braungart after eighteen years of development with the world's leading brands. It guides the assessment of a product across five quality categories — material health, material reutilization, renewable energy and carbon management, water stewardship, and social fairness. Qualifying products are awarded one of five levels of achievement — BASIC, BRONZE, SILVER, GOLD, or PLATINUM. [Learn more.](#)

Trucost Plc, a global environmental data and insight company, conducted the Pilot Study research and delivered the report.

ACKNOWLEDGEMENTS

The Cradle to Cradle Products Innovation Institute and Trucost thank the following contributors and partners for their expertise, input and support:

The DOEN Foundation and Dutch Postcode Lottery

The C2C ExpoLAB and the City of Venlo

The Steering Committee: Bjorn Sanders, C2C ExpoLAB; Claire Teurlings, Cooperation of Good; Mariska van Dalen, Tebodin Netherlands BV and Peter Visser, Partners for Innovation.

The Scientific Review Panel: Dr Gijsbert Korevaar of Delft University of Technology, Netherlands, Dr Constance McDermott, of Oxford University, United Kingdom; and Pavan Sukhdev, Visiting Fellow at Yale University, and founder of GIST Advisory.

The Participating Companies: AGC Glass Europe; Aveda; Construction Specialties; Desso; Ecover; Royal Mosa; Puma, Shaw Industries; Steelcase; and Van Houtum.



CONTENTS

INTRODUCTION	5
THE RESEARCH	
READER'S GUIDE	
THE PROGRAM	7
CONCEPTUAL FRAMEWORK	9
INTRODUCING THE CONCEPT OF 'CAPITAL'	
SUMMARY OF THE CONCEPTUAL FRAMEWORK	
ECOVER	12
THE COMPANY	
THE PRODUCT	
METHODOLOGY OVERVIEW	13
APPROACH	
RESEARCH FINDINGS	17
KEY FINDINGS	
MATERIAL REUTILIZATION	
RENEWABLE ENERGY AND CARBON MANAGEMENT	
WATER STEWARDSHIP	
SOCIAL FAIRNESS	
MATERIAL HEALTH	
BUSINESS IMPACT	
LATEST DEVELOPMENTS	
CONCLUSIONS	27
ASSUMPTIONS	28

Economic growth has been accompanied by serious natural resource depletion and severe pollution impacts in recent decades.

According to the Global Footprint Network, one and a half Earths are needed to support our current natural resource dependency and waste generation. And if current population and consumption trends continue, moderate United Nations estimates predict that we will need the equivalent of the resources of two Earths to support us by the 2030s.

The *Cradle to Cradle Certified*TM Product Standard was established to reverse unsustainable growth trajectories by transforming the way products are designed, what's in them and where they go after use. Following Cradle to Cradle principles, products are designed from the outset to provide resource streams for new products at the end of their traditional use, or safely biodegrade into the environment – continually circulating as pure and viable nutrients that add value in the context in which they are used – and have as many positive benefits as possible. In this way, product manufacturing and product use become a positive force for people, planet and profit.

Because of these characteristics, *Cradle to Cradle Certified* products are aligned with and can demonstrate the benefits of the circular economy powered by Cradle to Cradle on a product-level and contribute to sparking the transition towards more circular systems.

The Cradle to Cradle Products Innovation Institute asked Trucost to quantify and assess the environmental, social and business impacts of its certification program across its five quality categories: material health, material reutilization, renewable energy and carbon management, water stewardship and social fairness.

The Institute also engaged a panel of scientists from Oxford, Yale and Delft universities, as well as expert stakeholders, to validate the research methods and outcomes.

THE RESEARCH

Trucost carried out in-depth analysis of twenty products; ten certified to the *Cradle to Cradle Certified* Product Standard and ten baseline pre-certification or non-certified counterparts, with the aim of identifying and quantifying the actual environmental, social and business impacts – and actual added value – of the *Cradle to Cradle Certified* Products Program.

What emerged was a promising account of impact and value achieved by ten companies undertaking *Cradle to Cradle Certified* product certification.

Across the ten companies, the economic potential of *Cradle to Cradle Certified*TM product certification was evidenced through examples of higher than average sales performance, positive growth and increased profit margins, alongside significant cost savings related to water and energy efficiency improvements.

Environmental and social benefits were also evidenced through replacement of toxic and questionable ingredients by less toxic and defined alternatives, conservation of product materials in continuous product cycles, increased renewable energy use and improved energy and water effectiveness.

The study research provides an evidence base demonstrating the economic, environmental and social potential of the *Cradle to Cradle Certified* Products Program. It is not intended to provide scientific verification or demonstrate causality.

READER'S GUIDE

This case study details the findings of the analysis of a single *Cradle to Cradle Certified* product compared to a non-certified equivalent. The document is one of ten examples intended to support the [Technical Report](#) which provides more information on the framework developed and a all findings of the pilot study across a range of products and companies. This document introduces the Ecover company narrative and product analysis of the *Cradle to Cradle Certified* SILVER Multi Daily interior and floor cleaner of Ecover Professional, compared to the product before certification. This identifies and describes impact improvements in the fields of business, society and the environment, related to Ecover's pursuit of *Cradle to Cradle Certified* product certification.

An overview of the methodology is given on page 13 with a more detailed discussion of the approach available in the supporting [Technical Report](#). The research findings (page 17) review work done by the company to optimize product performance across the five quality categories of material health, material reutilization, renewable energy and carbon management, water stewardship and social fairness, and its effect on business performance. Through product optimization, Ecover reduced the hazardous material impacts of the Multi Daily packaging.

CRADLE TO CRADLE CERTIFIED PRODUCTS PROGRAM

The *Cradle to Cradle Certified Product Standard* is a multi-attribute, continuous improvement methodology that provides a pathway for companies to produce safe, recyclable and sustainable products. It is administered by the Cradle to Cradle Products Innovation Institute. The certification standard was launched in 2005, after many years of development by McDonough Braungart Design Chemistry, LLC (MBDC) in cooperation with EPEA Internationale Umweltforschung GmbH. Since the program began in 2005, nearly 200 companies worldwide have participated in the *Cradle to Cradle Certified Products Program*, with hundreds of product lines representing thousands of different products certified and millions of products sold. Companies include AGC Glass Europe, Herman Miller, Shaw Industries, Steelcase, Desso, Puma and Ecover.

The current standard is version 3.0, building on version 2.1.1 of the standard revised in 2010. It continues to be periodically revised to keep up with current research, data, and technologies. Subsequent revisions¹ are public and will be informed by expert advisory groups and public comment periods. The process is managed by the Institute's independent Certification Standards Board² (CSB) with input from consumers, manufacturers, NGO partners, and other interested stakeholders.

Full details of the certification can be found at http://c2ccertified.org/product_certification/c2ccertified_product_standard

Products are analyzed by Assessment Bodies³ that have been trained and accredited by the Institute. After auditing of this assessment, the Institute awards the product an overall score or level while encouraging continual improvement. Product certification is awarded at five levels (BASIC, BRONZE, SILVER, GOLD and PLATINUM), with the expectation that an applicant will optimize each aspect of their product over time. The ultimate goal is to encourage innovation and the design of products that effectively and positively impact people and the environment. Products are evaluated according to the requirements in five categories based on the Cradle to Cradle design principles.

THE FIVE PRODUCT STANDARD CATEGORIES

The five *Cradle to Cradle Certified Product Standard* categories are designed to provide a pathway to manufacturing safe and recyclable products for our world. The five categories are summarized overleaf:

¹ http://www.c2ccertified.org/product_certification/revisions_to_the_standard

² The Certification Standards Board (CSB) is an independent review panel, tasked with updating the standard and adjudicating appeals related to product certification
http://www.c2ccertified.org/product_certification/certification_standards_board

³ For detail of the Accredited Assessment Bodies see
http://www.c2ccertified.org/product_certification/accredited_assessment_bodies

THE PROGRAM



Material health *Making products out of materials that are safe for humans and the environment*



Material reutilization *Designing products so all materials can return safely to nature or industry*



Renewable energy and carbon management *Assembling and manufacturing products with renewable energy*



Water stewardship *Making products in ways that protect and enrich water supplies*



Social fairness *Treating all the people involved in the product manufacturing*

INTRODUCING THE CONCEPT OF 'CAPITAL'

The *Cradle to Cradle Certified* Product Standard is a multi-attribute standard, so a holistic concept is needed to understand how it drives change in a company's relationship with the environment, society and business. The concept of 'capital' is a useful starting point.

All companies depend on various forms of capital for their success. These capitals are stores of value that can, in one form or another, become inputs to a company's business model or be affected by its outputs (such as emissions from product processing). They are increased, decreased or transformed through the activities of the company. There are six main types as defined by the International Integrated Reporting Council (IIRC), financial capital, manufactured capital, intellectual capital, human capital, social capital and natural capital.

Financial capital is broadly understood as the pool of funds available to an organization. This includes funds raised from both debt and equity finance.

Manufactured capital includes man-made physical objects (as opposed to natural physical assets) that are used in the production of goods or the provision of services

Intellectual capital is defined by IIRC as knowledge-based intangible assets, in which they include tradable & private intellectual property such as patents, copyrights, software, etc. as well as "organizational capital" such as tacit knowledge, systems, procedures and protocols

Human capital consists of the individual's health and capabilities (knowledge, skills and experiences), as well as the motivation and capacity they have to enhance these capabilities.

Social or relationship capital is the relationships and networks together with shared norms, values, trust and understandings that facilitate co-operation within or among groups. Examples include the relationships found in families, communities, businesses, trade unions and voluntary organizations.

Natural capital is any stock of natural resources or environmental assets that provides a flow of useful goods or services now and in the future. This includes resources such as timber, fish, water and minerals, as well as ecosystem services from which humans benefit such as climate regulation.

In environmental economics literature, however, there are typically only four broad categories of capital - physical, human, social and natural capital. These two categorizations are in fact consistent. 'Physical capital' is the value stored in man-made assets, be they "financial" or "manufactured" or "intellectual", as they are related: they are mostly privately owned, and one can be converted to the other through markets. 'Human capital' includes the intellect and knowledge of humans - it resides in human minds. When owned by businesses in the form of patents, copyrights, and software it can also be classified as physical capital. 'Social capital' resides in human relationships at various levels, enabling social interaction and reducing transaction costs: without social capital, normal business would become impossible to conduct. 'Natural capital' is made by nature, not man, and includes all valued supplies of goods, services and embedded intellectual property (used in bio-mimicry) emanating from all levels of biodiversity - ecosystems, species and genes.

Together these capitals are the basis of a company's value creation. They also underpin the quality of human well-being. Natural capital, for example, underlines the need to maintain stocks of our natural assets such as rainforests, grasslands, wetlands, and mangroves. These provide flows of

services that benefit society, such as clean air, fresh water, climate regulation, crop pollination and protection from natural hazards. Similarly, financial capital when invested and distributed fairly allows for the creation of jobs and goods and services that ultimately benefit humans. These capitals are also interrelated and can influence each other directly and indirectly.

At present the stocks of natural, human and social capital are not recognized on a company's balance sheet and are seldom the subject of management attention, and as such are being degraded or lost. In recent years, for example, growth in financial capital has often come at the expense of serious natural resource depletion and pollution impacts, representing costs to natural capital (sub-soil assets as well as wilderness of many kinds) and human capital (human health). The impacts of this imbalance are increasingly being felt on society and business through increased healthcare costs, increased volatility in the price of raw materials and intensifying 'polluter pays' regulations, to name but a few.

SUMMARY OF THE CONCEPTUAL FRAMEWORK

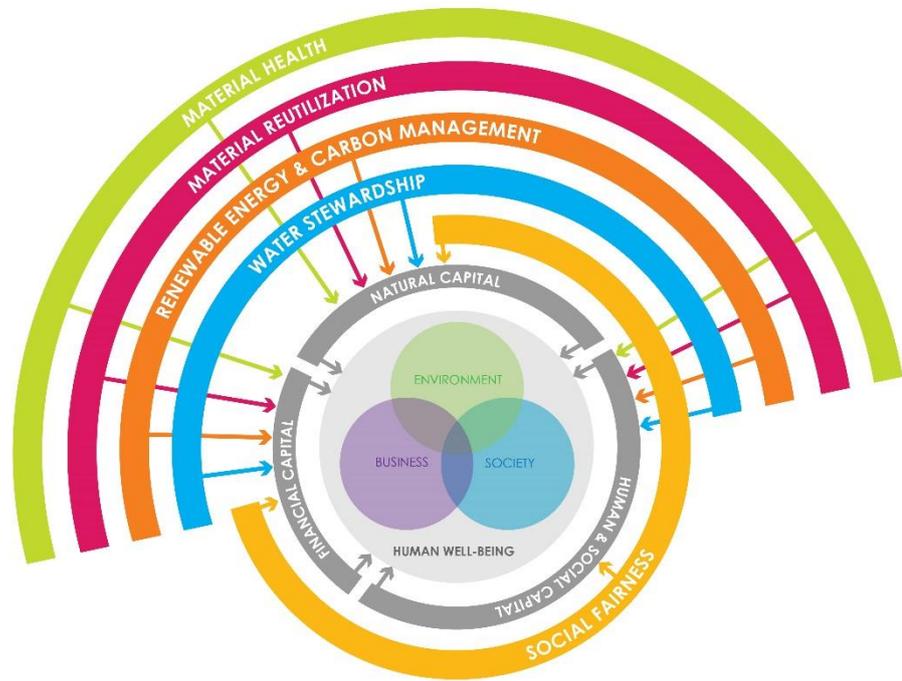
To capture the impacts of *Cradle to Cradle Certified* product certification, a conceptual framework was developed to highlight the impact areas that are affected through product optimization. Eco-effective products are considered to provide 'more good', delivering benefit to human well-being. Underpinning the conceptual framework is the principle that the manufacture of eco-effective products demands the maintenance and enhancement of *all* forms of capital upon which companies and their products rely. The five *Cradle to Cradle Certified* Product Standard categories drive change in companies by encouraging them to improve environment, social and business performance to enhance and protect all forms of capital (for more detail on the framework and methodologies, see the [Technical Report](#)).

To illustrate an example: let us consider the *Cradle to Cradle Certified* program's material health category, which encourages companies to quantify and understand their product material composition, identifying ingredients as biological or technical nutrients, and removing hazardous chemicals, while replacing with optimized 'good' inputs. The adherence to this quality category motivates companies to improve understanding of their products through detailed scientific assessment and continuously work to improve them, through ongoing optimization. By reducing and ultimately eliminating toxicity, the natural capital stock of clean air and water is maintained, which itself has a positive indirect effect on human capital through improved health.

The figure overleaf outlines the conceptual framework.

CONCEPTUAL FRAMEWORK

FIGURE 1: THE CONCEPTUAL FRAMEWORK



"Cradle to Cradle makes great business sense because it stimulates new thinking and offers a new approach to your business, setting you apart from everyone else in your industry. Even during the crisis when all our competitors are suffering, our company is delivering double digit growth".

Philip Malmberg,
Ecover CEO

COMPANY

Based in Belgium, Ecover is an international company providing detergents, cleansing agents and personal care products to business and consumer markets. With around 300 employees in the United Kingdom, United States, France, Germany and Belgium, Ecover products (under the brands Ecover and Method) are now marketed in over 40 countries on four continents. Ecover factories are designed to optimize efficiency, and are located in Malle, Belgium and Boulogne, France with a new factory being built in Chicago, USA.

Sustainability is at the core of the Ecover business model, reflected in the mission statement:

"Pioneering a cleaner clean"

The *Cradle to Cradle Certified* quality mark was sought by Ecover because it was considered to 'go further' than other certification standards, in scope and in product evaluation, while also encouraging producers to continually challenge and improve their own design processes.

PRODUCT

The product selected for analysis, based on study selection⁴, is a bottle of all-purpose cleaner, *Multi Daily 1L*. In early 2013, the product was certified to v2.1.1 of the *Cradle to Cradle Certified Product Standard* at the SILVER level. At the end of 2013, the product was recertified under v3.0 of the standard, at the GOLD level, in advance of the minimum recertification time. In developing the product, Ecover designed a new, more concentrated formula with inputs already used in consumer market products – adding 10 ml of product to water has the same cleaning potential as conventional products which require 20 ml. This provides twice the cleaning potential of a conventional product, halving the number of bottles needed to clean the same area.

FIGURE 2: ECOVER CRADLE TO CRADLE CERTIFIED PRODUCT RANGE



The benchmark product for comparison was the product before optimization for certification.

⁴ Selection criteria included ensuring product was certified at any level, had a well understood optimization process, and data was available for the product both before and after optimization.

METHODOLOGY OVERVIEW

This section defines the methodology used by Trucost to apply the conceptual framework to determine the impacts of certification across ten companies' products. The section provides an overview of the methodology used to assess the environmental, social and business impacts associated with the *Cradle to Cradle Certified* Products Program. The detailed methodology is provided within the Technical Report, which is available at www.c2ccertified.org/impact.

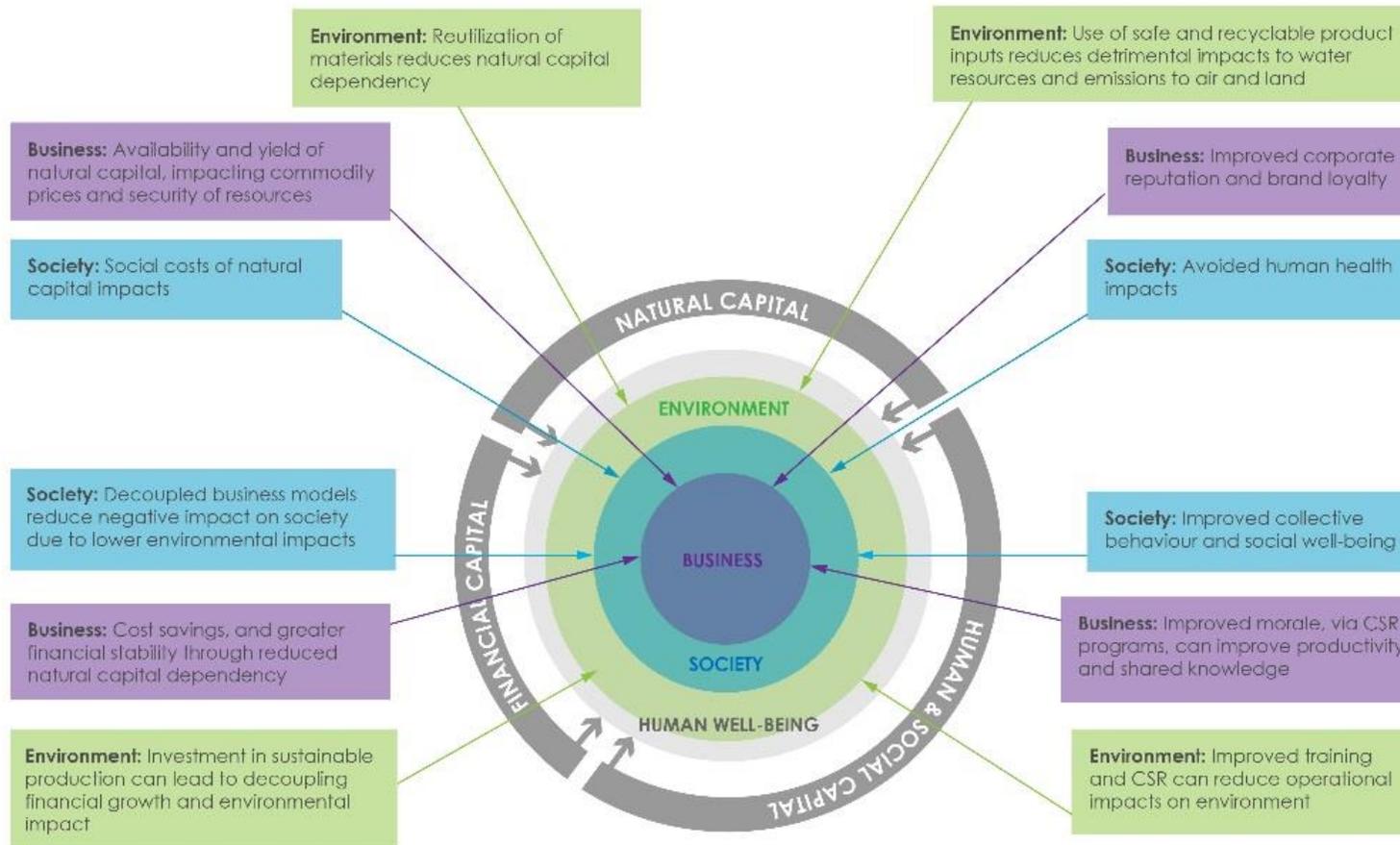
APPROACH

The impacts of product certification under the *Cradle to Cradle Certified* Products Program can be considered on several levels and across three impact fields: environmental, social and business. Environmental and social impacts may be apparent internally and externally, affecting both the company and third parties. Business impacts are directly linked to the company and operations, and can be considered internal. Each of the three impact fields are given equal weighting for significance, though these will be approached in different manners. Figure 3 considers how the capitals feed into the three elements of human well-being.

An example given is the reutilization of materials. This reduces the dependency on natural capital as less resource is required. This includes not only material resource (such as wood, metal etc.) which is not required as recycled content is used in place of virgin, but also recycling often reduces the processing requirements required to convert raw material to product material (for example crude oil needs to be extracted then separated and processed into usable plastics for products – recycled plastic requires less processing to return the product material to a useable input material). This results in societal benefit through lower emissions and human health impacts due to manufacturing processes (the social cost of natural capital impacts). In turn, this impacts financial capital, directly related to business performance, through greater control of material inputs, less commodity dependency with associated price fluctuations and less external reliance on potentially scarce resource.

METHODOLOGY OVERVIEW

FIGURE 3: HOW CAPITALS FEED INTO HUMAN WELL-BEING

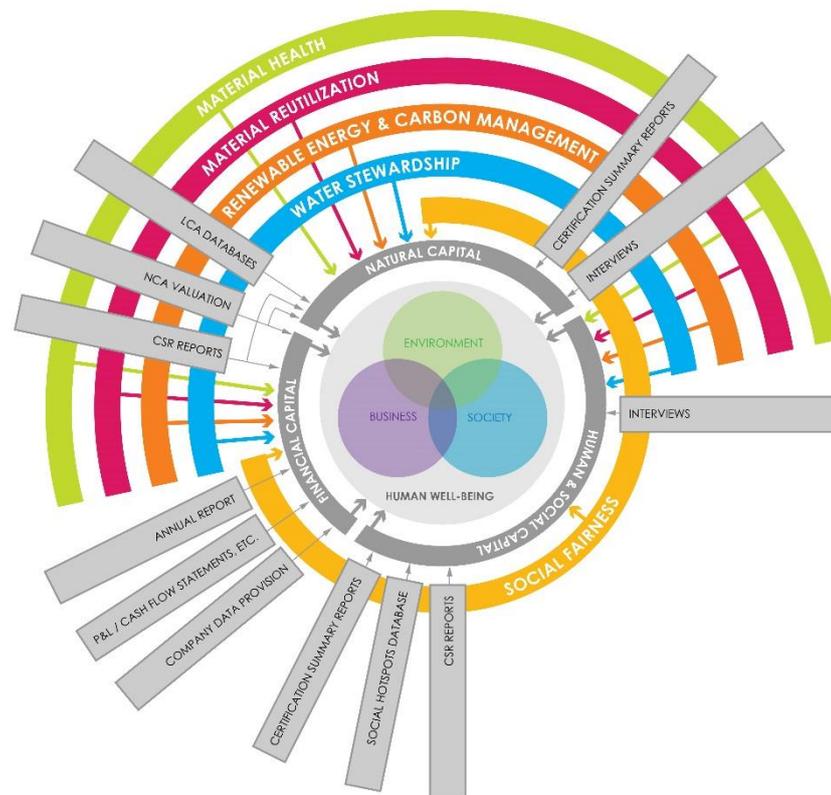


METHODOLOGY OVERVIEW

Businesses operate within society, which is in turn contained within the environment. While these three aspects of human well-being can be considered separately, they are also interrelated as shown in figure 3. Each type of capital flows into these three aspects of well-being, and these are identified in examples given in figure 4. Not all impacts are detailed, however, this provides some context of how the capitals each apply to the individual fields.

Figure 4 below provides detail of the source of data and approach used to capture impacts across these different categories.

FIGURE 4: ALIGNMENT OF QUALITY CATEGORIES

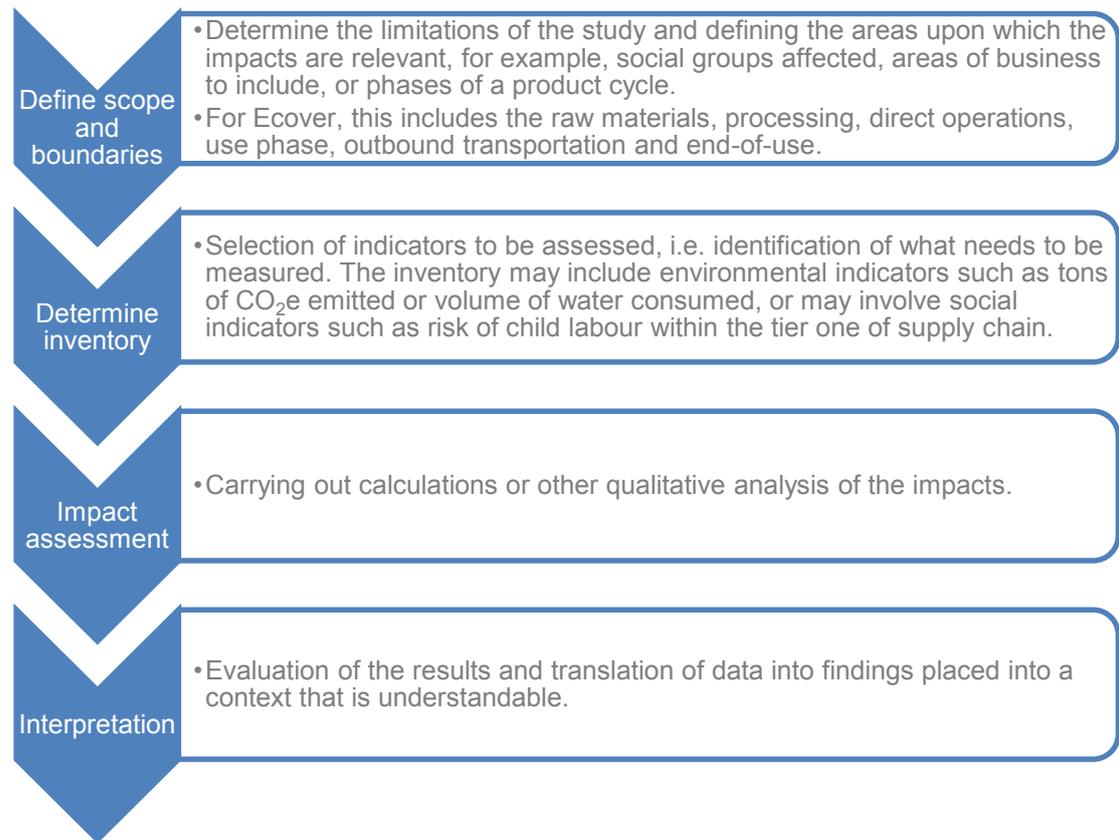


Firstly, the individual impacts associated directly with the manufacture, use and end-of-use of a particular product are compared to the equivalent product before optimization for certification. The second consideration applies to the wider context of the benefit to the company of having one or more *Cradle to Cradle Certified* products.

Environmental, social and business drivers associated with each of the quality categories were identified, quantified and evaluated across product-use phases using a combination of quantitative and qualitative analysis.

The methodology is framed around four steps, given in figure 5.

FIGURE 5: METHODOLOGY OVERVIEW



Each step is considered in relation to the *Cradle to Cradle Certified* Product Standard quality categories and the three areas of environment, business and society in which the ultimate implications for human well-being exist.

The individual steps may be more or less significant for different scenarios, but are always appropriate to consider. Complex quantitative work may involve several steps within the impact assessment stage if numerous calculations are required, whereas qualitative information may be more directly understandable with less analytical processing required.

For the environmental impact analysis, interpretation includes the valuation of indicators. Valuation of environmental impacts estimates the value of natural goods and services in the absence of market prices to allow direct comparison with financial performance and appraisal of potential profit at risk. By applying valuation, the impacts are more aligned with the Cradle to Cradle philosophy, placing the impacts into context, for example by accounting for scarcity of water in the region it is consumed and the localized impacts of air pollution at the point at which it is emitted.

Valuations were derived from academic journals, government studies and established environmental economics techniques. The way in which these are applied depends on the environmental indicator. Greenhouse gases, for example, have the same impact wherever they are emitted. Values for other pollutants and water use depend on local biophysical and human geography, and so require a technique called benefit transfer to apply a value estimated in one location to another.

For the social and business evaluations, qualitative interviews were carried out to determine company trends and patterns that had been noted, but not evidenced through quantitative data. These took into account the staff and customer feedback, media responses and other anecdotal evidence of impact.

KEY FINDINGS

This report demonstrates the business, social and environmental benefits of the *Cradle to Cradle Certified Product Standard for Ecover*.

In 2013, Ecover achieved *Cradle to Cradle Certified SILVER* level certification for version 2.1.1 of the standard, for its Multi Daily cleaner⁵ (see figure 5). This was the level of certification at the time of analysis, though the product has since been further optimized and the current scorecard is also given for reference. A SILVER level product certified under Version 2.1.1 means that 95% of the materials that are present in the product at a concentration of 100 ppm or greater are assessed. Assessment includes identifying chemical ingredients, assessing their risk and recyclability, and ensuring strategies are in place to phase out any problematic chemicals. All materials have been characterized as either being a part of the biological or technical cycle, with a material reutilization score of greater than 50 (see material reutilization below), and energy requirements for production have been characterized, with a strategy developed for using solar income for product manufacture.

Trucost compared the environmental, social and business benefits of a certified cleaner with the pre-optimized equivalent, though a full comparison will be possible only following a year after launch, to allow generation of applicable data.

Benefits of certification will become more apparent once more time has allowed effects to be observed. Initial optimization has shown:

- 50% reduction in number of hazardous chemicals used
- If targets set for certification are met, 49% reduction in direct energy requirements will become apparent⁶

FIGURE 5: PRODUCT SCORECARD IN EARLY 2013 AND CURRENT



⁵ Since the analysis in late 2013, the Multi Daily has been awarded the GOLD level of v3.0 of the standard, and has advanced further along the transition towards a healthy, net positive product. This analysis is based on the SILVER certification as that was the certification-level at the time of the analyses

⁶ One year of data not yet generated due to recent launch of product



MATERIAL HEALTH

Product ingredients are inventoried throughout the supply chain and evaluated for impact on human and environmental health according to the Material Health Assessment Methodology for the Cradle to Cradle Certified Product Standard⁷. The criteria at each level build towards the expectation of eliminating all toxic and unidentified chemicals and becoming nutrients for a safe, continuous cycle.

Toxic product materials contribute to irreversible environmental costs such as biodiversity loss and human health damage including cancer, endocrine or hormonal disturbances and respiratory diseases. They may also inhibit opportunities to recycle product materials at the end of their typical use leading to toxic waste costs to our land, oceans and biodiversity. Permanently removing toxic materials from products means safer materials for nature, human well-being and future product manufacturing.

The material health quality category gives a material health 'rating' to each material in the product, based upon robust analysis of toxicity including consideration of both the hazard and the risk associated with their relative routes of exposure during the intended (and likely unintended) use and end-of-use product phases. Other material specific factors are also included such as recyclability or biodegradability. A description of these ratings is given in table 1.

TABLE 1: MATERIAL HEALTH RATING DESCRIPTION

Material assessment ratings	Explanation
A (Green)	The material is ideal from a Cradle to Cradle perspective for the product in question.
B (Green)	The material largely supports Cradle to Cradle objectives for the product.
C (Yellow)	Moderately problematic properties of the material in terms of quality from a Cradle to Cradle perspective are traced back to the ingredient. The material is still acceptable for use.
X (Red)	Highly problematic properties of the material in terms of quality from a Cradle to Cradle perspective are traced back to the ingredient. The optimization of the product requires phasing out this ingredient or material.
Grey	This material cannot be fully assessed due to either lack of complete ingredient formulation, or lack of toxicological information for one or more ingredients.
Banned	This material contains one or more substances from the Banned list and cannot be used in a certified product.

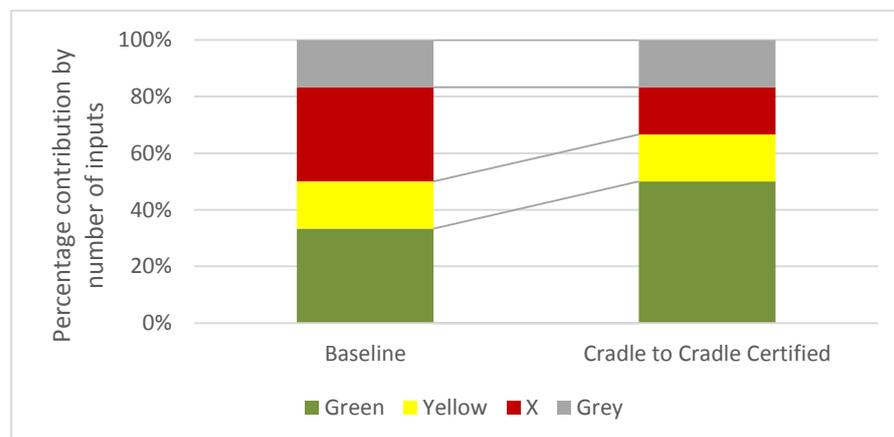
The ultimate goal is for all products to be manufactured using only those materials that have been optimized and do not contain any 'X' rated or Grey assessed materials. As such, products are able to achieve increasingly higher levels of certification as the percentage of optimized materials in the finished product increases.

⁷http://www.c2ccertified.org/images/uploads/C2CCertified_Material_Health_Methodology_121112.pdf

Ecover achieved a material health PLATINUM rating for the Multi Daily product, and a SILVER rating for the product packaging. No Cradle to Cradle banned materials⁸ were present in the pre-certified product, but through *Cradle to Cradle Certified* product certification Ecover has achieved safer product packaging.

Figure 6 shows the percentage of packaging materials by overall number of input ingredients, as classified in the material health ranking, present in pre and post optimization product packaging. This highlights the move away from 'X' rated, hazardous materials, which were reduced by 50% by number (from 2 inputs down to a single input). This also provided an increase in green 'B' rated acceptable materials (from 33% of total number of inputs to 50%). 'Grey' materials are not fully defined, as they lack complete ingredient formulation or lack toxicological information for one or more ingredients. All 'Grey' and 'X' rated materials require continuous optimization over time in order to maintain the certification.

FIGURE 6: PACKAGING MATERIAL HEALTH OPTIMIZATION BY NUMBER OF INPUTS



Toxicity assessment was a key benefit of certification highlighted by Ecover. Not only did it provide the company with the robust scientific evidence that it needed to substantiate its material health credentials, but it also supported the company in phasing out problematic materials, and increasing the use of safer inputs.

The most significant challenges for Ecover's material health optimization were linked to the packaging of the product, more specifically the cap and colorants used on the label.

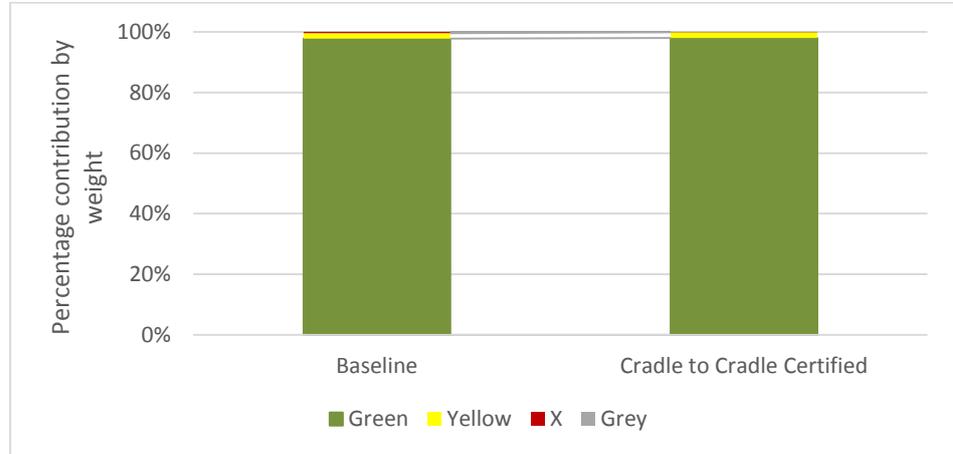
Following the advice of its Accredited Assessment Body, Ecover developed transparent caps and phased out the problematic cap materials. The remaining problematic material was present in very small volumes, used in inks and color within the packaging. When considering the contribution in percentage of weight terms, 'X' rated inputs become almost trace and the difference of composition is less apparent, at less than 0.01%. This highlights the already high level of material health (see figure 7). While the percentage contribution of problematic materials is small, a project is now underway to identify and implement label inks that would elevate the product packaging's

⁸ Substances included on the banned list are selected due to their tendency to accumulate in the biosphere and lead to irreversible negative human health effects. In addition, several substances were selected due to hazardous characteristics associated with their manufacture, use, and end-of-use phases.

RESEARCH FINDINGS

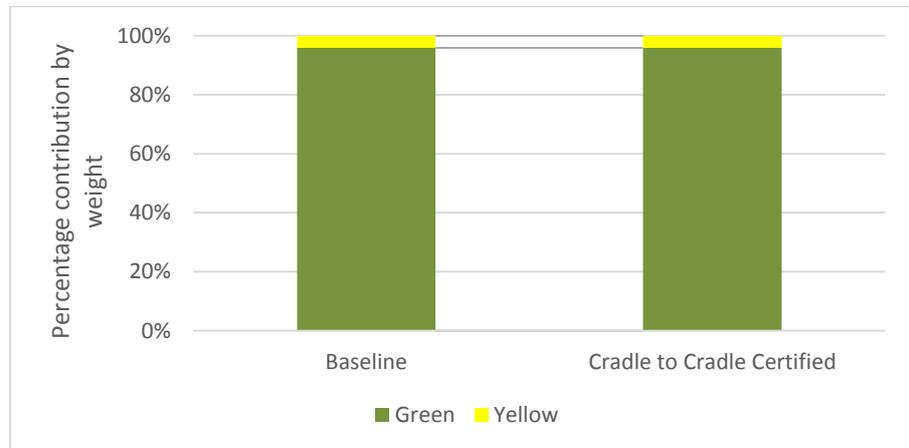
SILVER material health rating to the PLATINUM level achieved by the product itself.

FIGURE 7: PACKAGING MATERIAL HEALTH OPTIMIZATION BY PERCENTAGE COMPOSITION



No optimization of the actual product was required, as only green and yellow rated materials were present, with over 95% by weight 'B' rated, largely supporting Cradle to Cradle objectives for the product (see figure 8).

FIGURE 7: PACKAGING MATERIAL HEALTH OPTIMIZATION BY PERCENTAGE COMPOSITION



Monetization of the material health assessment offers opportunity for greater understanding of the impact on human well-being, but requires more granular data and further development of an appropriate methodology that is reflective of Cradle to Cradle principles. An LCA approach is not sufficient due to less focus on toxicity within LCA's than in a Cradle to Cradle context. Even when considering valuation, which brings in a localized relevance (a criticism of LCA for Cradle to Cradle purposes), further work is required to ensure all Cradle to Cradle aspects are captured.



RENEWABLE ENERGY AND CARBON MANAGEMENT

Cradle to Cradle envisions a future in which industry and commerce positively impact the energy supply, ecosystem balance, and community. This is a future powered by current solar income and built on circular material flows. The renewable energy and carbon management category is a combination of these core principles of Cradle to Cradle design. The category

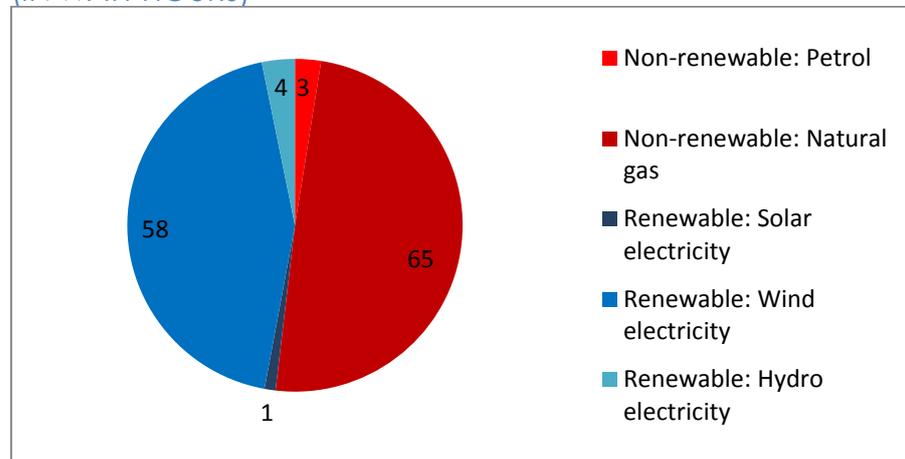
RESEARCH FINDINGS

requirements at each level of certification build towards the expectation of carbon neutrality and powering all operations with 100% renewable energy.

Renewable energy provides a myriad of environmental and social benefits, including avoided air pollution and climate change impacts, alongside decreased dependency on finite fossil fuel resources. It also provides business benefits from reduced risk exposure to volatile energy prices and intensifying 'polluter pays' regulatory costs.

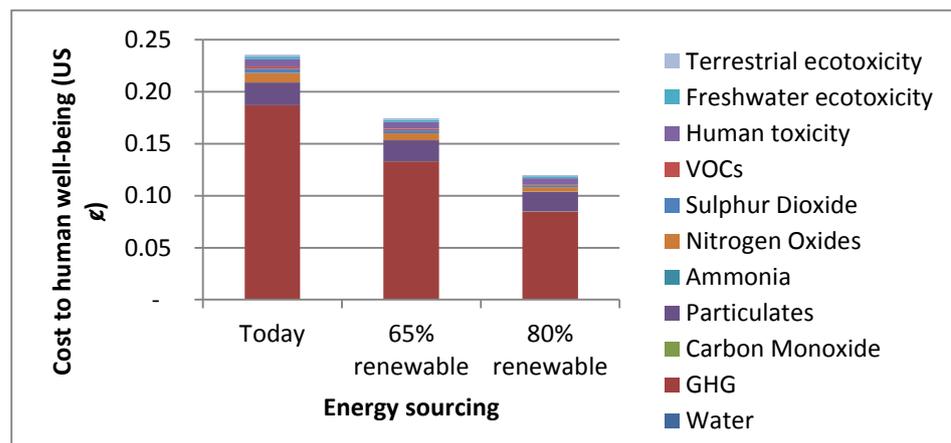
Renewable Energy input to manufacture the Ecover Multi Daily product was already advanced with all of Ecover's electricity sourced from renewable supply. Electricity use contributes to 48% of total energy use (2% solar, 91% wind and 7% hydroelectricity purchased) and the remainder was from non-renewable sources (see figure 8), compared to a national average share of energy consumption of 4.1% renewable energy in Belgium in 2011⁹.

FIGURE 8: ENERGY CONSUMPTION AT SITE, PER LITER OF PRODUCT (IN WATT HOURS)



Energy data was not available at the time of the research due to the certified Ecover Multi Daily product being in production for less than one year. Actual impacts of certification were not yet visible. However, in order to meet the recommendations for continuous improvement made by its Accredited Assessment Body, Ecover has committed to increasing its share of renewables to over 50% in 2014 and over 80% within the next five years. The impacts of this optimization are illustrated in figure 9 below.

FIGURE 9: COST TO HUMAN WELL-BEING OF ENERGY SOURCING COMMITMENT OVER THE NEXT FIVE YEARS, PER KG PRODUCT



If the 5 year target is met, then a potential environmental savings of US¢ 0.11 per kg of product could be seen, an increase in environmental benefits of 49% related to direct energy requirements.

Ecover has also added energy efficiency targets, and has set 2014 targets to reduce the electricity used by 5% and the gas used by 10%, further reducing the cost to human well-being. It plans to switch all natural gas to biogas by January 2015.



MATERIAL REUTILIZATION

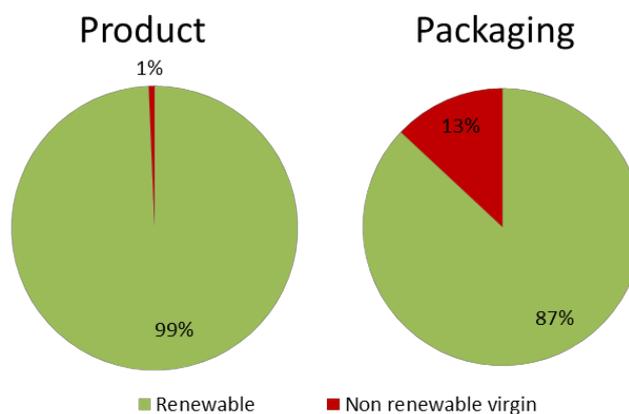
Products are designed either to biodegrade safely or be compostable as a biological nutrient or to be recycled into new products as a technical nutrient. At each level continued progress must be made towards increasing the recovery of materials and keeping them in continuous cycles.

Designing biodegradable or re-useable product materials, and ensuring effective systems for recovering those materials, protects diminishing natural resources by eliminating resource loss and disposal. It also avoids adverse health and other social impacts arising from landfill or incinerated waste disposal, and provides opportunities for business to re-use or re-market product materials at the end-of-use to generate new revenue streams and improve profitability.

Material reutilization of the Ecover Multi Daily was already advanced for both product and packaging. The product consists of 99% renewable and biologically degradable material. Cleaning products are used in the biosphere, yet often not designed as such. The Multi Daily has been specifically designed for safe release into the biosphere¹⁰ as biological nutrients.

The packaging is made from sugar cane derived Plantastic PolyEthylene (PE); 87% of content was rapidly renewable and 13% was virgin content. Non-renewable virgin content relates to the cap, with the bottle sourced from 100% rapidly renewable material. The packaging itself met SILVER level certification requirements in the material reutilization category

FIGURE 10: PRODUCT COMPOSITION BASED ON RAPIDLY RENEWABLE OR NON-RENEWABLE CONTENT



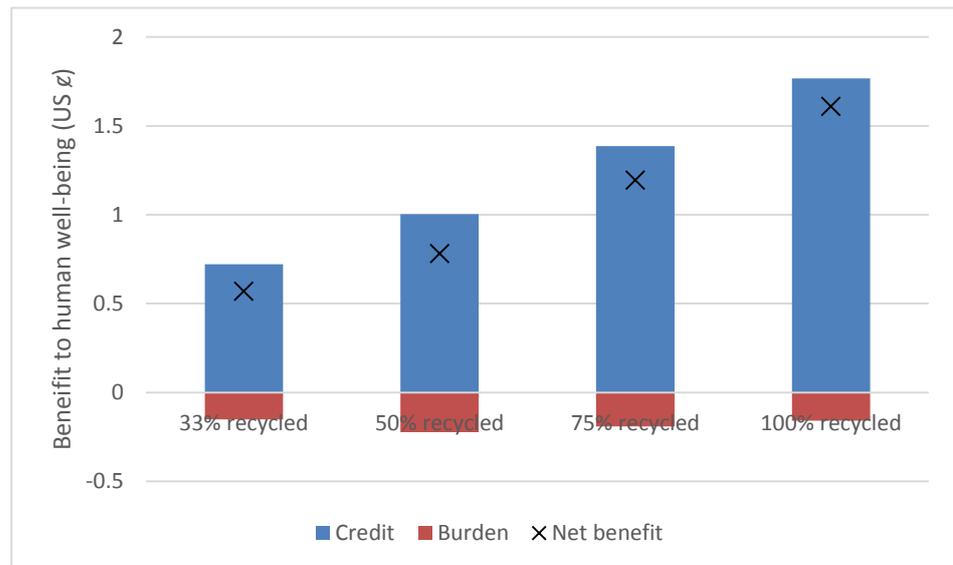
¹⁰ The biosphere is the biological cycle of products manufactured to be returned to the natural cycle, for example, through composting, as biological nutrients.

The *Cradle to Cradle Certified* Products Program defines a rapidly renewable material as a material that is grown and harvested in cycles of less than 10 years, while recyclable material is 'a material that can technically be recycled at least once after its initial use'.

At end-of-use, the Ecover Multi Daily packaging is 97% recyclable, but this potential is not consistently achieved due to collection inefficiencies and customer behavior. In the Summary Report, one of the recommendations for Ecover's continued improvement is to define a recovery plan for packaging in countries without a recycling system in place. This will provide further benefit to increase the percentage of packaging which is actually recycled, thereby not only designing for end-of-use, but improving the return of nutrients into the technosphere, maintaining a circular economy and providing material feedstocks for new products. It should also be noted that the majority of countries in which Ecover are active have very high recycling rates for business plastic waste – so where systems are in place already use of existing schemes is recommended.

Figure 11 shows a scenario analysis of the increased benefit that would be apparent, at different recovery success rate. The greater reduction of impact on human well-being reflects positive benefit to well-being, providing a benefit through displacement of virgin material requirements.

FIGURE 11: NET IMPACTS ASSOCIATED WITH DIFFERING RECYCLING SCENARIOS



Should 100% of the packaging be recovered at end-of-use, a net benefit of US\$ 16 per 1,000 containers is possible. This is in line with Cradle to Cradle thinking, developing eco-effective products bringing benefit to human well-being rather than simply reducing negative effects of production.



WATER STEWARDSHIP

Processes are designed to regard water as a precious resource for all living things. At each level, progress is made towards cleaning up effluent and process-water to drinking water standards.

Water conservation and protection provide vital social and environmental benefits including sustenance and climate regulation, as well as underpinning essential business inputs.

The Multi Daily was certified at a PLATINUM level for water stewardship. Ecover were found to have implemented innovative measures to reduce water use and improve water discharge quality including;

1. Water efficient pipe cleaning systems
2. Water saving closed loop cooling and heating systems
3. Cleaning water and waste water recycling
4. Water saving equipment in showers and toilets
5. 6000 m² of green roof providing climate regulation and biodiversity benefits

Water improvements are across all product lines and for the overall site, not specifically related to the Multi Daily alone.

A year's worth of data has not yet been generated for the Multi Daily as it was not launched until June 2013. However, significant water savings are considered to be likely due to the water efficiency and water reduction steps, and recapturing water that would otherwise have been lost to treatment. Through these steps, Ecover are considered to be advanced in water stewardship, achieving the highest award and progressing towards a circular system.

Though not a focus of the certification, the use phase of the Multi Daily has the most significant water requirements across all phases of product cycles (as the product is concentrated and needs dilution at point of use). The in use phase is associated with 88% of the total water use, with direct operational water consumption responsible for less than 1% of the total product water consumption.



SOCIAL FAIRNESS

Company operations are designed to celebrate all people and natural systems and progress is made towards having a wholly beneficial impact on people and the planet.

Adhering to robust social fairness principles helps companies to provide healthy and safe working environments for employees and suppliers thereby maintaining a happy workforce, reducing sick days and improving performance. The *Cradle to Cradle Certified* Products Program inspires a best practice approach to social fairness that goes beyond simply avoiding human rights violations to supporting employees and suppliers in their everyday working and personal environments.

Ecover's purchasing department screens all of its suppliers on child labor, employee treatment and other social criteria, while encouraging suppliers to innovate with them. Corporate ethics and fair labor statements are available for public review on the Ecover website and in press releases, and this has helped the Multi Daily achieve a SILVER level in the social fairness criteria.

Ecover undertakes a wide range of social fairness activities supporting local communities and social projects. Examples include a project at a local home for mentally-disabled people – VZW Huize Monikenheide – Zoersel, funding of projects to OKAN in Netherlands and WaterAid in the UK, and ecological projects which in turn help support local communities dependent on ecosystems. This work is important for the company to move towards becoming a socially positive entity, creating an environment that is not just minimizing negative impact for staff, but actually progressing towards bringing value and benefit to the wider community outside the confines of the workspace.

"Cradle to Cradle offers a positive message, unlike labels and concepts that are about 'being less bad'". Philip Malmberg, CEO Ecover Group

Ecover is currently undertaking a self-assessment of its social standards according to third party guidelines, though information on this is not yet available.

Social fairness includes many qualitative trends and quantification is not appropriate for many of the benefits recognized through *Cradle to Cradle Certified* product certification. Monetization is applied to social costs of natural capital impacts, but not currently applied to social capital impacts, and future opportunity could exist in incorporating this for a single metric approach to quantification of certification impact.

BUSINESS IMPACTS

Business impacts were assessed by the Pilot Study to provide important economic context to the research findings.



Ecover is growing exponentially every year. With growth of more than 17% in the last year, it is aiming to become the market-leader in the Benelux within the next five years through the expansion of its professional line of *Cradle to Cradle Certified* products.

While not yet certified a year, business benefits of *Cradle to Cradle Certified* product certification are already emerging. While a year's sales data is not yet generated, Ecover were able to provide the forecasting of sales of the *Cradle to Cradle Certified* product range, expecting sales growth of 124% from 2014 to 2016. This is based upon initial and projected sales.

Being the first company in the world to offer a *Cradle to Cradle Certified* professional cleaning range provides a competitive edge, and helps Ecover to stand out in the market place.

One of Ecover's latest successes was a new contract with the city of Ghent, Belgium, the first city in the world to exclusively use professional cleaning products awarded with the *Cradle to Cradle Certified* label. Ghent's procurement strategy is in favor of (super) concentrated products, minimal packaging, recycling, less water consumption and a reduction in the need for transport (lowering carbon emissions), in line with the *Cradle to Cradle Certified* Products Program.

"In terms of our business growth and new business opportunity – both through new innovations and from a new, different customer base – our investment in Cradle to Cradle certification is paying off very well. Even during the crisis when all our competitors are suffering our company is delivering double digit growth." Philip Malmberg, CEO

LATEST DEVELOPMENTS

The Multi Daily achieved *Cradle to Cradle Certified* SILVER v2.1.1 certification in April 2013, and analysis was carried out late in the same year. One year after initial certification, Ecover re-certified its Multi Daily product, achieving GOLD level v3.0 certification. This progress is likely to have further advanced the Ecover product benefit of certification, achieving more advanced criteria for the quality categories.

The main advances that helped the product to achieve GOLD level certification were in renewable energy and social fairness. Ecover is now compensating for 50% of its direct on-site CO₂ emissions through a tree

RESEARCH FINDINGS

planting program "TIST" in Uganda. To achieve GOLD level for the social fairness category, Ecover used UN Global compact tool to conduct a full social responsibility self-audit. This has helped it shape further actions, such as development of an anti-corruption policy and development of a non-discrimination and communication plan. Ecover developed management procedures to encourage the integration of corporate social policy within both Ecover and Method.

The Multi Daily is an excellent example of how quickly continuous improvement, integral to the *Cradle to Cradle Certified* Products Program, can drive industry towards a circular economy, creating a healthier business model and improving business impact on human well-being.

Since the end of April 2014 a major cleaning contractor in the Netherlands has chosen to switch their conventional cleaning products for daily building care to Multi Daily. From now on, 8000 cleaners will daily use Ecover *Cradle to Cradle Certified* GOLD Multi Daily to undertake their work.

"Even during the crisis when all our competitors are suffering our company is delivering double digit growth."

Philip
Malmberg,
Ecover CEO

Involvement in the *Cradle to Cradle Certified* Products Program has provided Ecover with a leading edge in product innovation and a continuous learning pathway towards the development of eco-effective, safe and recyclable products.

The analysis quantified impacts of optimization of the Multi Daily cleaner, assessing the environmental, social and business impacts achieved. The most significant optimization benefit of certification was achieved in the material health quality category where safer and more recyclable product packaging was achieved. High performance standards across material reutilization, renewable energy, water stewardship and social fairness quality criteria were also evidenced.

Cradle to Cradle Certified product certification is a highly marketable differentiator for Ecover products, as it is the first range of professional cleaning products certified to the standard. While the line has only recently been launched (June 2013), there are already key success stories – in particular, the City of Ghent in Belgium has committed to exclusively using Ecover *Cradle to Cradle Certified* cleaning products, a contract won specifically due to the certification obtained.

"Cradle to Cradle makes great business sense because it stimulates new thinking and offers a new approach to your business, setting you apart from everyone else in your industry." Philip Malmberg, CEO Ecover Group

Sales are exponentially increasing every year for Ecover, with a growth of more than 17% in the last year. It aims to expand its professional line of *Cradle to Cradle Certified* products and become the market-leader in the Benelux within the next five years.

The main selling point of the certification for Ecover is its credibility; creating ecological products without compromise, and never creating non-ecological products for other product-lines. An increasing number of national policies aimed towards the environment and sustainability also favor the company.

Ecover has recently launched its *Cradle to Cradle Certified* range of products, yet the benefits are apparent already. The product is already designed for the biosphere, requiring no recovery or further optimization due to safe composition. Water and energy are already advanced, and steps are in place to further improve Ecover's social activity. Since the analysis was carried out, the Multi Daily has progressed to the GOLD certification level, under v3.0 of the standard, reflecting Ecover's continuous efforts to progress towards a circular economy.

"Ultimately, Cradle to Cradle is about the bigger picture, creating positive change and continuing positive improvement. To me, that is what makes it so attractive." Philip Malmberg, CEO Ecover Group

ASSUMPTIONS AND DATA GAPS

Recent release of the product meant all benefits of optimization were not yet apparent due to data not yet having been generated for all indicators. Compositional comparison was focused on the material health optimization of the cap (the only required product composition change to meet certification). CAS numbers for ingredient inputs were not available and therefore it was not possible to map these impacts across the supply chain. Material health analysis had been carried out by the Accredited Assessment Body and this was used for the material health analysis.

Operational data for the manufacturing site focused on energy use, and interview and Summary Report detail of operations.

Elements in the bill of material that are less than 2% of total weight were excluded.



CONFIDENTIALITY & COPYRIGHT

CONFIDENTIALITY & COPYRIGHT

The information used to compile this report has been collected from a number of sources in the public domain, research participants and from Trucost's licensors. Some of its content may be proprietary and belong to Trucost or its licensors. The report may be shared and Trucost encourages circulation of the document and findings, on the understanding that the original source is acknowledged and referenced where used in documents or other reporting materials.

While every care has been taken by Trucost in compiling this report, Trucost accepts no liability whatsoever for any loss (including without limitation direct or indirect loss and any loss of profit, data, or economic loss) occasioned to any person nor for any damage, cost, claim or expense arising from any reliance on this report or any of its content (save only to the extent that the same may not be in law excluded). The information in this report does not constitute or form part of any offer, invitation to sell, offer to subscribe for or to purchase any shares or other securities and must not be relied upon in connection with any contract relating to any such matter. 'Trucost' is the trading name of Trucost plc a public limited company registered in England company number 3929223 whose registered office is at One London Wall, London EC2Y 5AB, UK.

VALIDITY OF INFORMATION

Trucost has made every effort to ensure that all statements and information contained in this document are accurate but accepts no liability for any error or omission in the same.

© TRUCOST 2014