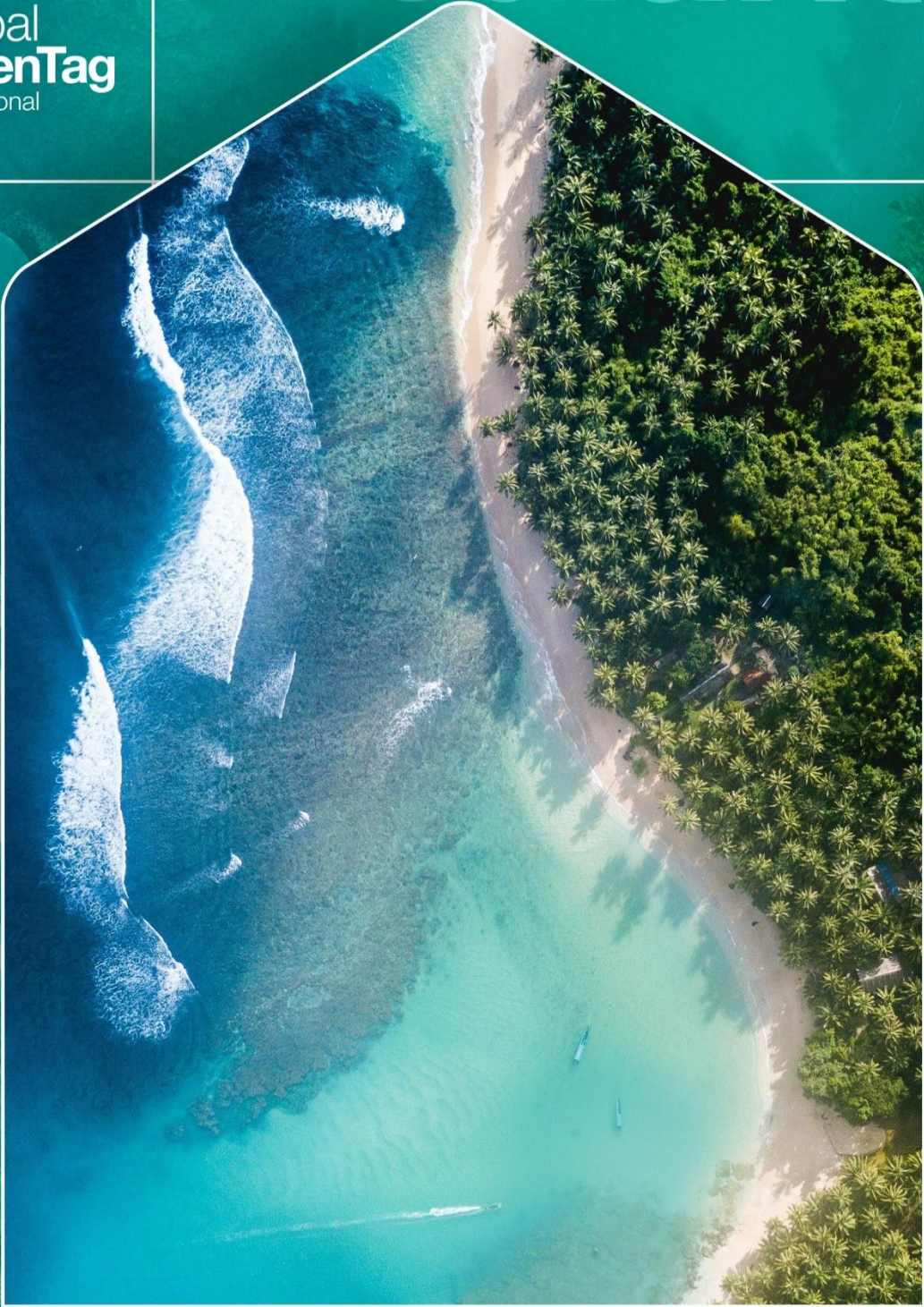


circularity



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EXECUTIVE SUMMARY

Global GreenTag International (GGTI) operates the Global GreenTag Certification Scheme (GreenTag) and this Standard falls within that program. GreenTag is an ACCC (US, Canada, NZ and South Africa also) Approved Certification Mark and externally verified ISO 14024 compliant Type 1 (Third Party) Ecolabel certification scheme. GGTI is also an ISO 14025 Type III Environmental Product Declaration (EPD) Program Operator. All these and other related programs are operated within an ISO 19001 Certified Quality Management System. GreenTag's Certification and Declaration Programs are variously recognised formally or provide compliant Technical Document Evidence for credits and features within the major international and national project rating tools covering 172+ countries including: The International WELL™ Building Standard¹; Green Star^{®2}, The Infrastructure Sustainability (IS) Rating tool³ LEED⁴, BREEAM⁵, EarthCheck⁶, HomeStarNZ⁷, MyHIJAU Malaysia⁸, LOTUS⁹.

This standard and its resultant **NaturePositive⁺ Declarations (NP⁺D)** reporting and Marks are Global GreenTag International's next step in taking product certifications beyond current thinking on circular economy, life cycle analysis and ingredient, hazard and ethical supply chain transparency and risk mitigation to deliver restorative and indeed hopefully regenerative (subject to scale) climate and biodiversity co-outcomes that also conserve and protect resource flows, whether they be within 'Natural or Technical Nutrient Cycles'¹⁰.

Global GreenTag has identified perceived shortcomings in the current approaches to the thinking, processes and reporting of these issues and believes NP+Ds are a solution that it hopes industry will embrace because no other single certification provides the ease, scope, accuracy and depth of transparency that is also focussed on changing real world outcomes towards Nature Positive.

The intention of this NP⁺D Standard is to provide the International and Australian markets with a solution that both provides concepts that enable both natural and technical cycles' full scope and benefits to be measured as no product certification system has before - using already available and in-use processes, systems and metrics to provide:

1. a singular integrate NP⁺D product score;
2. individual metrics for each issue, resource and process;
3. detailed compiled transparency reporting on:
 - a. Human Health & Environmental Toxicity;
 - b. Life cycle impacts and benefits;
 - c. Ethical Supply Chains & Modern Slavery.

¹ WELL™ is a Trade Mark of the International WELL Building Institute

² Green Star[®] is a Trade Mark of the Green Building Council of Australia

³ The IS Tool is a Trade Mark of the Infrastructure Sustainability Council

⁴ LEED[®] is a Trade Mark of the US Green Building Council

⁵ BREEAM[®] is a Trade Mark of BRE Global

⁶ EarthCheck[®] is a Trade Mark of EC3 Global

⁷ HomestarNZ is a Trade Mark of the NZ Green Building Council

⁸ MyHIJAU is a Trade Mark of GreenTech Malaysia

⁹ LOTUS[®] is a Trade Mark of Vietnam green Building Council

¹⁰ Ref: <https://mcdonough.com/cradle-to-cradle/>

Key indicators are normalised against the Global Average Citizen's impact on Planetary Boundaries and weightings for the single NP+D product score both rely on core research generated by the EU's Product Environmental Footprint (PEF) program.

The scoring framework results in a NP+ Indicator score where scores:

- **Above zero (0)** equate to 'Net Positive' carbon and biodiversity outcomes shown as percentage outcomes with multiples of 100% possible e.g. 100%, 200% 300%;
- **Zero (0)** equates to a 'Net Zero' carbon and biodiversity outcome;
- **Below zero (0)** to negative 100% are reflective of products' actual impacts or partial progress towards completing all necessary indicator modules.

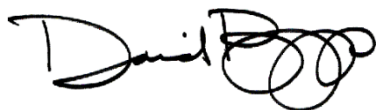
The intent of this program is to move all certified products into the 'Net Positive' outcome range, but it is recognised that it will be a journey and initial assessments will likely reflect current status. Practically speaking this will mean a typical score range will likely be -100% to +100%.

The NP+D assessment and reporting process allows manufacturers to take first and subsequent steps by completing one or more of the indicators modules and progressively work towards a complete NP+D outcome over time should they wish, or, recognising that LCA and LCBA are intense and time-consuming processes, publish progressively as GreenTag and its team complete the necessary assessment modules over time.

The program enables manufacturers to understand and minimise their impacts first and then use a specific form of 'Nature based Solutions' (NbS) to deliver carbon and biodiversity co-benefits.

The NP+D Standard and the processes and reasons outlined herein, draw on the substantial international and local work being undertaken in this arena and have created a framework that draws on work undertaken and standards by International and National Multi-lateral Organisations and Governments and established NGOs, to put together offset programs that provide those parallel biodiversity and carbon co-benefits hereinafter described as 'Nature Positive' offsets.

It is the hope of Global GreenTag and its undersigned founders, that the industry finds this framework useful and uses each individual service/metric within it as a progressive rung on the ladder of progress towards holistic Nature Positive outcomes while moving to and past the net-zero carbon levels that the industry is currently focussed predominantly on to the Climate and Nature Positive outcomes that society, the planet, and all of its nature kingdoms, need to pull back from the brink of the climate tipping points we are facing today, the outcomes of which are too terrible to fully countenance.



David Baggs
CEO & Program Director
Cofounder



Mary-Lou Kelly
Managing Director
Cofounder

1.00 BACKGROUND RATIONALE

1.01 Rights of Nature

In the last 10-15 years, since the Millennium Ecosystem Assessment¹¹, there has been a significant increase in our understanding of the fundamental importance of biodiversity and ecosystems, and their critical relationship to the quality of life of every person. There is also greater understanding now about which policies, practices, technologies and behaviours can best lead to the conservation and sustainable use of biodiversity and the achievement of many of the United Nations' Sustainable Development Goals (UN SDGs)¹², the Aichi Biodiversity Targets¹³ and the Paris Agreement on Climate Change¹⁴ outcomes. However, biodiversity is still being lost, ecosystems are still being degraded and many of nature's contributions to people are being compromised. There have however, been some considerable advances in the legal protection of nature in some countries.

In 2008 Ecuador passed changes to its Constitution to create "rights of nature" provisions that conferred legal rights to rivers, forests and other ecosystems¹⁵. Until recently they have been mostly symbolic. But late last year, Ecuador's top court changed that, finding that mining in a protected region of the Ecuadorian rainforest violated the rights of nature and instructed mining leases already granted in a protected nature reserve to be withdrawn.

The following year in 2009 Bolivia granted nature positive rights¹ – that is, rights to something specific (restoration, regeneration, respect).and anyone can go to court to protect them. Then during 2020 the European Parliament passed a law that granted legal status to ecosystems and since then there are currently 47 separate initiatives underway within the EU community seeking to recognise the Rights of Nature.

In 2014 New Zealand, passed laws granting both the Whanganui River and the Te Urewera Forest region, legal personhood¹. That means the river and forest can act as a person in a court of law; they have legal standing and specified guardian who can sue on behalf of these natural systems. Similarly in 2017, the Ganges River in India was granted full human rights¹.

Then in 2019 the Commons Cluster of the UN NGO Major Group submitted a 'Global Marshall Plan for the Environment and Environmental Rights', to the General Assembly of the United Nations. This report proposed comprehensive and fully implemented global environmental legislation and/or a 'Global Pact for the Environment' be implemented, concluding:

'...it is essential that States and the United Nations work together to address gaps in international environmental law. We must collectively seize the opportunity to use international environmental law in new and dynamic ways to provide a strong and effective governance regime with a view to better safeguarding the environment for future generations'¹⁶

The Australian Local Government body, Blue Mountains City Council in 2020 integrated the rights of nature into its municipal planning and operations¹ and the national not-for-profit Australian Earth

¹¹ Ref: <https://www.millenniumassessment.org/en/index.html>

¹² Ref: <https://sdgs.un.org/goals>

¹³ Ref: <https://www.cbd.int/sp/targets/>

¹⁴ Ref: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹⁵ Ref: <https://www.centerforenvironmentalrights.org/timeline>

¹⁶ Ref: <https://www.allwinnetwork.net/wp-content/uploads/2019/03/GLOBAL-PACT-FOR-THE-ENVIRONMENTfinal.pdf>

Laws Alliance (AELA) organisation carries on the mission to promote and increase the understanding and practical implementation of Earth centred governance.

Importantly in the United Kingdom 2021, the Professor Sir Partha Dasgupta's 'Dasgupta Review of The Economics of Biodiversity'¹⁷ undertaken for the UK Government recognised and emphasised the fundamental and critical realisation **that biodiversity underpins all economic activity**, is the largest contributor to National GDP and must be protected.

These are all world leading and in a global context, increasingly important initiatives throughout the world that recognise the critical importance of preserving and restoring nature and natural systems. However, a 'nature-centred approach'¹⁸ to development is critical. This has been identified even in the application of the UN SDGs by the All-Win Network, an international Non-Government Organisation (NGO) that has 'Special Consultative Status' with the United Nations Economic and Social Council, in its trilogy, 'A Nature- Centric approach to each SDG'¹⁹²⁰²¹. Unsurprisingly, the outcome of its research showed that a nature-centric *or nature-based focus* is essential for all future activities aimed at increasing the sustainability and existence of humankind.

But since every breath, everything we eat and drink, our life energy and our thoughts are integral parts of the systems of Nature, our very survival depends on learning to accurately interpret the signals Nature is giving us.²²

There has also been significant growth in plans to halt and turn around the loss of forests and biodiversity globally with major action plans being put into place globally by the international community to use nature-based solutions (NbS) as a key means to delivering a range of benefits including climate change mitigation and biodiversity restoration.

The UN General Assembly endorsed in 2017, the 'UN Strategic Plan for Forests 2030'²³. This plan serves as a framework to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. At the heart of the Strategic Plan are six Global Forest Goals and 26 associated targets. The Goals encompass and build on the foundation of the four Global Objectives on Forests of the United Nations Forest Instrument.

The UN Strategic Plan for Forests 2030 is also now supported by the USA's Present Biden's 'Plan to Conserve Global Forests: Critical Carbon Sinks'²⁴. The first of its kind in the U.S. government, setting forth a whole-of-government approach to conserving global terrestrial carbon sinks, leveraging a range of diplomatic, policy, and financing tools to work towards global reforestation and preservation.

The 2022 UNEP 'Nature-based Solutions: Opportunities and Challenges for Scaling Up'²⁵ cites the United Nations Environment Assembly (UNEA) multilaterally agreed definition of NbS, which defined NbS as:

¹⁷ Ref: <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

¹⁸ Ref: <https://www.allwinnetwork.net/a-nature-centric-approach-to-each-sdg/>

¹⁹ Ref: <https://www.allwinnetwork.net/wp-content/uploads/2020/04/Integrating-Nature-into-the-SDGs-2020.pdf>

²⁰ Ref: https://www.allwinnetwork.net/wp-content/uploads/2018/06/Summary_Final1.5.pdf

²¹ Ref: <https://www.allwinnetwork.net/wp-content/uploads/2019/06/Transforming-Our-World-Web-22-June-19.pdf>

²² Ref: <http://www.allwinnetwork.net/wp-content/uploads/2020/04/Integrating-Nature-into-the-SDGs-2020.pdf>

²³ Ref: <https://www.un.org/esa/forests/wp-content/uploads/2019/04/Global-Forest-Goals-booklet-Apr-2019.pdf>

²⁴ Ref: https://www.whitehouse.gov/wp-content/uploads/2021/11/Plan_to_Conserve_Global_Forests_final.pdf

²⁵ Ref: https://wedocs.unep.org/bitstream/handle/20.500.11822/40783/nature_based_solutions.pdf?sequence=3&isAllowed=y

*“Nature-based solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits”.*¹

NbS are held by UNEA as important for the global sustainable development agenda for three key reasons:

1. NbS offer the potential to address, in an effective way, diverse challenges such as climate change, food and water insecurity, disaster impacts, and threats to human health and well-being, while reducing environmental degradation and biodiversity loss.
2. Individual NbS interventions can be designed to deliver multiple benefits for people, the economy and the environment, meaning that NbS targeted at a particular goal (such as improved water security) can also provide additional benefits (such as protecting infrastructure, supporting decent work, sequestering carbon and increasing habitat connectivity).
3. Some of the challenges addressed by NbS, including *biodiversity loss and climate action* (this document’s emphasis), cannot be fully tackled without this contribution. This does not mean that *other actions*, such as rapid decarbonisation of our economies, are not also essential.

Protecting the immense biodiversity of forests is also part of the drive behind a revitalized international movement to expand the planet’s protected areas. Momentum has been growing behind the “30x30” initiative:

Restoring nature is possible, achievable and necessary! But it will take a global effort from all nations. There must be:

- *increased spatial targets to protect or effectively conserve at least 30% of the planet - land and sea - by 2030,*
- *effective management of protected and conserved areas,*
- *increased public and private financing to ensure long-term management and local governance, and*
- *clear implementation mechanisms to put nature on a path to recovery by 2030.*²⁶

In Australia, the Federal and several state Governments have been funding the creation of a ‘Carbon + Biodiversity’ pilot offsets program under the Australian Carbon Credit Units (ACCUs) scheme overseen by the Clean Energy Regulator²⁷ known as the ACCU Plus scheme that provides carbon offsets and biodiversity co-benefits. By registering these carbon credits under the National Scheme they can count towards Australia’s mandatory Clean Energy Targets (CETs). Some of these involve pasture improvements and soil carbon farming only.

Urgently, importantly, and critically now, given the numerous tipping-point ecological-failure thresholds that have been identified due to damage already wrought, we need a product centric ‘Nature Positive’ approach to restoring the balance between humankind and the ecological systems on which our society and indeed all life on earth depend.

As far as the resource-based materiality of society is concerned, the concept of a Circular Economy represents a nascent and rapidly growing global movement that engages many National, State City,

²⁶ Ref: <https://www.hacfnatureandpeople.org/home>

²⁷ Ref: <https://www.cleanenergyregulator.gov.au/ERF>

and Local Government legislative responses, that recognise at least conceptually, the importance of natural systems in the context of modern manufacturing and consumption more broadly. Exploring how a major Circular Economy initiative that is influencing Government and NGOs across the globe defines and measures natural system benefits resulting from circular resource flows is now considered.

1.02 The Circular Economy Movement.

The Circular Economy (CE) movement seeks to create circular material flows within economies to for instance; reduce plastics pollution due to excess consumption, and overcome our inability to deal with its effects like; landfills full to overflowing, mounds of unused recyclates, and an almost unfettered flow of waste into the environment.

There are many proponents of CE including The European Parliament²⁸, The US EPA²⁹, William McDonough and Dr Michael Braungart, authors of numerous books on the topic including 'Upcycle'³⁰ (2013) and 'Cradle to Cradle'³¹ (2002), with probably the world's leading proponent of CE being the Ellen MacArthur Foundation (EMF). The EMF's 'Towards the Circular Economy, Volume 1, 2012'³² states:

Underpinned by a transition to renewable energy sources, the CE model builds economic, natural, and social capital.

EMF and others have concluded that a Circular Economy is based on three principles:

- Design out waste and pollution;
- Keep products and materials in use;
- **Regenerate natural systems** (this document's emphasis)³³.

The EMF has also developed a Material Circularity Indicator (MCI)¹⁷. The MCI was developed under the auspices of EMF by an international group of high level industry experts and focussing on products, measures the extent to which "linear materials flow has been minimised and '**restorative flow**' (again, this document's emphasis) maximised for its component materials, and how long and intensively it is used compared to a similar industry-average product".

The MCI is essentially constructed from a combination of three product characteristics:

1. mass V of **virgin raw material** used in manufacture;
2. mass W of **unrecoverable waste** that is attributed to the product; &
3. **utility factor** X that accounts for the length & intensity of product's use.

It is plain that these factors consider only materiality and resource use. There are no natural systems factor/s, or human or environmental toxicity factors considered in the MCI indicator whatsoever.

A perfect MCI circularity score of '1', in effect means the resources are circulating perfectly, and effectively assumes no damage was done in creating the resource in the beginning and ignores any more damage to nature that is done to keep those resources in use.

²⁸ Ref: https://ec.europa.eu/environment/ecoap/indicators/sustainable-resource-management_en

²⁹ Ref: <https://www.epa.gov/recyclingstrategy/what-circular-economy>

³⁰ Ref: <https://mcdonough.com/writings/the-upcycle/>

³¹ Ref: <https://mcdonough.com/cradle-to-cradle/>

³² Ref: <https://emf.thirdlight.com/link/x8ay372a3r11-k6775n>

³³ Ref: <https://emf.thirdlight.com/link/x8ay372a3r11-k6775n>

1.02.01 Dealing with the non-resource impacts of recycling

In reality, each cycle of re-manufacture, transporting, re-packaging, use and end of life collection and eventual re-processing, creates additional pollution damage and climate altering emissions on top of other impacts of extracting, concentrating, processing, and manufacturing the original raw materials and products.

Such effects include; land clearing based ecosystem and biodiversity loss, land and ocean acidification, marine and ocean eutrophication and resultant oxygen depleted ocean and riverine 'dead zones', not to mention the combined effects of these and toxic chemical pollution and fracking processes on air and water supplies and aquifers, that together result in literally hundreds of mass-death events in birds and fish and other marine species that results in literally hundreds of millions of animals dying around the world each year that go largely unreported, except for one religious group that see them as an 'End-times' indicator and as a result is seemingly the one organisation that is collating the bulk of the events. Some years ago, they stopped attempting to document every event as they were too numerous for their resources and now collect only major events, with 110 mass-death events recorded globally in the first nine months of 2022³⁴.

As a result of these non-resource related impacts that are still being generated during each resource re-use cycle (albeit admittedly to a lesser extent most likely), recycled products, especially those with geographically dispersed collection networks or specialist or high impact recovery or re-manufacturing processes, can sometimes come with higher embodied impacts than the original virgin materials.

To consider a reduction in resource use 'restorative' or more extreme still 'regenerative' is to misunderstand or misconstrue both these terms, and leads us towards the need to consider how we can truly create restorative and regenerative outcomes in a global CE context.

Before we can even begin to consider this 'how to' we need to properly define and understand what these terms mean and how they are being used currently to ensure the language being used in CE contexts is achieving the intended outcomes.

³⁴ Ref: <https://www.end-times-prophecy.org/animal-deaths-birds-fish-end-times.html>

1.03 Restorative and Regenerative terms and the Circular Economy

It is important to understand that regenerating and restoring natural systems is essential but doing 'Less bad' does not equal the 'Regenerating natural systems' or indeed the 'restorative flow' aims of CE used alternatively in different parts of EMF's materials. In fact, as can be seen in Figure 1. Below, the MCI directly and explicitly equates '100% material circularity' with '100% restorative' as can be seen from the 'Product Utility' graph below, which obviously is not the case if we take a natural systems perspective. Indeed, nothing could be further from the truth.

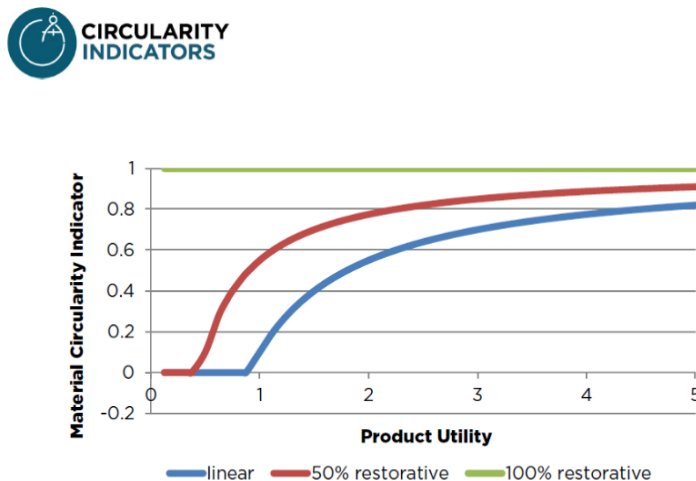


Figure 1: Chart showing impact of product utility on the Material Circularity Indicator

1.03.1 Restorative processes

Restorative processes need to:

- put more back than is taken out, whether that be minerals, water, oxygen, topsoil, etc.;
- remove existing pollution including climate damaging gases,
- take barren ground and re-wild it, i.e., improve biodiversity of all types, at all levels;
- facilitate natural systems recovery and be willing to stand back and allow nature to work.

1.03.2 Regenerative processes and scale

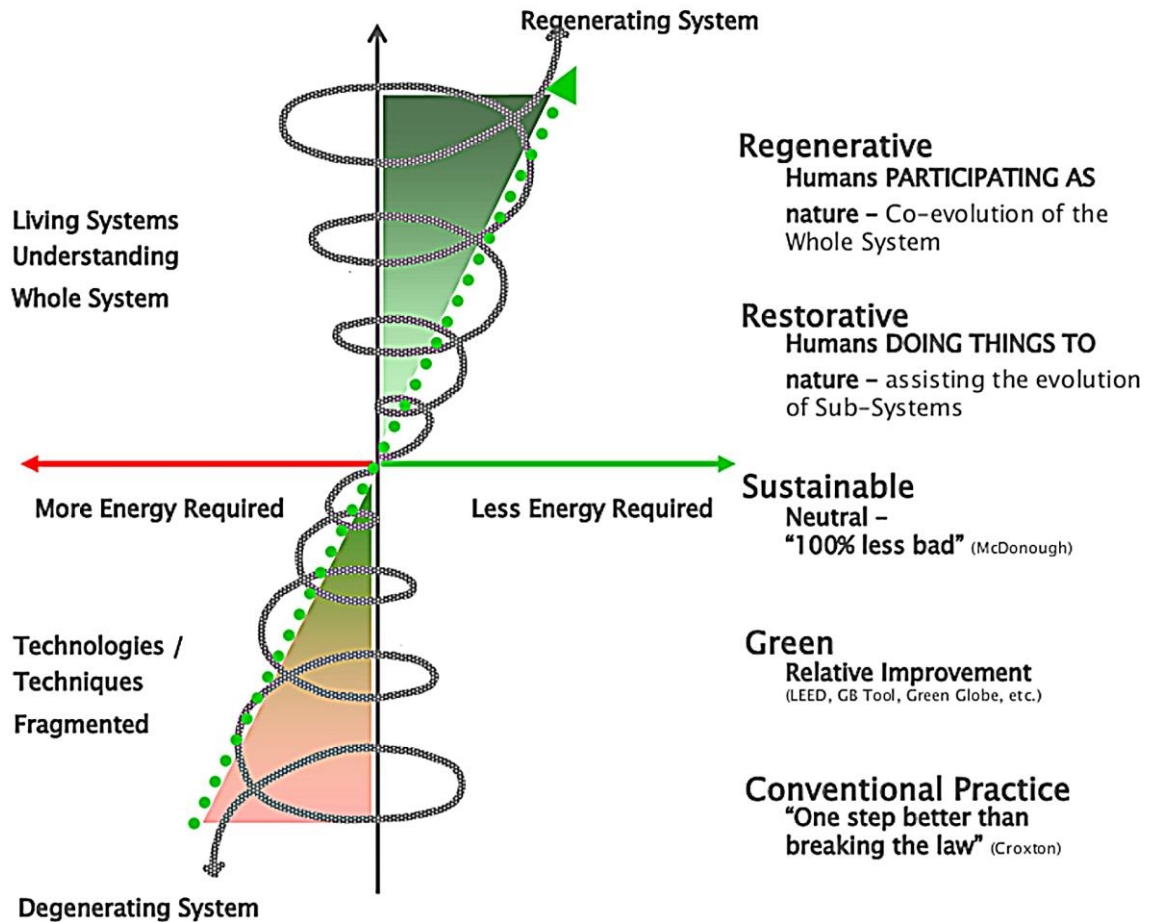
'Regeneration' takes restoration to a whole new level. According to regenerative design guru Bill Reed, Principal of US firm Regenesys, regenerative design uses "the health of ecological systems as a basis for design"³⁵ and requires not only difference in the level of scale of operation, but also the way we think (at a whole systems level) but also the way we relate to nature. Regeneration requires us to become one with nature, facilitating natural systems in a way that consider a different scale, typically bioregional, and frames and understands living system interrelationships in an integrated way. Regeneration therefore is something that is difficult to achieve at a product level alone.

³⁵ Ref: <https://www.tandfonline.com/doi/full/10.1080/09613210701475753>

Regeneration of the health of the humans and local earth systems is an interactive process – each supports the other in a mutually beneficial way. This awareness or consciousness of vital and viable interrelationship is the beginning of a whole system healing process.

Bill Reed, Regenesiis,

From 'Shifting from 'sustainability' to regeneration'.



Trajectory of Environmentally Responsible Design

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Figure 2: The Trajectory of Responsible Design : Source: Bill Reed reproduced with permission.

Place-based thinking is helpful in understanding how scale is important. Restoration can happen at a project level but regeneration is more about ecosystems as a whole, and typically requires bioregional or at least watershed level consideration, that usually extends beyond site boundaries. Trying to tie these processes back to a product level means engaging a different way of thinking and measuring, as well as engaging socially restorative processes simultaneously.

1.04 Changing current thinking

CE Thinking needs to be at a systems level and within the scope of the assessment measure all impacts and benefits of raw materials, products and systems. But the question is “how?” and if there are outstanding impacts, what can we do to ensure these can be measured, countered and converted actively and knowingly back into a Nature Positive outcome?

The Green Building Council of Australia has also used EMF’s MCI Tool to sculpt the Circular Economy Pilot credit in its 2022 Green Star® ‘Buildings’ rating tool. This credit also measures circularity by

considering only the mass of virgin raw materials used in manufacture; the unrecoverable waste that is attributed to the product; and the utility factor that accounts for the length & intensity of product's use.

Resource centric metrics are fine for looking purely at the effectiveness of material resource circularity. But this is far from the whole picture needed.

To move beyond the current parallel climate, biodiversity and ecosystems collapse crises, society needs to become Nature Positive and be able to capture and measure ALL impacts AND benefits systemically in meaningful, holistic, and scientific ways

Global GreenTag's view is that to move beyond the current parallel climate, biodiversity and ecosystems collapse crises, society needs to become Nature Positive and be able to capture and measure all impacts and benefits systemically in meaningful, holistic and scientific ways.

Typically when we think of how to measure impacts of products and projects, we think of using life cycle analysis or LCA or asking for an Environmental Product Declaration (EPD). EPDs are a summary LCA report prepared in accordance with specific EN and/or ISO standards and they convey the life cycle impact analysis outcomes of the study and other key parameters such as scope and boundaries of the study for use in project level LCA processes that aggregate the data of many EPDs into a 'whole building LCA' typically, and as in the case of GBCA's Green Star® rating tools and Carbon Positive Roadmap³⁶ to show by percentage calculation (targeting 10-30%) how the 'Upfront Carbon' impact of a building has been reduced compared to a benchmark building and standardised set of materials.

LCA typically considers impacts as negative impacts and only recently has begun the process of opening up to the need for carbon positive metrics and has begun measuring carbon sink potential of products and including building systems and its mechanical systems in the calculations.

But consider one of nature's most efficient machines; a tree. If you ask a typical LCA practitioner to produce an LCA of a tree they would find it difficult if not impossible using the metrics and indicators currently used within the industry. What about an EPD for a Tree? Prepared in accordance with ISO 14025³⁷ or EN15804³⁸? Impossible with the current indicators.

Successful Circular Economy processes will also have similar beneficial aspects resulting from e.g. upcycling, that need measuring, as do all natural cycles. Ecosystems are effectively a series of linked services between individual organisms and processes, given that 'nature has no waste' only inputs for the next organism or process that require benefit assessment to measure holistic outcomes.

³⁶ Ref: <https://new.gbca.org.au/news/gbca-news/upfront-conversation-about-upfront-carbon/>

³⁷ Ref: <https://www.iso.org/standard/38131.html>

³⁸ Ref: <https://www.en-standard.eu/csn-en-15804-a2-sustainability-of-construction-works-environmental-product-declarations-core-rules-for-the-product-category-of-construction-products/>



Figure 3: Assessment of natural ‘machines’ and systems need Life Cycle Benefit Analysis.

A different set of indicators is needed obviously. A set of Life Cycle Benefit Analysis (LCBA) indicators that incorporate climate braking (carbon sink) metrics would also include indicators like ‘water and oxygen generation’, ‘water and air cleansing’, ‘retained microbe, bird and bee, and native animal forage’ etc. Together LCA and LCBA can adequately measure and report on not just a natural ‘machine’ like a tree, but also the environment impacts and benefits of systemic cycling and upcycling of materials.

That said, even together they do not currently articulate the specific circularity of materials in isolation (this may change in future). While LCA is really good at measuring systemic and generalised impacts, it uses both highly specialised and very broad indicators that in some instances are too broad for practical use in CE product assessment, e.g. within current LCA practice, the impacts of toxicity on human health, is measured in ‘Disability Adjusted Life Years’ or DALYs.

DALYs are a measure that equates toxicity impacts of only the major chemicals in a product, to the carcinogenic impacts of a single proxy chemical. DALYs are so broad as to almost miss the point and in regulating toxics in ingredient ‘circles’ are therefore, largely, effectively useless.

How does one equate compounds that cause cancer to those that don’t, but are still variously; genetics altering, endocrine disrupting, or create in-utero effects on the unborn? Whatsmore, the typical ‘cut-off’ figure for LCA is 1.0%/ingredient to an aggregate maximum of 5%¹¹, (considered the point at which material changes are unlikely to affect the outcome).

How does one deal with products that contain highly toxic ‘Substances of Very High Concern’ (SVHCs), ‘Persistent Organic Pollutants’ (POPs) or other compounds that can kill or irrevocably alter lives at exposure levels well below 1.0% if they have been excluded from the study under ‘cut-off’ rules to begin with?

A CE requires products made with biological components to be cycled back into another biological cycle and this is not possible if even the smallest quantities of some of these SVHCs, POPs or other problematic compounds are included above 0.01% or even 0.001% levels.

That is why most ecolabels ban all such ingredients at any levels above their declaration thresholds. LCA is also not so good at measuring impacts on biodiversity, for the same reasons.

Moving beyond the limitations of current mainstream practices requires a different level of engagement on multiple issues simultaneously, individually and yet integrated.

This NaturePositive+ Standard and its resultant NaturePositive+ Declaration (NP+D) encompass these needs and generates not just simple tiered rating certification and marks, but deep, detailed transparency simultaneously. These options can be engaged as needed by users of all kinds. As well as delivering biodiversity, toxicity and resource benefits, products and supply chains need also to assess and measure ethical supply chain outcomes.

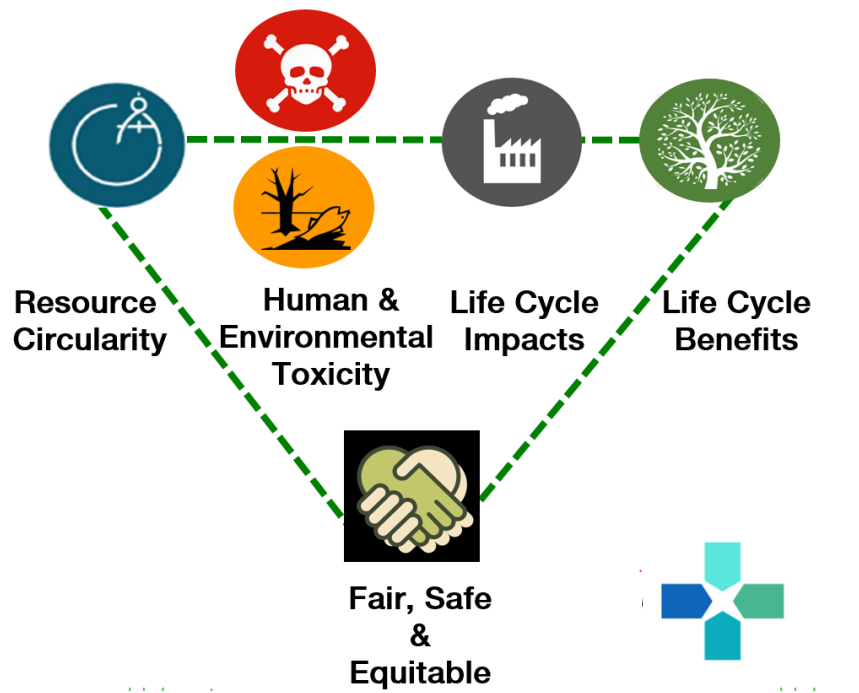


Figure 4: Metrics required to take Circularity beyond resources to NaturePositive+.

1.05 Science-based targets

The international Science-based Targets (SBTs) program seeks to employ measurable, actionable, and time-bound objectives, based on the best available science, that allow actors to align with planetary boundaries and societal sustainability goals³⁹.

The principles of science based metrics and targets is a fundamental underlying principle of the NaturePositive+ Standard and Declaration.

³⁹ IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. <https://doi.org/10.5281/zenodo.3831673>

2.00 NP⁺D TECHNICAL STANDARDS OVERVIEW

2.01 Scope

This is an overview of the Standard for the operation of the Global GreenTag Nature Positive (beyond circular economy) Declaration (NP⁺D). A multi-criteria assessment program, an NP⁺D holds that measuring products within a CE context requires a broader scope of, and more refined and precise, set of indicators that can measure detailed human- and eco-toxicity and other impacts, as well as Nature Positive and Material Circularity benefits and well as impact outcomes.

2.02 Document Abstract

This Standard specifies environmental, human health and ethical supply chain performance requirements in the awarding of Global GreenTag Nature Positive Declarations (NP⁺Ds). It operates and complies with the Standards referenced below, but specifically:

- i. ISO 14024 “Environmental labels and declarations – Guiding Principles”; and
- ii. ISO 17065 “Conformance Assessment Bodies”.

All criteria are objective, reasonable and verifiable.

2.03 Operation

This Standard operates on the same Global GreenTag General Program Rules v4.1⁺ as the Global GreenTag^{Cert™} Certification Program, and as referenced in the Global GreenTag Standards e.g. the Global GreenTag International Standard v4.0, in particular:

- i. Quality Statement and assessment under the Global GreenTag International ISO 9001:2015 Quality Management System;
- ii. Referenced Standards;
- iii. Terms and Definitions;
- iv. Section 1: GreenTag Program Operation;
- v. Section 2.0: GreenTag^{Cert™} Program;
- vi. Section 3.0: GreenTag^{Cert™} Program Operation – relevant sections therein.

2.04 Scope

The scope of the LCA and LCBA metrics used to determine the NaturePositive⁺ assessment is Cradle to Fate. The Scope of EPD within is according to EN 15804 +A2, i.e., ‘Cradle to Gate’ (raw materials through, processing, transport, manufacture and packaging, plus ‘End of Life options’.

2.04.01 Prerequisite: ‘GreenWash’ Ban

Applicant Manufacturer/Assemblers and Supplier public claims on products’ environmental health and ethical supply chain performance must be verified as compliant with ISO 14021 ‘Environmental Labels and Declarations - Self-Declared Environmental Claims’ (Type II Environmental Labelling) requirements.

Applicants must rectify any claims determined by GreenTag Assessors as non-compliant from any website or marketing/communications channels prior to certification being issued.

2.05 Indicators

The holistic measurement of NaturePositive (beyond Circular Economy) Declaration (NP⁺D) outcomes necessitates a combination of environmental and social indicators including:

- **Detailed Environmental Toxicity Hazard:** that includes risk assessment and allows for separate assessment of natural and technical cycle materials;
- **Material Circularity:** such as the Ellen MacArthur Foundation's MCI tool;
- **Embedded Water:** Water use and water re-generation;
- **Biodiversity Impact Assessment:** physical biodiversity impacts & risk assessment;
- **Embedded Carbon:** Climate Impact/Climate Positive including carbon sink and % savings indicators;
- **Life Cycle Analysis:** TRACI based ReCiPE method with single indicator based on EU PEF weightings;
- **Life Cycle Benefit Analysis:** ReCiPE method an single indicator based on EU PEF weightings and Evah Institute LCBA indicators; and
- **Detailed Human Toxicity Hazard:** that includes risk assessment;
- **Ethical Supply Chains:** ILO Compliance to Tier 2;
- **Modern Slavery Risks:** in product specific supply chains.
- **Innovation:** Demonstrated innovation in policy or product outcomes in one or more of the above categories beyond others in the same product category.

Together these metrics reflect the full scope of the measures need to ensure that the heavy push towards CE translates into metrics that support Designers and Investors in a sustainable future to identify and choose more Nature Positive products and not just those supporting reduced recycling costs and more efficient re-use of waste materials, and encourage those who attempt to do things better.

The data behind by these various metrics already has major precedent in that it is:

- a) largely the same data made available to Global GreenTag by manufacturers seeking one or other of the existing certifications or declarations; or
- b) derived from that data by the Global GreenTag team more broadly.

Existing certifications like LCARate™, GreenRate™ and PHDs already incorporate detailed human- and eco-toxicity assessment, with PHDS undertaking even 'In Use' assessments. LCARate™ already assesses physical biodiversity impact risk assessment, and GreenTag EN15804 EPDs already generate LCA and Climate impacts (as does CarbonRATE™), as well as LCBA benefit data. LCARate™ and GreenRate™ provide ILO compliance to Tier 2 supplier level and GreenTag's Modern Slavery Declarations (MSDs) provide a product level MS risk assessment report.

That said, apart from PHDs, MSDs and EPDs the Ecolabel certifications, although ratings, are based on internalised data, not currently transparently reported. The Nature Positive (Circular Economy) Declaration (NP⁺D) adds new CE metric in the form of a modified score based on the MCI tool to the mix and then provides full transparency to the data behind the certifications. In doing so the NP⁺D is responding to increasing demands for more transparent information to be made available for use by design, construction and ESG teams across the entire economy.

In addition to these major indicators, a number of stand-alone indicators that various rating tools, agency programs or company ESG programs focus on as single indicators, will be provided that are extracted from the data provided or derived from the manufacture and LCA/LCBA data including:

- i. Post-consumer, pre-consumer recycled and bio-based content;

- ii. Total water footprint including water reclaimed or regenerated and rainwater usage;
- iii. Energy source- fossil vs renewable
- iv. Nature Positive indicators - impact, benefit and bio-complex offsets.

2.06 Weighting of criteria

2.06.1 Main criteria

Weightings are an essential aspect of an easy to understand and attribute EcoPoint-score based rating system for Global GreenTag’s well recognised approach to Type 1 (Third Party) ecolabelling. The weightings in Table 1 above, are loosely based on those LCA Damage Category Weightings shown below but have been adapted to make allowance for the inclusion of the additional categories, i.e. Biodiversity (physical), LCA and LCBA indicators, and ILO Compliant Supply Chains together with Modern Slavery Risk.

Table 1 below shows the indicators intended to be shown within the NP*Ds and the source of the data and process as used in its current form.

	Assessment Category	Source of Data and Process	Weighting %	Impact (-ve) or Benefit (+ve)
1	Material Circularity	Ellen MacArthur Foundation’s Material Circularity Indicator tool score with direct input from manufacturer data	15	+ ve
2a	Eco-toxicity	GreenTag’s ESCAP & GCAP Chemical Cautionary Assessment Processes and Scoring (Common to GreenRate, LCARate and Product Health Declarations)	15	-/+ ve
2b	Human-toxicity	GreenTag’s ESCAP & GCAP Chemical Cautionary Assessment Processes and Scoring (Common to GreenRate, LCARate and Product Health Declarations)	10	-/+ ve
3	Biodiversity	Physical biodiversity impact risk analysis from LCARate Process and Eco-point score	10	-/+ ve
4	Climate	GreenTag/Evah LCA and LCBA from category 6 & 7 data	20	-/+ ve
5a	‘Benefit to impact Ratio’: Life Cycle Impacts	GreenTag/Evah LCA via EPD	8	- ve
5b	‘Benefit to impact Ratio’: Life Cycle Benefits	GreenTag/Evah LCBA via EPD	8	+ ve
6	Water footprint	Water consumed vs water generated from Category 6 & 7 data	4	

7a	ILO Compliance	GreenRate/LCARate 'Compliant Supply Chain' criteria	5	+ ve
7b	Modern Slavery	MSD Assessment and criteria	5	-ve or +ve
			100	
8a	Social Benefit Outcomes	Applicant reporting & proposal		Up to 50 bonus points total when considered together
8b	Indigenous Engagement	Applicant reporting & proposal		
9	Innovation	Applicant reporting & proposal		Up to 10 bonus points

Table 1: Assessment Category and Source of Data and Process

2.06.2 LCA midpoint data weighting

Several weighting systems have existing over time within the LCA industry. The main indicators have been reviewed for the purposes of the GreenTag NP⁺D and the key results and reasons for the adoption or exclusion of each indicator are presented below.

The Pré Consultants' 'Eco-Indicator 99' does not connect 'Climate Damage' impact indicators to the 'Environmental Damage' end point indicator at all. Given the critical importance of this impact it is excluded from consideration.

The later ReCiPE⁴⁰ (2016) method developed by PRé Consultants, Radboud Universiteit Nijmegen and CE Delft, does connect 'Global Warming' mid-point impact category to key human and most environment damage pathways such as 'Damage to freshwater species' and 'Damage to Terrestrial Species' but fails to connect it to 'Damage to Marine Species'. Given the critical impact of increasing water temperatures on increasing ocean acidity and consequent significant impacts on marine biota this seems strange and inappropriate to consider 'Marine eco-toxicity' and 'Marine eutrophication' as the only environment impacts associated with oceans. ReCiPE does not provide a single indicator like Eco Indicator 99 does.

The EU Product Environmental Footprint⁴¹ (PEF) weightings, make all the required climate mid-point category to end-point connections, and provides two set of weighting options, those including or excluding toxicity consideration. The set chosen for the GreenTag 'NP⁺D LCA Indicator' (and for the 'NP⁺D LCBA Indicator') shown in Table 2. below, excludes two toxicity mid- point categories representing total weightings of only 3.97%.

The benefit of excluding the toxicity factors from the weighting is that the NP⁺D process described herein more accurately and separately accounts for human- and eco-toxicity via the detailed assessment process incorporated within the pre-existing GreenTag ESCAP, GCAP and PHD/HealthRATE processes, the outcomes of which are represented in Categories 1. and 2., in Table 1. above.

Mid-point Damage Categories	Final weighting factors (%)
------------------------------------	------------------------------------

⁴⁰ <https://www.rivm.nl/en/life-cycle-assessment-lca/downloads>

⁴¹ Sala S., Cerutti A.K., Pant R., *Development of a weighting approach for the Environmental Footprint*, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-68042-7, EUR 28562, doi 10.2760/945290

Climate change	22.19
Ozone depletion	6.75
Particulate matter	9.54
Ionizing radiation	5.37
Photochemical ozone formation	5.10
Acidification	6.64
Eutrophication, terrestrial	3.91
Eutrophication, freshwater	2.95
Eutrophication, marine	3.12
Land use	8.42
Water use	9.03
Resource use, mineral and metals	8.08
Resource use, fossils	8.92

The weightings set was derived via consultation of the original authors with the London School of Economics and Political Science and associated partners, over 2400 lay and nearly 520 LCA experts from 48 countries with input from the UNEP-SETAC working group on normalisation and weighting, and now formally used to underpin the PEF process in the EU.

Table 2. The Final PEF Weighting Set, excluding toxicity-related impact categories.

2.06.3 Double counting

There is acknowledged double counting between the weightings shown in Table 1. And Table 2 above given a number of the individual assessment categories are contained within both sets of criteria. The weightings shown in Table 1 are intended to approximately reflect the overall PEF weightings shown in Table 2 after (effectively) double counting within the LCA process has been taken into account.

2.06.4 Overall Scoring Methodology

The Scoring of NaturePositive+ Certification shown graphically on the NP+Ds is based on a percentage scale;

- i. Negative 100% being the equivalent of the worst possible environmental, health or social outcome within the product category, with a negative score typically being reflective of purely the current status of the products' production impacts without carbon and biodiversity co-benefit offsetting;
- ii. Zero, being neutral, 'Net Zero' in effect from both carbon and biodiversity point of view;
- iii. Positive 100% being 100% Nature Positive (ie the total equivalent of its impacts being offset twice by benefits e.g. Climate Positive, Biodiversity Positive, etc. Multiples of 100% e.g., 200% or 300% mean that several multiples of benefits have been able to be created beyond the original impacts generated by the product's original manufacture.

Each section score is weighted, added together with all other section scores and an average score is calculated.

2.06.04.1 *Circularity*

An MCI score of;

- i. 0 is normalised against an NP+D score of: -100%;
- ii. 1 is normalised against an NP+D score of: +100%;

Together these make up 90% of the overall Circularity score with 10% of the score attributed to:

- iii. Existence of a Product Stewardship scheme - 2% potential
- iv. Evidence of the scheme producing 'reasonable' circularity outcomes- 5% potential
- v. Evidence of open supply of repair manuals where relevant - 2% potential
- vi. Evidence of minimum 10 years provision of spare parts where relevant - 3% potential.

Where any of the above items iii-vi, are not relevant, the relevant percentage is added back into the MCI potential score.

2.06.04.2 *Human Health & Environmental Toxicity Risk Assessments*

GreenTag Cautionary Assessment Processes (CAP) within GreenRate, LCARate and Product Health Declaration (PHD) certification services use one of:

- ESCAP for Buildings, Interiors, Infrastructure, Paper and Packaging, Textiles etc.;
- GCAP-CP for Cleaning Products; and
- GCAP-PP for Personal Products;

risk assessment processes. Each of these processes are similar in that they require 100% declaration of ingredients, ingredient function and any REACH or GHS Hazard Statements (H-Statements) ascribed to them down to 0.01% or 100ppm disclosure threshold and are exposure and hazard based risk assessment processes that are based on the No Observable Adverse Effect Level (NOAEL) principle used in the UN Globally Harmonised System (GHS)⁴², REACH and other chemical hazard risk assessment systems.

Green Building Council of Australia's (GBCA) Green Star[®] rating tool recognises these processes as integral processes within Global GreenTag's GreenRate[™], LCARate[™] and Product Health Declarations (PHDs) certification programs.

While each has different classification of how these H-Statement attached ingredients are to be dealt with given the different exposure and proximity characteristics of each standard (relevant to both workers and users independently), they have a common underpin in that they each ban outright common classes of compounds classified by REACH/GHS or other major National Government bodies such as US EPA as:

- i. **Persistent organic pollutants** (POPs) nominated in the Stockholm Convention;
- ii. **Substances of Very High Concern** (SVHCs), Authorised and Candidate Lists;
- iii. **Industrial & Pesticide Compounds** restricted by Annex III of the Rotterdam Convention;
- iv. **Cosmetics compounds** included in Annex II of EN 1223:2009 "List of substances which must not form part of the composition of cosmetics" (Ref: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009R1223>);

⁴² Ref: http://www.unece.org/trans/danger/publi/ghs/ghs_rev02/02files_e.htm

- v. **Cosmetics** ‘Conditionally Excluded chemicals’ listed in Annex III EN 1223:2009’ are banned (Ref: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009R1223>)
- vi. **Ozone Depleting Substances** – Any chemicals recognized by the Montreal Protocol (Annex A, B, C or E) as ozone-depleting substances (<http://ozone.unep.org/en/handbook-montreal-protocol-substances-deplete-ozone-layer/44>).
- vii. **Refrigerants** with an ODP value higher than 0 or a GWP potential higher than 10;
- viii. **Substances which must not form part of the composition of cosmetics:** under Annex II of EN 1223:2009
- ix. **Subject to use and exposure conditions with levels above 0.01%, 0.1% or 1.0%** depending on context (e.g. building product (contact or non-contact), personal product (wash-off, leave-on, mouth, eye or ear treatment) etc.:
 - a. IARC Carcinogen Categories: 1A, 1B;
 - b. Mutagenic Categories: 1A, 1B, 2;
 - c. Reproductive Toxicants: 1A, 1B, 2, Lact.
 - d. Endocrine Disrupting Chemicals: 1, 2;
- x. **A range of other product category and use context specific compounds** and chemical categories based on specific GHS H-Statements varying according to the different Australian Consumer and Competition Commission (ACCC) Certification Mark process approved Global GreenTag Standards.

This process also restricts the levels of other compounds depending on their exposure and hazard risk assessment process outcomes.

Specifically, this indicator relates to all compounds listed in the GHS, EU REACH, US EPA and the ECHA chemical portal with Hazard Statements indicating environmental damage.

Within each of these GreenTag Standards there are also product category specific lists of banned ingredients that also apply.

There is an established scoring structure and process in these existing certifications that is recalibrated for NP⁺Ds to exemplify that any GreenTag certified product at any level has taken significant steps towards mitigating and eliminating toxicity risks to workers, end users and the environment as follows:

1. Building, Infrastructure, Interior, Packaging, Paper & Textile Products:

ESCAP Toxicity Assessment								
% Ingredients triggering actions post ESCAP	No Level 1 or 2 ESCAP Ingredients	Lvl.1<0.1% & Lvl. 2<1% ESCAP Ingredients	No Concerns or Comments Post ESCAP	Lvl.1<0.5% & Lvl.2<5% but Issue of Concern Post ESCAP	Lvl.1≥0.5% & Lvl.2≥5% with Issue of Concern Post ESCAP	Lvl.1<1% & Lvl.2<10% with Red Light Comment Post ESCAP	Lvl.1≥1% & Lvl.2≥10% with Red Light Comment Post ESCAP	Red Light Exclusion Post ESCAP
Score	0	-5	-10	-20	-30	-40	-50	Excluded

Table 3. Building, Interiors and Infrastructure related ESCAP score outcomes

2. Cleaning Products

GCAP-CP Toxicity Assessment for a product								
% Ingredients triggering actions post GCAP - CP	0%	<10%	≥10%	>0.1% - ≤1%	>1%	>0.01% - ≤1%	>1%	Any %
	triggering any actions post GCAP-CP	Low Risk Substance action post GCAP-CP	Low Risk Substance action post GCAP-CP	IOC action post GCAP-CP	IOC action post GCAP-CP	Red Light Comment action post GCAP-CP	Red Light Comment action post GCAP-CP	Red Light Exclusion Post GCAP-CP
Score %	0	-5	-10	-20	-30	-40	-50	Excluded

Table 4. Cleaning Product related GCAP-CP score outcomes

3. Personal Products

GCAP-PP Toxicity Assessment								
% Ingredients triggering actions post GCAP - PP	0%	<10%	≥10%	>0.1% - ≤1%	>1%	>0.01% - ≤1%	>1%	Any %
	triggering any actions post GCAP-PP	Low Risk Substance action post GCAP-PP	Low Risk Substance action post GCAP-PP	IOC action post GCAP-PP	IOC action post GCAP-PP	Red Light Comment action post GCAP-PP	Red Light Comment action post GCAP-PP	Red Light Exclusion Post GCAP-PP
Score %	0	-5	-10	-20	-30	-40	-50	Excluded

Table 5. Personal Product related GCAP-PP score outcomes

4. Positive Products

Products that actively contribute to increasing healthiness or decreasing existing environmental eco-toxicity ongoing and beyond their initial impacts can score above zero(0) with the scoring multiple based on benefits derived annually compared to their original score.

Scoring for Assessment Categories 8a and 8b: the above scores are applied individually to both categories as relevant to each standard.

Products are also potentially restricted/ elevated by the following performance criteria to the nominated recognition tiers below:

- i. **Technical cycle** circular products:
 - a. **PlatinumNP⁺**: must be free of compounds with H-Statements that restrict recycling pathways or context;
 - b. **GoldNP⁺**: require specific recycling context to enable safe re-use; e.g., vinyl recyclates that contains DEHP plasticiser from hospital waste used in flooring as an enclosed middle backing layer;
 - c. **SilverNP⁺**: requires unique equipment or processing conditions to enable safe recycling or re-use available to specific manufacturers only;
 - d. **BronzeNP⁺**: safe recycling or re-use is limited to specific narrow uses or contexts.

- ii. **Biological Cycle** circular products, components or elements offered for recycling:
 - a. **PlatinumNP⁺**: must be free of compounds with H-Statements that would be problematic for natural organisms during organic breakdown;
 - b. **GoldNP⁺**: requires specific recycling or processing conditions to be free of compounds that are problematic for natural organisms during organic breakdown, e.g., require anaerobic breakdown before release into natural ecosystems such as orange oil;
 - c. **SilverNP⁺**: requires engineered or specific natural organisms to be able to be broken down into biologically safe and useful compounds;
 - d. **BronzeNP⁺**: contains compounds that restrict recycling to specific, limited pathways.

2.06.04.3 Biodiversity

i. **Timber based products**

This Assessment Criteria is aimed at ensuring the biodiversity issues relating to the extraction of timber are assessed via a proxy measure i.e. Certification. Matrix 2 is used for timber based products.

		% of Certified Timber
Rating Scheme Recognition	FSC 100% Chain of Custody (CoC)	-5
	FSC Mix COC, PEFC/Responsible Wood COC, Mixed% CoC (FSC/PEFC/Responsible Wood)	-10
	FSC Controlled Wood	-15
	Uncertified / Non COC Plantation Wood Certified	-80
	Legally sourced, CoC uncertified Wood	-100
	CoC Uncertified wood from remnant native forests	Excluded from Certification

Matrix 2: Timber, timber-based or timber containing product assessment scores

Global GreenTag has a standardized method to calculate the score of timber-based products. When there is more than one wood type, a pro rata mathematical proportional method is applied to calculate the score.

Controlled wood is defined as ‘controlled to avoid sourcing illegally harvested wood, wood harvested in violation of traditional and civil rights, wood harvested in forests where high conservation values are threatened by management activities, wood harvested in forests being converted to plantations or non-forest use and wood from forests in which genetically modified trees are planted’ (FSC-STD-30-010 V2-1 EN 2006).

Note: As for high conservation value forest sourced wood, even if it comes with legal certificate, Global GreenTag reserves the right to exclude it from the certification subject Global GreenTag’s own investigation.

ii. Non timber based products

This Assessment Criteria is aimed at the physical biodiversity issues relating to Non-timber based products and components extraction and disposition. Matrix 3 below is used for predominantly non timber based products.

		Extent of Biodiversity Impact				
		Site	Local	Regional	National	Global
Significance of Biodiversity impact	Insignificant	0		-25		
	Minor	-25			-50	
	Significant	-50	-75			
	Major	-75	-100			

Matrix 3: Non Timber-based product assessment scores

2.06.04.4 Climate

Climate or embodied carbon scores are directly calculated based on the direct carbon emissions of the product from the LCA outputs as a percentage ratio based on GreenTag's CarbonRATE™ process. This calculates:

- | | | |
|------|------------------|-----------|
| i. | Percentage Saved | -100 – 1% |
| ii. | Carbon Net | 0 |
| iii. | Climate Positive | 1-100+% |

Each measured against a 5 year maximum benchmark carbon emission reduction including carbon offsets calculated using weighting reductions in 2.08 below.

2.06.04.5 Benefit to Impact Ratio

The Assessment is undertaken using two different eco-indicators:

- The Impact indicator is based on CML, IPCC and other characterisation factors applied in TRACI 2018⁴³ and ReCiPE methods to model midpoint point and end point indicators. Scoring employs EU PEF weightings shown in Table 2 to generate an overall impact ecopoint score. This score is normalised to an average global citizen's annual environmental footprint considering safe operating space within planetary boundaries using data derived from the PEF weightings and normalisation study⁴⁴.

⁴³ Ref: <https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci>

⁴⁴ Sala S., Cerutti A.K., Pant R., *Development of a weighting approach for the Environmental Footprint*, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-68042-7, EUR 28562, doi 10.2760/945290

- ii. A Benefits indicator is created from Evah LCBA methodology and like methods applied based on benefit rather than impact categories.

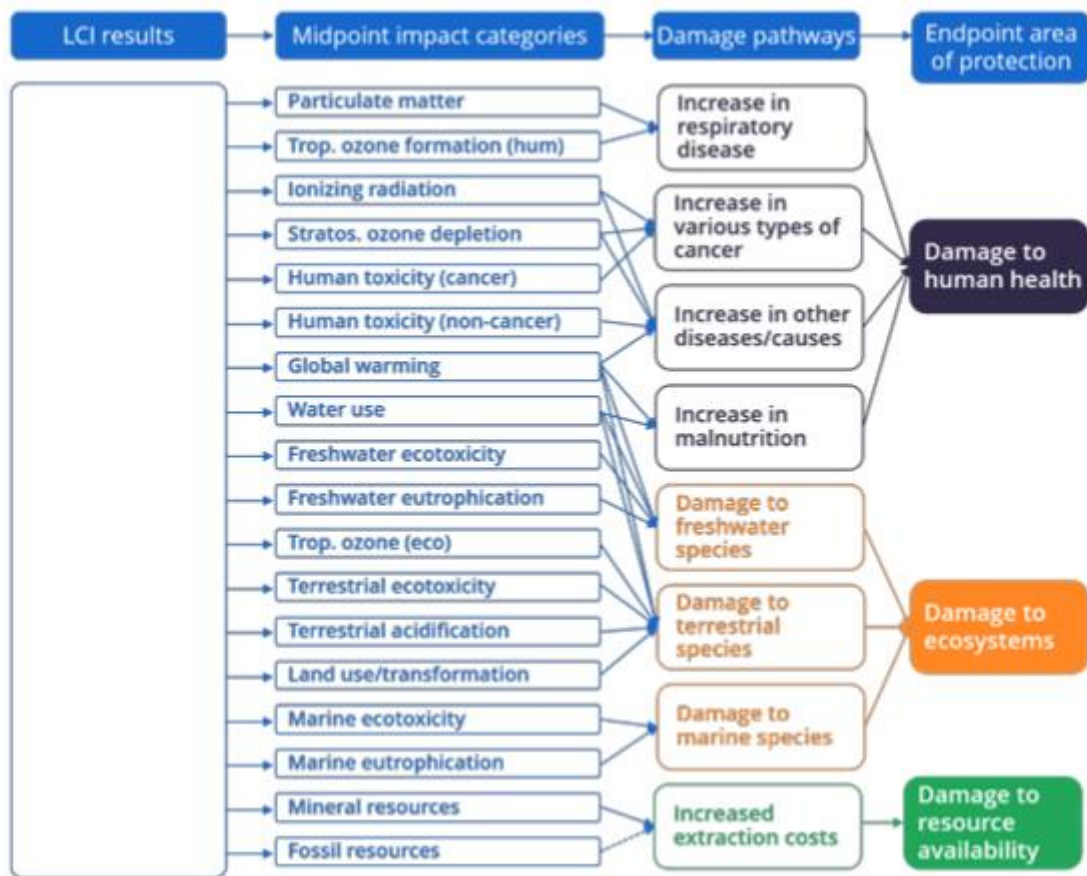


Figure 5: Overview of the midpoint impact categories covered in the ReCiPe 2016 method and their relation to the endpoint areas of protection⁴⁵

The ‘benefit to impact’ ratio is derived by comparing the single indicators derived from LCA and LCBA processes mentioned in section 2.06.2 above.

$$\text{Impact/Benefit Score} = \left[\frac{\text{NP}^{\text{D}} \text{ LCBA Indicator}}{\text{NP}^{\text{D}} \text{ LCA Indicator}} \times \frac{100}{1} \right] - 100$$

Example:

NP^D LCBA = 0.67

NP^D LCA = 0.42

Benefit Score is therefore = +59.5

The following diagram illustrates this concept and relates the outcomes to current concepts as they are discussed in topical literature, green rating schemes and academic discussion.

⁴⁵ Ref: <https://ec.europa.eu/environment/biodiversity/business/assets/pdf/tool-descriptions/RECiPe%20and%20BioScope%20summary%20description.pdf>

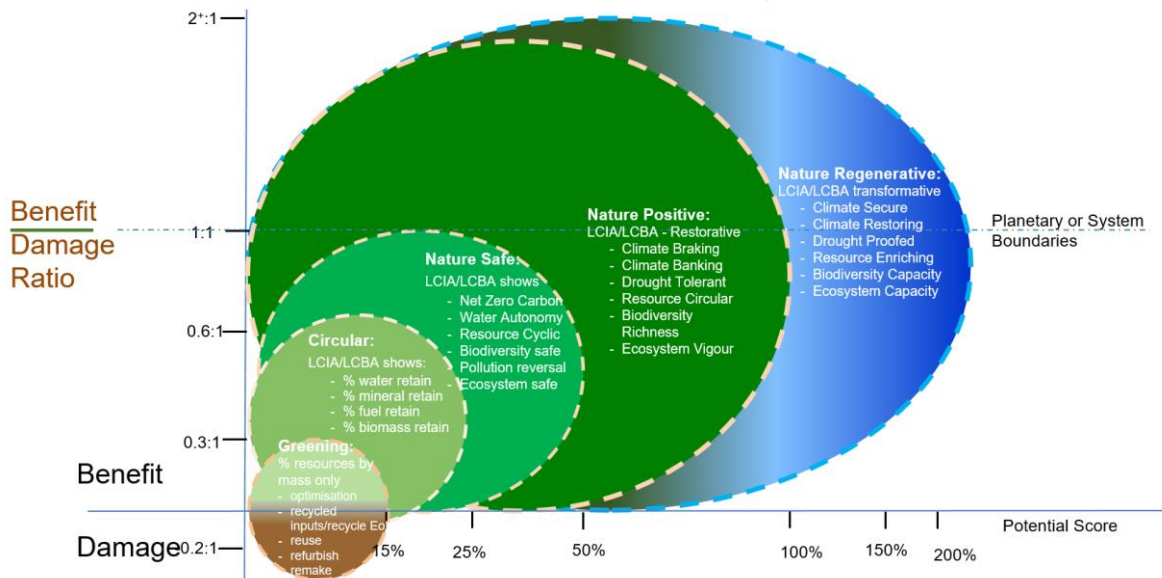


Figure 4: Illustrating the Benefit to Damage Ratio relevance to current terminology & concepts

2.06.04.6 Water Footprint

Water footprint scores are directly calculated based on the direct water use, recovery or regeneration/upcycling of the product from the LCA outputs as percentages:

- | | | |
|------|---|-----------|
| i. | Percentage Saved- water grid or groundwater reduction | -100 – 1% |
| ii. | Water Net Zero- no water grid or ground water inputs | 0 |
| iii. | Water Positive- recovering and upcycling water from non-potable sources | 1-100+% |

Each measured against a 5 year maximum benchmark water use reduction and volumes of water recovered, up-cycled from non-potable water sources and balanced against non-potable water leaving the manufacturing site/s.

2.06.04.7 ILO Compliance and Modern Slavery Risk Assessments

Legal Compliance: For any certification levels, Applicants and Manufacturers/Assemblers are required to demonstrate compliance with relevant OH&S and ILO Conventions required by the legislation of the country they are manufactured in.

ILO Compliance: This level relates to Tier 1 (manufacturer) and Tier 2 (direct supply chain) assessment and is derived from GreenTag’s GreenRate and LCARate existing processes.

Compliant Supply Chain: Applicants and Tier 1 suppliers are required to demonstrate social compliance to International Labour Organisation (ILO) conventions (at a minimum):

- Freedom of Association and Collective Bargaining (Conventions 87 and 98);
- Elimination of Forced and Compulsory Labour (Conventions 29 and 105);
- Worst Forms of Child Labour (Convention 182)
- Minimum Age (Convention 138)
- Elimination of Discrimination in respect of employment and occupation (Conventions 100 and 111);
- Occupational Safety and Health (Convention 155) and its accompanying Recommendation No 164; and
- Occupational Health Services (Convention 161) and its accompanying Recommendation No 171

SA 8000 or ISO 26000: Demonstrate whole-of-enterprise compliance with SA 8000 or ISO 26000 Social Responsibility.

Legal OH&S & ILO Compliance in country of manufacture	Mandatory
Ethical Labour Practice: ILO Compliant Supply Chain ILO Compliant Supply Chain – Third Party Certified	-50 -40
SA 8000 or ISO 26000 Compliance	-20
Social Restorative Program: (Positive social outcomes beyond direct employment benefits required)	up to +50
Ecological Restorative Program: (Awarded only if LCA/LCBA is not present in the assessment)	up to +50
Local Socially Beneficial Procurement: Indigenous and Forest Community engagement is restoration and ongoing management.	up to +50

Table 6: Tier 1 and Tier 2 ILO Compliance & Ethical Program Scores

Modern Slavery Risk Assessment: uses the GreenTag Modern Slavery Declaration⁴⁶ (MSD) existing processes to research, assess and determine the risk of modern slavery in a product’s entire supply chain using a combination of individual data quality and assessed risk scores, both declared and results reported transparently. Results are scored in accordance with Table 7 below:

⁴⁶ Ref: <https://www.globalgreentag.com/get/files/963/msd-guidance-document.pdf>

Optimal Performance: Supplier has really strong policies in place to avoid Modern Slavery and reports transparently on any non-conformances. Suppliers have demonstrated history of strong positive performance outcomes achieved. Improvement on a previously non-compliant situation or the absence of negative impacts are not regarded as positive impacts.	0
Low Risk: Supplier has strong policies in place to avoid Modern Slavery and reports transparently on any non-conformances. Improvement on a previously non-compliant situation or the absence of negative impacts are not regarded as positive impacts.	-10
Compliance: Supplier have no conflicting policies related to Modern Slavery. Suppliers are compliant to local laws and international ILO core 8 conventions. Any identified 'Modern Slavery non-conformances'* has been actioned and are committed to put stronger policies in place.	-20
Medium Risk: Suppliers have commitment to avoid Modern Slavery. The identified local law non-conformances has been actioned and are committed to put stronger policies in place. The policies are improving.	-50
High Risk: Suppliers identified with conflicting Modern Slavery policies in place and has high risk of potential MS activities or identified MS activities without any further actions to prevent it. Identified non-conformance to local law or MS without any actions to improve the situation.	-100
Undetermined Risk (Risk Indeterminable): No or insufficient data to conclusively determine Modern Slavery	-100

*Countries might not have ratified all core 8 ILO conventions and hence are not local laws. They might be in compliance with local law but may fall short on MS requirement. The above table has been adapted from Product Social Impact Assessment Methodology 2018⁴⁷.

Table 7: Full Supply Chain Ethical Labour Program Scores

2.06.04.8 Innovation

Innovation is to be demonstrated by Applicant proposition in report format presenting the aspects seeking recognition for innovation. The report should clearly identify and provide metrics demonstrating leadership beyond that current in the marketplace, manufacturing, social outcomes and ethical supply chain management.

Score: a bonus 10 positive points are available for recognised Innovation initiatives. Scoring and recognition are at the discretion of the GreenTag Program Director after recommendation by responsible Assessment Team member.

⁴⁷ Ref: <https://www.social-value-initiative.org/handbook>

2.07 Impacts that remain after CE success

Once impacts have been quantified and net outcomes identified, there is a need to think beyond the typical renewable-energy style of ‘Carbon Offsets’ we have known to date, because to move products into the realm of ‘nature positive’ outcomes, carbon offsets need to also be linked to nature-based solutions (NbS), i.e., bioregional scale biodiversity regeneration initiatives as the only current practical and meaningful way to mitigate pre-existing and new net-impacts.

Unfortunately, some carbon offsets have been the subject of valid criticism and with good reason. Renewable energy is now the cheapest form of new electrical energy provision within National Grids and as the effective basis of ‘business as usual’ grid capacity expansion, should be limited for off-site offsets in future given private investment is already flowing massively into that sector for economic reasons alone.

As mentioned previously the UN Strategic Plan for Forests 2030⁴⁸ serves as a framework to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. The six Global Forest Goals and 26 associated targets encompass and build on the foundation of the four Global Objectives on Forests of the United Nations Forest Instrument.⁴⁹

The NbSs that will be recognised by this Nature Positive certification will be those identified as contributing to both ‘climate change mitigation’ and ‘biodiversity loss’ mitigation in the 2022 UNEP’s ‘Nature-based Solutions: Opportunities and Challenges for Scaling Up’ document and for forest-based projects meet:

- i. Goal 1 or Goal 3; plus
- ii. At least one other;

of the six Global Forest Goals with preference being shown to Goal 2 within the NbS offsets scoring system as shown below.

Together, these have been included as fundamental principles guiding the Nature Positive Offset recognitions that follow.



⁴⁸ Ref: <https://www.un.org/esa/forests/wp-content/uploads/2019/04/Global-Forest-Goals-booklet-Apr-2019.pdf>

⁴⁹ Ref: <https://www.iisd.org/system/files/2022-05/still-one-earth-forests.pdf>

Realistically to make this connection between products, forests and the bioregional scale impacts that truly nature restorative outcomes require, net product impacts need to be offset by connection to large-scale, ecosystem level projects generating complex biodiversity regeneration outcomes on already cleared and degraded land such as those employed by organisations like Greenfleet and Greening Australia's Canopy program among others, or land that has been identified for clearing that can be held back and preserved- especially in the case of highly biodiverse old-growth and rainforest regions.

The success of these offsets measured using the indicators above, will, over time, demonstrate that the Nature Positive outcomes intended to offset the ongoing impacts of CE processes are indeed delivered, and have created the Nature Positive CE outcomes that eventually support the flourishing of all life forms on our amazing blue planet.

2.08 Nature Positive Offset recognitions

For the above reasons, the NP+D processes during scoring of the outcomes will recognise at:

- i. 110-120% complex biodiversity regenerating or genuine preservation of at-risk, biodiverse environmental offsets, e.g. ACCU Plus A - ERF soil and vegetation projects that engage indigenous groups and workers to assist in planning/initiation, oversight and physically planting and/or managing and maintaining country e.g. as rangers;
- ii. 105-110% of complex biodiversity regenerating, biodiverse environmental offsets, e.g. ACCU Plus A - ERF soil and vegetation projects, that engage 10-20% of the workforce that are identified as socially, economically, physically or intellectually disadvantaged, including potentially indigenous workers, where total numbers do not meet the threshold in a) above;
- iii. 100% of complex biodiversity regenerating or genuine preservation of at-risk, biodiverse environmental offsets, e.g. ACCU Plus A - ERF soil and vegetation projects;
- iv. 70% of nature positive NbS using carbon farming methods, e.g; ACCU Plus B - ERF soil projects;
- v. 60% all onsite or wholly-owned offsite renewable energy sources that feed directly into the manufacturing process; and
- vi. 40% any offsite renewable energy based offsets.⁵⁰

NP+D processes will not recognise any renewable energy or biodiversity offset projects that have required or been the result of, deliberate land clearing, or inundation of extant native ecosystems in the five (5) years previous to the Offset Certificate date. Recognised Offsets shall be 'Nature Based', and focus on the restoration of land including land denuded as a result of natural bushfire, flooding or other natural or climate-warming induced phenomena is permitted.

All offsets shall be biodiversity restoring 'Nature-based' credit retirements that comply with the Scheme Requirements (Standards) of at least one of the following schemes:

Australian:

- a) Australian Government: *Carbon Credits (Carbon Farming Initiative) Act 2011 and the Reforestation by Environmental or Mallee Plantings—(FullCAM) Methodology Determination 2014 Act*⁵¹

⁵⁰ Note: These percentage factors have been qualitatively estimate based on relative 2022 costs of Biodiversity Positive Carbon Offsets in the market at Nov 2022, and are designed to favour Nature Positive Offsets.

⁵¹ Ref: <https://www.legislation.gov.au/Details/F2018C00118>

- b) Australian Carbon Credit Units (ACCU) scheme⁵² including:
 - a. ACCU Plus⁵³
 - b. Emissions Reduction Fund (ERF) Environmental Plantings Project⁵⁴;
- c) Australian Climate Active (carbon neutral) standard;
- d) Accounting for Nature Standard⁵⁵;
- e) Aboriginal Carbon Foundation’s ‘Core Benefits Verification Framework’.

International:

- a) International Carbon Reduction and Offsets Alliance (ICROA) Code of Best Practice;
- b) UN Clean Development Mechanism (CDM);
- c) UN REDD+ (Reducing Emissions from Deforestation and forest Degradation);
- d) Gold Standard;
- e) Verra operated Climate, Community and Biodiversity Alliance (CCB) Standards;
- f) Plan Vivo Standards;

To achieve 100% recognition under clause 2.07 i.), schemes must also fulfil the ‘Nature based’ carbon plus complex biodiversity regeneration or preservation co-benefit generation criteria.

Examples of such recognised co-benefit offset providers include (but are not limited to):

Australian:

- a) Greening Australia’s Canopy Program;
- b) GreenFleet;
- c) Green Collar;
- d) Carbon Market Institute;
- e) Indigenous Carbon Australia (ICA);
- f) Carbon Farming Australia;
- g) Carbon Neutral.

International:

- a) 8 Billion Trees;
- b) Carbon Neutral;
- c) Carbon Footprint;
- d) Trees For All;
- e) Reforest Action.

Other schemes can be recognised on application at the discretion of the GreenTag Program Director, provided they satisfy the basic criteria that the outcomes be multi-benefit, nature positive ecosystem restoration focussed and not solely about climate change mitigation.

⁵² Ref: [https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/qcmr/march-quarter-2022/Australian-carbon-credit-units-\(ACCU\).aspx](https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/qcmr/march-quarter-2022/Australian-carbon-credit-units-(ACCU).aspx)

⁵³ Ref: <https://www.agric.wa.gov.au/sites/gateway/files/FCF-LRP%25202022-23%2520Program%2520Guidelines%2520-%2520ACCU%2520Plus.pdf&usg=AOvVaw1eV7SGoZubwmVP8oOvP-TI>

⁵⁴ Ref: <https://www.cleanenergyregulator.gov.au/DocumentAssets/Documents/Environmental%20Plantings%20Pilot%20-%20Information%20Pack.pdf>

⁵⁵ Ref: <https://www.accountingfornature.org/f/3A~3Atext%3DAccounting%2520for%2520Nature%2520is%2520a%2C%253E&usg=AOvVaw2C68ekIBBHuZCJ1YpX4SY2>

2.09 Cost Implications:

Nature Positive Offsets that yield biodiversity and carbon co-benefits, have been held to be more expensive by many. At the time of writing (8/11/22), the ACCU price for carbon (alone) based offsets in Australia was \$29.75/tonne (typically renewable energy derived) and the Carbon Neutral company was offering independently verified Gold Standard credits to reforest the Yarra Yarra Biodiversity corridor in WA by re-growing native habitat for \$31.90/tonne, and Carbon + Biodiversity offsets to protect orangutan habitat in tropical rainforests in Indonesian Borneo for \$28/tonne certified to the Verra Verified Carbon Standard. Clean energy offsets alone though were selling in international markets for between \$14.30 and \$26.00/tonne at the same time.

2.10 Applicability

NP+Ds can be applied to any product covered by a relevant Global GreenTag Standard or Supplementary Standard including but not limited to:

- i. **International Standard v4.0+**; including but not limited to infrastructure, building, interiors, paper and packaging, bedding, fabrics and textiles;
- ii. **Cleaning Products Standard v1.0+**; including but not limited to cleaners, sanitisers, disinfectants, dish and clothes washing detergents and additives, insecticides, rodenticides, air fresheners, polishes, wipes and equipment
- iii. **Personal Products Standard v1.0+**; including but not limited to sanitary and hygiene products, beauty products, deodorants, non-medical skin, hair, nail and eye treatments, sun screens, perfumes, insect repellents and hair colours.