

The Urban Biodiversity Standard

Presented by the

NATURE&PEOPLE
FOUNDATION

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1. ABOUT THIS DOCUMENT

The Urban Biodiversity Standard (**Standard**) is a global Standard for measuring Urban Biodiversity and the Ecosystem Services it provides. The Standard enables investment in Urban Biodiversity to be aligned with the growing social needs of Urban Areas by setting out the requirements for 1) project development and management; and 2) the issuance of Urban Biodiversity Credits.

The Urban Biodiversity Standard was founded by Antonio Beltran Garcia, Juan Costa Climent and Teodoro Garcia through the establishment of Greenville. The Standard, and its underpinning methodology, was developed through a collaborative process between several entities and individuals, including Greenville, Evertree, Cesyt, Mishcon de Reya LLP and the University of Seville.

2. CONCEPTS AND DEFINITIONS USED BY THE STANDARD

This section includes the main concepts and definitions used by the Standard.

Term	Definition
Accredited Entities	Entities registered and approved by the Foundation to conduct specific activities. This will include entities to prepare validation and verification reports, as well Biodiversity experts to prepare the Ecosystem Services Report. These bodies must have the capacity to measure Biodiversity and Ecosystem Services in accordance with the Standard and to assess what are the expected outcomes of registered projects.
Baseline Conditions	Where projects are increasing the stock of vegetation in an area with prior vegetation, these are the conditions to be assessed in relation to the area in order to issue Urban Biodiversity Credits. These conditions are Botanical Diversity, degree of Resilience and Vertical Stratification.
Baseline Scenario	The baseline scenario represents state of the existing stock of Biodiversity and Ecosystem Services that would exist in the absence of a project.

Biodiversity	Biological diversity, meaning "diversity of life in all its forms: the diversity of species, of genetic variations within a species and of ecosystems". The Standard and its methodology uses the term Biodiversity to refer exclusively to botanic Biodiversity, also as an alternative to green infrastructure. The Standard incorporates faunal Biodiversity through the scientific model.
Biodiversity Credit	Biodiversity Credits are designed to reward the increase in vegetative stock. They are digital or non-digital assets that represent an increase of 100m ² in vegetative cover (tree, shrub, herbaceous) per year, which satisfies the Baseline Conditions. One Biodiversity Credit will be generated per 100m ² for each year that it is maintained up to a maximum of 20 years from the date in which the project generates the first Biodiversity Credit.
Biodiversity Management Studies	Studies and reports assessing the potential of Biodiversity to deliver Ecosystem Services in Urban Areas to address specific social, environmental and economic needs.
Biometric Model	The Foundation has developed a Biometric Model in collaboration with the University of Seville. This Biometric Model is based on a standardized scientific methodology to determine the type and quality of Ecosystem Services provided by different species of trees and shrubs. The model describes complex variables such as the leaf area and the biomass of each specimen from simple measurements such as diameter at breast height.
Botanical Diversity Index	The index measuring the relationship between richness and abundance as more particularly described in paragraph 0e).
Degree of Resilience	An indication of the capacity of a specific stock of Biodiversity or species to adapt to risk scenarios as more particularly described in paragraph 0e).
Ecosystem Services	The services provided by Biodiversity, which generate benefits to people and the environment. The Standard adopts the classification of Ecosystem Services proposed by IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), as more particularly described at Appendix 2.

Ecosystem Services Credit

Ecosystem Services Credits are designed to reward the provision of specific Ecosystem Services which address identified social needs. They are digital or non-digital assets that represent an increase of 100m² in vegetative cover, which satisfies the Baseline Conditions and deliver Ecosystem Services to people, as more particularly described at paragraph 11.4. One Ecosystem Services Credit will be generated per 100m² for every year that it is maintained up to a maximum of 20 years from the date in which the project generates the first Ecosystem Services Credit.

Ecosystem Services Report

Document prepared by an Accredited Entity, required to be presented to the Registry for all projects intending to issue UBCs. The report is required to set out an independent scientific assessment that supports claims made by the Project Proponent that its selection of specific species of vegetation has been made considering the metabolic capacities of the species and their potential to deliver specific Ecosystem Services. Project Proponents may use the Reference Database, Biometric Model, or other means to assess such metabolic capacities.

Foundation

Nature & People Foundation (company number: 15091577) of the registered address 102 Fulham Palace Road, London, Greater London, United Kingdom, W6 9PL. The Foundation hosts the Standard.

Greenville

Biokoin Limited T/A Greenville Limited (company number: 14476961) of the registered address 3rd Floor 1 Ashley Road, Altrincham, Cheshire, United Kingdom, WA14 2DT. Greenville is a Promoter of the Urban Biodiversity Standard and is the Registry provider.

Holder of Rights

Holders of rights are individuals or entities different from the Project Proponent (as defined below) that have acquired the right to the UBCs that may be generated by a project.

Length of Projects

The duration of the projects is set at 25 years, as this is the average time for vegetation to reach its highest degree of maturity.

Length of urban biodiversity credits

UBCs will be issued over a 20-year period, as the generation of ecosystem services during the initial

issuance	5 years of vegetation growth is minimal or nearly nonexistent.
Measurement Methodology	The methodology used to evaluate the Plant Stock, the Ecosystem Services and the social value.
Microprojects	Projects that are only intended to deliver focused Ecosystem Services to address specific needs on a small level such as green roofs, green walls or planting a number of trees along the pavement, which do not achieve a significant increase in Biodiversity, but do provide Ecosystem Services which address a specific need, that is material to people in Urban Areas.
Monitoring Report	Document prepared by the Project Proponent to report on the progress of the project, including the Biodiversity, Ecosystem Services, and social value creation.
New Vegetation Projects	Projects that create a new Urban Green Infrastructure in an area that lacks vegetation, described more particularly at paragraph 9.1.1.
Peri Urban	Regions undergoing transformation from rural to urban characteristics, sharing similar ecosystem pressures due to human expansion. These are commonly the interface between urban and rural areas at the periphery of cities but may also include non-city regions, such as islands, which are similarly impacted by urbanization.
Plant Stock	Supply or inventory of plants that is available for use in various applications, such as landscaping, agriculture, or reforestation. Plant stocks may include various types of plants, such as trees, shrubs, flowers, and other vegetation.
Project Description Document	Document describing the project's intended Biodiversity creation and, if relevant, the expected Ecosystem Services that can be associated to that Biodiversity.
Project Developer	Entities and individuals that promote and fund Biodiversity Management Studies for cities, regions, small islands and areas of land that involve multiple owners. Special UBCs can be assigned to Project Developers.
Project area diagnosis	Refers to the requirement for a preliminary environmental and socioeconomic assessment of

the area where the project is to be developed. Including factors such as average temperatures, pollution levels, existing vegetation cover, soil quality, Biodiversity indices, population density and other relevant characteristics.

Project Proponent

Project Proponent is the entity with overall control and responsibility for a Biodiversity project listed in the Registry.

Promoters

The core entities which promoted the incorporation of the Foundation and the development and use of the Standard, being Greenville, Evertree and Mishcon de Reya LLP, more particularly described at paragraph 6.7.

Reference Database

Database indicating the ranked value of different species of vegetation regarding their capacity to deliver specific Ecosystem Services. The Database is a tool that supports the application of the Standard. The Reference Database is actively being expanded to include a variety of biomes. It aims to also extend to species from different latitudes.

Registry

A recognized, credible, publicly accessible Registry to register and track UBCs, owned by the Foundation and operated by Greenville. The Registry provides information on Biodiversity projects, Ecosystem Services and UBC transactions. It connects projects in Urban Areas with investors at global level.

Resilience

Processes through which ecosystems are self-maintaining and persist when faced with disturbances and changes.

Review Panel

The Panel of appointed Supporters which determines the Standard Review Process.

Review Process

The procedure by which the Standard is assessed and updated by the Foundation and overseen by members of the Review Panel.

SDGs

Sustainable Development Goals, as adopted by the United Nations.

Shannon Index

The recognized metric, as set out at Appendix 1, which calculates the degree of diversity and abundance of vegetation stocks and provides a positive number that ranges, in natural Ecosystems, from 0.5 to 5. The highest values are

obtained in Ecosystems such as tropical forests and the lowest in deserts. The value of ecosystems most commonly lies between 2 and 3.

Social Value Seal

Accreditation representing the social value of new or increased vegetation stocks, as set out at paragraph 10.6.

Standard

This document, being the Urban Biodiversity Standard.

Start Date

Date from which activities that lead to the creation of Biodiversity and to the corresponding increase of Ecosystem Services are implemented.

Secretariat

Individual responsible for managing the Standard Review Process, as appointed by the Foundation from time to time.

Supporter

A supporter of the Standard whose interest in the Standard and the work of the Foundation has been noted and added to the Foundation's records.

Urban Areas

Urban Areas are characterized by areas where people and economic activity meet nature. This can include cities, towns, regions or small island communities, and includes Peri-Urban Areas.

Urban Biodiversity Credits / UBCs

Collective term for Credits issued in accordance with the Standard, to be used interchangeably for Biodiversity Credits and/or Ecosystem Services Credits (as defined above).

Urban Biodiversity

Biodiversity in close proximity, or associated with, human settlement or human activity, to which it provides Ecosystem Services. This can include cities, towns or small island communities.

Urban Green Infrastructure

This is a network of natural and semi-natural zones and other environmental elements that, when strategically planned, designed and managed, can provide a wide range of Ecosystem Services and nature-based solutions with the potential to address social and economic needs. The Standard uses Urban Biodiversity and Urban Green Infrastructure as interchangeable concepts.

Validation	Validation of expected outcomes: by way of an independent assessment that supports a claim about what the future outcomes of a specific project may be in terms of the number of UBC that can be generated by Biodiversity creation and the related Ecosystem Services that can be achieved by the project. The Validation statement should remark that future results are always expected to differ from forecast.
Validation Report	Document setting out the findings of the Validation.
Vegetation improvement projects	Projects to improve existing Urban Green Infrastructure, as more particularly described at paragraph 9.1 d).
Verification	Verification of delivered outcomes: through an independent evaluation supporting a statement of the number of UBCs that a specific project has achieved. The Verification statement will specify the number of UBCs generated in each calendar year of the monitoring period.
Verification Report	Document setting out the findings of the Verification.
Vertical Stratification	Arrangement of vertical vegetative layers in a habitat.

3. INTRODUCTION

- 3.1. The future of humanity is undoubtedly urban. Cities are here to stay. The world will become more urban over the next three decades
- 3.2. Cities are social melting pots, centres of economic innovation, political engagement and cultural interchange. Growing very rapidly, cities outweigh countries in economic scale and importance and this trend of relevance is expected only to increase. It is estimated that by 2030, 60% of the world's population (5 billion people) will live in cities.¹ By 2050 this number may reach 7 billion which is about 70% of all people living on earth.²
- 3.3. Today, cities represent 3% of the planet's surface.³ The expansion of urban land consumption exceeds population growth by up to 50%.⁴ This rate of

¹ United Nations Population Fund. (June 2024). Urbanization. Retrieved from <https://www.unfpa.org/urbanization>

² World Bank. (April 2023). Urban development. Retrieved from <https://www.worldbank.org/en/topic/urbandevelopment/overview>

³ World Economic Forum. (2021). Net Zero Carbon Cities: An Integrated Approach. Retrieved from <https://www.weforum.org/publications/net-zero-carbon-cities-an-integrated-approach/>

⁴ World Bank. (April 2023). Urban development. Retrieved from <https://www.worldbank.org/en/topic/urbandevelopment/overview>

growth is expected to add 1.2 million km² of new urban built up area to the world by 2030.

- 3.4. Cities represent 80% of global GDP, consume about 70% of global energy and account for about 70% of the greenhouse gas emissions of the world.⁵ Cities also contribute very highly to global levels of water usage and waste generation.
- 3.5. Land use, energy consumption, water usage and waste generation increase the ecological footprint of cities and its negative impacts globally and locally.
- 3.6. Globally, cities and indeed Urban Areas more broadly, contribute to global warming, depletion of natural resources and loss of Biodiversity. Those global effects are having local impacts, such as the tragic floods in Spain, violent storms in Florida or wildfires in South America. Locally, water or air pollution can also lead to several diseases. Moreover, urban growth can push cities' limits and bring about social inequalities between cities and within cities. Inequalities include social differences in areas such as employment opportunities, quality of health and education services, degree of air pollution, access to green infrastructure or housing.
- 3.7. However, on an urban planet, despite cities being the source of resource consumption, pollution, CO₂ emissions, ecological degradation and social inequalities, cities are also potentially the key battlefield to resolve these challenges and achieve more sustainable and equitable societies.
- 3.8. An element of increasing relevance to address and cope with many of the above-mentioned challenges is Urban Biodiversity, that is, the variety and abundance of natural life in cities, as well as Urban Areas more broadly. Urban Biodiversity is commonly measured in terms of ecosystem types and extents and in terms of the types and abundances of plants and animal species.
- 3.9. Protecting and investing in Urban Biodiversity can help to address global and local challenges. Urban Biodiversity management and ecological planning in Urban Areas can help mitigate climate change and Biodiversity loss, whilst also improving quality of life, reducing social inequalities and creating more sustainable industries and economies, as well as new economic opportunities.
- 3.10. Social benefits include the attenuation of air pollution, mitigation of the heat island effect and the creation of adequate spaces for sport and leisure. Ecological benefits include CO₂ sequestration, enhanced pollination opportunities, reduction of runoff and soil erosion and the attraction of fauna. Economic benefits vary from energy savings, to attracting talent and

⁵ Ibid.

increasing economic competitiveness, as well as increasing the value of properties.

- 3.11. Seeing Biodiversity as a solution to improve the quality of life and the value of Urban Areas requires a new mind-set and a new paradigm. This new paradigm emphasizes the need to develop initiatives and policies to enhance Urban Biodiversity by re-naturalizing Urban Areas through the smart and sustainable expansion of green areas, respecting and using natural processes and connectivity as an articulating factor within the territory. Parks and gardens are highlighted as key reservoirs of flora and fauna diversity, but enhancing Urban Biodiversity must not concentrate on existing or future green spaces alone, but rather it must make the Urban Area permeable, seeking all available spaces and surroundings that provide opportunities to set up major or minor interventions.
- 3.12. The Standard focuses on areas where nature, people and economic activities come together, this is most commonly in cities, however the Standard may be applied to Peri-Urban regions as well. These Peri-Urban regions include islands where the ecosystem pressures are akin to those found in cities. This interface between humanity and nature is the key area where Biodiversity can deliver real benefits to people.
- 3.13. Critical Ecosystem Services that Biodiversity provides to Urban Areas include:
 - 3.13.1. Improvement of air quality, by removing gaseous and particulate pollution.
 - 3.13.2. Improvement of temperature regulation, by providing shade and increasing humidity.
 - 3.13.3. Reduction of noise pollution, by absorbing and dispersing noise.
 - 3.13.4. Reduction of flooding, by regulating water infiltration, reducing erosion and runoff.
 - 3.13.5. Improvement of Resilience of the city's living ecosystem, including rivers and parks.
 - 3.13.6. Improvement of regulation of urban pests.
 - 3.13.7. Climate change mitigation, by carbon sequestration by plants.
 - 3.13.8. Increase in the quality of life and population health, through stress reduction, and promotion of physical and mental health.
 - 3.13.9. Reduction of public insecurity.
 - 3.13.10. Improvement of the economy, through better environment and health, by creating more sustainable industries and economies.

4. OUR VISION

The Promoters of the Standard together share the following beliefs and values:

- 4.1. Nature and Biodiversity in Urban Areas deliver a variety of Ecosystem Services that have positive impacts in terms of economic and environmental value and people's health, and therefore, present nature-based solutions for many of the different social and economic needs we face as a global society.
- 4.2. Plant species are a proxy for all Biodiversity and Ecosystem Services. The stability and balance of the global ecosystem depends on plant growth and diversity. Botanic Biodiversity is a proxy and indicator of the diversity and complexity of all types of life.
- 4.3. The stock of botanic diversity is a proxy of all Ecosystem Services that may be impacting quality of life in a city. The inventory of botanic diversity defines and determines the specific Ecosystem Services that are delivered to people. Botanic diversity has both intrinsic and economic and social value by itself.
- 4.4. The metabolic capacities of each species of tree and vegetation defines the specific type of Ecosystem Services and the degree of intensity in which those Ecosystem Services are delivered.
- 4.5. It is the characteristics of leaves and vegetation that provide different Ecosystem Services and the benefits of such vegetation.
- 4.6. Plants cannot provide Ecosystem Services unless they are Resilient, meaning they are adapted to current climatic conditions and prepared for future climate change scenarios.
- 4.7. Plants do not provide significant Ecosystem Services prior to reaching a certain degree of development or maturity. For example, in Europe this is typically 5 years of age, as a reference. In tropical biomes it may be less. This will be determined on a case-by-case basis.
- 4.8. Managing Biodiversity in Urban Areas requires frameworks and methodologies that can provide answers to the following questions:
 - 4.8.1. What are the social and economic needs of that Urban Area?
 - 4.8.2. What are the Ecosystem Services that may help to deliver on those needs?
 - 4.8.3. And finally, what are the varieties and species of trees and vegetation that are better equipped to provide the specific Ecosystem Services that people need?
 - a) Since the metabolic capacities of each species define the degree of intensity at which different Ecosystem Services can be delivered, it is critical to develop scientific knowledge about the different species. This knowledge can help connect specific

social needs with the nature-based solutions that can be better provided by specific species.

- b) Protecting and investing in Biodiversity should be a shared responsibility of all relevant actors in cities and other Urban Areas, including city councils, businesses and citizens, as well as an opportunity for public-private cooperation.
- c) Public-private cooperation requires market incentives and new platforms to encourage and channel additional investment in Urban Biodiversity.
- d) Urban Biodiversity delivers Ecosystem Services that create social and economic value for people, Urban Areas, industries and economies. Shedding light on this value by increasing awareness and creating incentives to reward it is a necessary step for increasing investment in Urban Biodiversity. People need to understand the value that Biodiversity brings to their lives.
- e) Raising awareness on how Biodiversity can help address social needs and create value requires 1) rules and principles to measure Biodiversity and its benefits to society in a Standardized and comparable way; and 2) a common unit of account for Biodiversity in Urban Areas.

4.9. This Standard has been developed to respond to the above values and beliefs.

5. PURPOSE OF THE STANDARD

- 5.1. The Standard provides rules for measuring Urban Biodiversity and its related Ecosystem Services and for the issuance of UBCs.
- 5.2. The Standard is intended to support the application of the Singapore Index, internationally accepted for measuring Biodiversity in Urban Areas, by increasing the vegetation stock in cities. This helps to enhance the values of certain core components of the index, principally native Biodiversity in the city, Ecosystem Services provided by Biodiversity, but some indicators of governance and management of Biodiversity too.
- 5.3. The Standard's main purpose is to help cities promote and align investment in Biodiversity with their social and economic needs.
- 5.4. The Standard intends to achieve or contribute to several goals and objectives:
 - 5.4.1. Enables measurement of the stock of Biodiversity in Urban Areas and its potential to provide Ecosystem Services in the urban environment.
 - 5.4.2. Encourages investment in Biodiversity projects that help cities address their social and economic needs.

- 5.4.3. Defines the concept of UBCs.
- 5.4.4. Promotes the use of artificial intelligence, blockchain and other technologies for real time evaluation of the Biodiversity stock and its associated Ecosystem Services.
- 5.4.5. Supports the development of a trusted and scalable Biodiversity credit market, with fair prices and impacts.
- 5.4.6. Supports the development of rules for a secure Registry system that offers assurance and transparency.
- 5.4.7. Supports the goals of other initiatives in the field of Biodiversity Credits.
- 5.4.8. Ensures that investors, buyers and the wider market recognize Biodiversity Credits as being real, additional and permanent.
- 5.5. Motivations for acquiring Urban Biodiversity Credits are related to offsetting or positive impact. The Foundation will publish specific guidelines and principles for each type of motivation, considering that, in the case of offsetting motivation, it must be carried out in proximity to where the ecological and social impacts are generated to achieve maximum value to people.
- 5.6. The Standard aims to be complimentary to, and aligned with, all efforts to achieve the goal of developing a credible and scalable Biodiversity Credits market. In particular, it has been developed with the intention that it may be used in conjunction with other Biodiversity credit Standards.
- 5.7. The Standard is a voluntary non-discriminatory initiative open to Urban Areas, project Developers, researchers, Standard setters, framework Developers, verification bodies and all Biodiversity credit market players including buyers, sellers, traders, investors, philanthropists and financiers.

6. ENTITIES PROMOTING THE STANDARD

- 6.1. **Nature & People Foundation**
- 6.2. The Standard, with its supporting methodology, is hosted and operated by the Foundation. The Foundation is an independent, non-profit organization incorporated under the laws of United Kingdom. The Foundation is responsible for the following:
 - 6.2.1. Setting and updating the Standard.
 - 6.2.2. Promoting scientific research in Urban Biodiversity.
 - 6.2.3. Updating the scientific methodology underpinning the Standard.
 - 6.2.4. Developing training programs on Urban Biodiversity.
 - 6.2.5. Forging alliances with other organizations supporting the creation of a trusted Biodiversity Credits market.

- 6.3. The Foundation will review periodically the methodology and the Standard to ensure it reflects best practices, scientific consensus and market expectations.
- 6.4. The Foundation will invest in R&D on Biodiversity and Ecosystem Services with, among others, the following objectives:
- 6.4.1. Expanding the knowledge on individual species and their specific capacity to deliver different Ecosystem Services.
 - 6.4.2. Increase understanding on how Biodiversity in Urban Areas can better contribute to the SDGs.
 - 6.4.3. The Foundation acknowledges that significant work has gone into several leading Biodiversity initiatives and Standards supporting the development of a credible global Biodiversity Credits market. The Foundation recognizes the relevance of those initiatives and will engage with them whenever possible.
 - 6.4.4. The functional bodies supporting the work and governance of the Foundation are as follows:
 - a) Consultation Groups: They include three separate networks of: (i) experts; (ii) cities and countries; and (iii) businesses and sponsors, who share their views and provide feedback on the Standard.
 - b) Scientific Committee: The ultimate scientific oversight and advisory body for the Standard, responsible for monitoring quality of research process, challenge, review and update the methodology and its metrics.
 - c) Advisory Committee: The ultimate policy oversight and advisory body for the Standard, responsible for questions of policy, credit formation and ensuring alignment of outcomes with purpose.
 - d) Review Panel: The Panel of appointed Supporters which determines the Review Process.
- 6.5. Expand knowledge on how Biodiversity in Urban Areas can make industries and economies more sustainable.
- 6.6. The Foundation's main Promoters include Greenville, Evertree and Mishcon de Reya LLP.
- 6.7. **Promoters of the Foundation**
- 6.7.1. **Greenville**

Greenville is a company incorporated in the United Kingdom, and it is one of the main Promoters of the Standard and of the Foundation's program. Greenville has made a relevant contribution to the development of the Standard.

Greenville will support and fund the development of a Registry which can provide the following services:

- a) Ensuring the integrity of projects, programs and UBCs in the Registry system.
- b) Conducting reviews of project and program registration and UBCs issuance requests.
- c) Monitoring the evolution of projects and their contribution to Biodiversity creation.
- d) Overseeing the Validation/Verification Bodies and methodologies operating under the program.

The Registry is a platform based on blockchain technology that will provide total transparency in the development of projects, issuance and withdrawal of Urban Biodiversity Credits. Greenville will work alongside independent Validation and Verification Bodies to maximise transparency and integrity of the Registry and issuance of UBCs.

6.7.2. **Evertree**

Evertree is a company incorporated under Spanish law. Its team has played a leading role in the development of the Standard and its methodology. It is also one of the Promoters of the Foundation's program and a sponsor of its activities.

6.7.3. **Mishcon de Reya LLP**

Mishcon de Reya LLP is an international law firm. Mishcon Purpose, the firm's dedicated sustainability business, has played a leading role in the development of the Standard and the Foundation, and their legal structures and governance.

6.7.4. **Future Promoters**

The entities above are the core Promoters of the Foundation, however the Foundation also welcomes other organisations and individuals to apply to join the Foundation's program and contribute to support and promote the development and use of the Standard. Promoters will be published on the Foundation's official website.

7. TECHNICAL STANDARD

- 7.1. When conducting a project with the intention to issue UBCs, Project Proponents will undertake the following steps:
 - a) Project area diagnosis: Conduct a Project area diagnosis, assessing the Baseline Scenario by considering the existing stock, Ecosystem Services (e.g. thermal comfort, pollution control, flooding mitigation, climate control etc), and environmental, social and economic needs of the project area.

- b) Ecological assessment of area: Undertake an ecological assessment of the wider area by reference to Biodiversity and Ecosystem Services provision.
 - c) Identify needs: Identify the specific social, environmental and economic needs of the wider area and of the people working and living nearby (e.g. NOx pollution, excessive heat, flooding).
 - d) Biodiversity project plan: Using a scientific methodology (which may include the biometric model, reference database, and/or other scientific models), develop a Biodiversity project plan by selecting specific species of vegetation which are best suited to address those relevant needs through their capacity to provide Ecosystem Services.
 - e) Ecosystem Services Report: Procure an Ecosystem Services Report prepared by an Accredited Body which supports the claims included in the Biodiversity investment plan.
 - f) Implementation: Implement the Biodiversity investment plan by planting selected species.
- 7.2. The Standard utilises research and experimental outcomes in relation to the metabolic capacities of species in Urban Areas, and the quantification of the Ecosystem Services that they provide. The Ecosystem Services assessed by in this research include thermal comfort, air quality, human health and wellbeing, climate change mitigation, floods protection, economic competitiveness, attraction and protection of fauna, and acoustic contamination.
- 7.3. The Standard is designed to be a master document which governs projects which give rise to UBCs, and the issuance of such UBCs. However, the Standard cannot include guidance which covers every eventuality or nuance of specific projects. The Standard has therefore created additional guidance documents for specific topics, a list of which is set out at Appendix 3.
- 7.4. Project Proponents must use scientific methodologies and data which analyse the metabolic capacities of vegetation to provide Ecosystem Services (this may include the Biometric Model and/or Reference Database, or an alternative, whichever is most appropriate).
- 7.5. The composition and characteristics of plant stocks may be obtained from the inventories provided by the stock administrations, from the images provided by satellite, or from a combination of both, as necessary.
- 7.6. The methodology underpinning the Standard provides parameters to help design Biodiversity projects that are targeted to achieve specific goals in terms of benefits. Therefore, projects must make optimal selection of species to comply with the economic, environmental and social objectives that are relevant for a specific area or in a particular city.

8. PRINCIPLES FOR THE APPLICATION OF THE STANDARD

The application of the Standard and its methodology will be guided by the following principles:

8.1. **Accuracy**

Measurements made need to be reasonably close to the actual value.

8.2. **Additional**

Project Proponents must demonstrate how the Biodiversity generated by a project has been added to the Baseline Scenario to participate in the Biodiversity Credits market. Projects must demonstrate that their impacts are beyond those that would have occurred without intervention.

8.3. **Audited**

All Biodiversity projects and UBCs must be verified to a reasonable level of assurance.

8.4. **Compatibility**

The Standard aims to be complementary and work alongside other Biodiversity Standards that are focused on Biodiversity growth and protection.

8.5. **Completeness**

All significant Biodiversity sources generated by the project must be included, as appropriate to the type of project. All relevant information to support decision-making and the results expected or achieved by the project, must be considered, as well as the procedures to achieve these results.

8.6. **Conservativeness**

The assumptions, values and procedures used by the project for the calculation of Biodiversity and Ecosystem Services will be prudent. The Biodiversity potential of any specific project must not be overestimated.

8.7. **Consistency**

The assumptions, values and procedures used for the calculation of Biodiversity and Ecosystem Services shall be technically consistent.

8.8. **Contribute to climate security and sustainable development**

The Standard aims to contribute to the SDGs.

8.9. **Demonstration of Real Outcome**

All Biodiversity increases must be proven to have genuinely taken place.

8.10. **Inclusivity**

It is intended that local communities, business, and city authorities will be engaged in the projects, and will benefit directly from the improvements of Biodiversity and Ecosystem Services.

8.11. **Measurable**

All Biodiversity creation must be quantifiable against a credible Baseline Scenario.

8.12. **Motivation**

The possible motivations for trading Urban Biodiversity Credits may include the creation of positive impact, or offsetting. The Standard has been designed to reward the increase in the stock of vegetation, provisions of Ecosystem Services, and maximising social value. The Standard does enable Holders of Rights to engage with Urban Biodiversity Credits for offsetting purposes, however it is a key principle of the Standard that offsetting activities must occur in proximity to where the ecological and social impacts are experienced and must maximise value to people. The Standard will publish additional policies to help monitor and mitigate such activities.

8.13. **No Net Harm**

A project must not generate a net damage on the surrounding areas or communities, in social, environmental, or legal aspects.

8.14. **Permanent**

Biodiversity creation and the Ecosystem Services generated by the project must be permanent over a time horizon.

8.15. **Science Based**

The Standard is built on a science-based methodology. The application of the Standard may require appropriate scientific specialists, with experience in the relevant disciplines.

8.16. **Technology**

The Standard is intended to be supported and implemented with the intensive use of technology, and it will allow scalability, real-time monitoring and early warning, predictive modelling, public engagement, cost-effectiveness and double counting risk mitigation.

8.17. **Transparency**

The Standard will be supported by a credible, publicly accessible Registry to register and track Biodiversity projects and UBCs. The Registry will provide sufficient data to enable market participants to conduct appropriate due diligence of projects, implementation and development.

8.18. **Unique**

There must be no double counting, or double claiming of the environmental and social benefits created by a single project.

9. ELIGIBLE PROJECTS

9.1. **Typologies**

The following project typologies are considered and are eligible to generate UBCs, as they can contribute to expanding the vegetation stock, increasing the degree of vegetation Resilience, or optimizing Ecosystem Services:

9.1.1. New Vegetation Projects: projects that create a new Urban Green Infrastructure. These projects increase the green assets of Urban Areas at different scales and, therefore, the provision of additional Ecosystem Services. Opportunities for action:

- a) Reforestation of unused plots;
- b) Introduction of agricultural crops;
- c) Creation of green spaces associated with new urban developments;
- d) Planting of interstitial spaces in the city, such as roundabouts, highway junctions, boulevards, etc;

9.1.2. Improved Vegetation Projects: projects to improve existing Urban Green Infrastructure by expanding the stock or the diversity of green assets. These projects start with an assessment of the current capabilities of the green infrastructure's stock and metabolic functions. Based on this assessment, improvements are proposed to increase the diversity of plant species, the degree of Resilience of the stock and to optimize material Ecosystem Services. Opportunities for action:

- a) Planting additional trees and shrubs in existing green areas;
- b) Tree replacement in established green spaces such as parks, streets, and avenues; and
- c) Enhancing tree pits with shrubs or herbaceous vegetation.

9.1.3. Urban Green Infrastructure maintenance projects. Green infrastructure sustainable maintenance approaches may generate positive effects, increasing Biodiversity and optimizing Ecosystem Services, or negative ones, leading to its loss. The Foundation will establish and publish additional guidelines about the credits linked to biodiversity improvement through effective maintenance practices.

9.2. Projects could be developed in a range of Urban Areas, such as:

- a) Agricultural lands.

- b) Degraded spaces.
- c) Riparian environments.
- 9.3. Projects could expand stock of vegetation or/and improve Ecosystem Services.
- 9.4. Projects could cover large areas, multiple landowners, different types of vegetation and multiple locations.

9.5. **General Requirements**

Projects eligible to generate UBCs must comply with the following general requirements:

- a) Projects shall be guided by the principles set out in paragraph 8.
- b) Projects will only qualify if the stock of vegetation created, maintained or improved satisfies the Baseline Conditions, as set out at paragraph 11.2.
- c) Activities that convert or transform native ecosystems or preexisting stocks of vegetation to generate UBCs are not eligible under this Standard unless there is a material positive balance in terms of Biodiversity, Ecosystem Services and/or social impact.
- d) Projects will give the right to issue UBCs as far as the investment is the activity that is encouraged by the incentive provided by the Standard.
- e) As a principle, Urban Biodiversity Credits recognized under this scheme cannot be issued as Biodiversity Credits under other programs.
- f) Project Proponents must prepare a Project Description Document describing the intended Biodiversity creation and/or the expected Ecosystem Services that can be associated to that Biodiversity. Project Proponents must have the legal right to operate Biodiversity programs and provide the necessary evidence.
- g) Project Proponents will develop a stakeholder engagement protocol as part of the development and implementation activities. This protocol will help identify needs, opportunities and the type of Ecosystem Services that are material to people in the context of the specific project. The process will also allow a permanent dialogue to be maintained with relevant stakeholders throughout the project.
- h) Projects must draw up and initiate a pipeline of activities to be completed regarding the project and must complete Validation within specific timeframes in relation to the start date. The project crediting period shall be, in general, of 20 years.
- i) Project Proponents will prepare a Monitoring Report describing the relevant data and information as well as Biodiversity generated in each period or calendar year of the monitoring period and the Ecosystem Services delivered.

- j) Projects that qualify under this Standard are subject to Validation and Verification requirements. These requirements shall ensure conformance of the project with the Standard and the methodology.
- k) Validation and Verification will be carried out in accordance with best audit practices.
- l) Projects shall prepare a non-permanence risk report at every Validation or Verification event.

10. METRICS AND METHODOLOGIES

The metrics and methodologies are as follows:

10.1. **Project area diagnosis.**

Prior to the commencement of the project, it is essential to conduct a comprehensive environmental and socio-economic characterization of the work area, including assessments of average temperatures, pollution levels, tree canopy cover, land use patterns, population density, opportunity areas, and other relevant factors for informed decision making. These factors should be considered for the adequate design of the project and when defining the objectives of the project.

10.2. **Stakeholder engagement**

Social needs will be identified following a stakeholder engagement process which takes into consideration city council priorities, property owners' needs and local communities, among others.

10.3. **Measurement of Urban Biodiversity stock and its degree of resilience.**

The Urban and Peri-Urban Biodiversity stock is the set of trees, bushes and herbaceous plants that exist in the space available for intervention. Stock is measured by applying the following metrics to an existing stock of vegetation or to a new one:

- a) Richness: This refers to the number of species.

Measurement Methodology: This is by direct measurement that is ascertained based on an inventory, by satellite technology or a combination of both.

- b) Abundance: This is determined by number of individuals per species.

Measurement Methodology: This is a direct measurement that is ascertained based on an inventory, by satellite technology or a combination of both.

- c) Leaf area by species: This indicates the surface of the leaves, in square meters, of each species and is linked to the effectiveness of that species to perform certain Ecosystem Services.

Measurement Methodology: This is calculated based on the crown diameter of each tree, measured by satellite technology for each

species or, if possible, data from public inventories. The diameter is correlated to the leaf area using a conversion parameter based on the Biometric Model, in the Reference Database of plant species in the Standard or alternative methodologies based on and supported by an Ecosystem Services Report. This may be of relevance when the project intends to highlight the ability of the stock to deliver specific Ecosystem Services.

- d) Coverage: This indicates the area of masses (tree, bush, grass) from an overhead view, as well as the proportion and representative status of the different habitats. It is an indicator of the ecological functionality of a space as, the greater the diversity of habitats (mosaic landscape), the more contact zones (ecotones) and the greater the number of niches for fauna.

Measurement Methodology: The area of each stratum is measured directly by satellite technology and, if possible, even discriminates by species. This may also be ascertained from public inventories.

- e) Botanical Diversity Index: This establishes the relationship between richness and abundance. This index is important to establish a balance between the proportion of species and to avoid dominance, as the greater the balance, the greater the opportunity to attract fauna, and thus diverse funding.

Measurement Methodology: This is measured by applying the Shannon Index that assesses the proportion of species present and their abundance using an established, scientifically accepted formula.

- f) Degree of Resilience: This indicates the capacity of the stock to adapt to the local environment and to risk scenarios. This is a structural indicator that allows one to guarantee the good health of the stock and, thus, its potential to generate Ecosystem Services.

Measurement Methodology: Two variables are measured to determine the Resilience of a species:

- i) Temperature resistance: the "USDA Hardiness zones" and "AHS Heat zones" methodologies are used.
- ii) Drought Tolerance: the "Water Use Classification of Landscape Species" methodology is used.

A scale from 1 to 5 is established to determine the Degree of Resilience of each parameter and, thus, each species is assigned a value that may range from 0 to 10. Depending on the provisions of the satellite methodology, Photosynthesis Activity may be an indicator to check the Degree of Resilience.

10.4. **Methodology to calculate the extent of vegetative stock**

- 10.4.1. The Baseline Scenario stock, if existing, will be broken down considering number of individuals and species. Then, it will be represented by coverage and potentially by leaf area by species.

10.4.2. The Baseline Scenario stock will be measured with respect to the Baseline Conditions, i.e. the degree of diversity of the stock; the degree of Resilience of the different species; and the distribution of vertical stratification.

10.4.3. The same process will be followed in relation to the selection of species and individuals included in the project under development.

10.4.4. If there is an existing stock, the same calculation will be applied to the expected outcome following the implementation of the project.

10.5. **Methodology to calculate Ecosystem Services**

10.5.1. Considering the social needs proposed at the stakeholder engagement stage and the Project area diagnosis, the Project Proponent will choose a basket of Ecosystem Services with at least 3 metrics that can help address material social needs.

10.5.2. The Ecosystem Services could be measured using tools provided by the Foundation or with the support of an Independent Scientific Expert report.

10.5.3. Once planting has taken place in the project area, the stock will be measured at periodic intervals (after an initial 5 years) to measure the growth and increases in diversity, as well as the Ecosystem Services provided. All selected metrics must be measured (as well as others relevant to the project's progress) and their improvement calculated.

10.6. **Methodology to calculate social value**

Social value metrics refers to the ratio of the amount of green area available per each inhabitant of the Urban Area location, the accessibility to green areas and the per capita income of the population.

10.6.1. Methodology

Projects developed in areas with:

- a) limited green coverage; and/or
- b) limited accessibility to green areas and/or
- c) particular social inequalities,

will generate a Social Value Seal. The social value impact of the project should be included as part of the project proposal. It will be supported if necessary, by an independent expert.

11. CREDITS

11.1. The Standard allows for the creation of the following alternative and non-cumulative categories of Urban Biodiversity Credits:

11.1.1. **Biodiversity Credits** (1 credit is awarded annually for every 100m² increase in the stock of vegetation which satisfies the Baseline Conditions); and

11.1.2. **Ecosystem Services Credits** (1 credit is awarded annually for every 100m² of vegetation which generate material Ecosystem Services),

each type of UBC may also be awarded a Social Value Seal, if it satisfies the criteria set out at paragraph 11.6.

11.2. **Baseline Conditions**

To be assigned Urban Biodiversity Credits, projects must satisfy the following Baseline Conditions, according to the type of project:

- a) Maintain or improve the Botanical Diversity Index of existing vegetation, or the new project inherently has a minimum level of Botanical Diversity Index.
- b) Maintain or improve the degree of Resilience of existing vegetation, or the new project inherently has a minimum level of degree of Resilience; and
- c) Maintain or improve the Vertical Stratification in existing vegetation, or the new project inherently has a minimum level of level of Vertical Stratification of vegetative layers.

It is noted that some projects, such as green roofs, green walls, planting of bushes, depaving, and regenerative agriculture will not achieve high levels of Vertical Stratification. The Foundation will publish additional guidelines for such projects, as well as to define the parameters to assess whether the project has a minimum level of botanical diversity index and a minimum level of degree of resilience.

11.3. **Biodiversity Credits**

Biodiversity Credits are designed to reward projects which increase the stock of vegetation, without any specific goals regarding specific Ecosystem Services. Any increase in vegetation will inherently also increase the provision of Ecosystem Services, however Biodiversity Credits are not designed to reward the provision of specific Ecosystem Services.

Each Biodiversity Credit represents an increase of 100m² in vegetative cover (tree, shrub, or herbaceous) per year, which satisfies the Baseline Conditions. One Biodiversity Credit will be generated per 100m² for each year that it is maintained up to a maximum of 20 years.

11.3.1. Improved Vegetation Projects

Where a project is increasing the stock of vegetation in an area with prior vegetation, Biodiversity Credits will only be assigned to projects which maintain or improve the overall Baseline Conditions of the existing stock.

11.3.2. New Vegetation Projects

Where a project is creating a new stock of vegetation in an area without prior vegetation, Biodiversity Credits will only be assigned to projects which achieve a minimum level of the Baseline Conditions. The Foundation will establish and publish additional guidelines as to how stock may attain such a minimum.

11.4. Ecosystem Services Credits

Ecosystem Services Credits are designed to reward the provision of specific Ecosystem Services, selected to address very specific urban needs and challenges in Urban Areas. Projects will be rewarded for increase in vegetation, on the basis of that vegetation's capacity to deliver specific Ecosystem Services that are material to people.

Each Ecosystem Services Credit represents an increase of 100m² in vegetative cover, which satisfies the Baseline Conditions in delivering Ecosystem Services to people. One Ecosystem Services Credit will be generated per 100m² for every year that it is maintained up to a maximum of 20 years.

11.4.1. Improved Vegetation Projects

Where a project is increasing the stock of vegetation in an area with prior vegetation, Ecosystem Services Credits will only be assigned to projects which maintain or improve the overall Baseline Conditions of the existing stock and maintain or improve Ecosystem Services performance.

11.4.2. New Vegetation Projects

Where a project is creating a new stock of vegetation in an area without prior vegetation, Ecosystem Services Credits will only be assigned to projects which achieve a minimum level of the Baseline Conditions and includes a selection of species based on their Ecosystem Services performance. The Foundation will establish and publish additional guidelines as to how stock may attain such a minimum.

11.5. Microprojects

11.5.1. Microprojects are projects which are designed to provide focussed services on a small scale, perhaps initiated by an individual rather than a corporate entity. It could include projects such as green roofs, green walls, depaving and planting or other small scale projects.

Microprojects that are only intended to deliver material Ecosystem Services to address specific urban needs without achieving a certain degree of diversity or vegetal stratification will generate Ecosystem Services Credits, as long as they do not cause a net loss in Biodiversity.

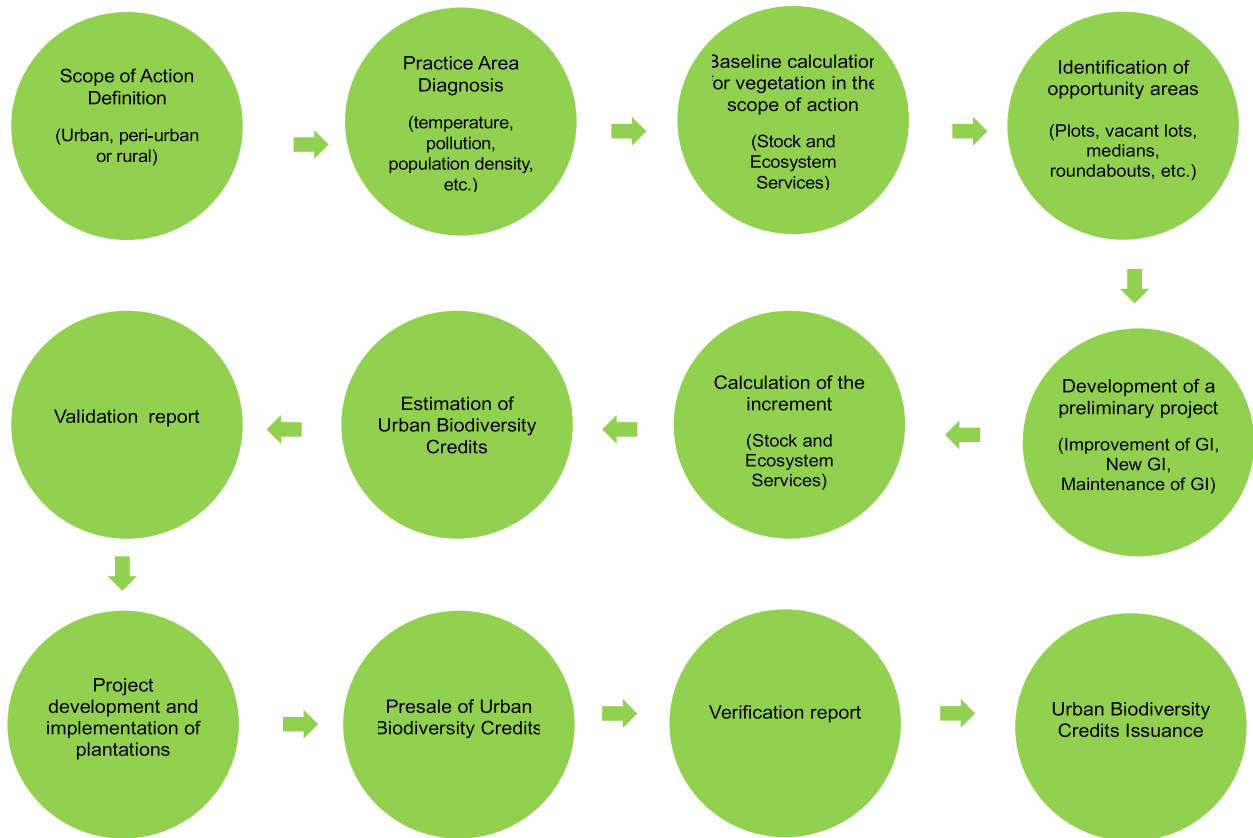
- 11.5.2. The Foundation recognises that these types of projects may not be able to satisfy the Baseline Conditions to the same degree as Standard sized, or large projects. However, the Foundation also recognises that Microprojects may provide significant social and environmental benefits to local communities, albeit on a smaller scale, and believes that they should be rewarded. Therefore, where a project is only intended to deliver specific Ecosystem Services to address specific, identified social needs without achieving the minimum threshold of Baseline Conditions, the project may still generate UBCs. These will be issued on a discretionary basis, and projects may only qualify as long as they do not result in a net loss of Biodiversity. The Foundation will provide further guidelines on what constitutes a Microproject and how they may generate UBCs.

11.6. Urban Biodiversity Credits with Social Value

- 11.6.1. UBCs with a Social Value Seal will be assigned to Projects which improve existing or create new stocks of vegetation that are located in an area with special social needs, whose conditions are referred to in the paragraph 10.6.
- 11.6.2. The Foundation will publish additional guidelines on the conditions for projects to generate UBCs with a Social Value Seal.

12. REGISTRATION PROCESS AND ISSUANCE OF UBCS

Any party can apply to implement an Urban Green Infrastructure improvement/maintenance project to generate UBCs using the Standard. The implementation of a project includes the following steps and process.



12.1. Opening of a Registry Account

12.1.1. If a party wishes to register its interest as a Project Proponent or Project Developer it will need to submit its completed application form to the Registry. If it is applying as a Project Proponent, it must make clear whether it is the owner and controller of the land over which the proposed project is to take place, whether there are other parties with interests in the proposed project site, and whether the registration is on behalf of the applicant alone, and/or together with others. Interested parties include Project Developers.

12.1.2. Once the application has been received, the Registry will undertake an initial assessment. The initial assessment may require the submission of further information by the applicant.

12.1.3. The purpose of the initial assessment is to ensure that (if the applicant is a Project Developer) the applicant has the appropriate requirements to develop a project using the Standard, and, in any

case, to identify any early stage questions, issues or support at the outset which may need to be addressed.

12.1.4. If the Registry accepts the application, the applicant will be notified, and its details and interest will be uploaded onto the Projects /Interested Parties page.

12.1.5. City councils and other governments at subnational level will always be considered interested parties with the right to have a sub registry level (specific page for them) to register projects and opportunity areas. These entities will also have access to different Registry services.

12.2. **Listing a Project**

12.2.1. Projects can be listed in the Registry as projects under development or projects under Validation. Entities authorized to initiate the listing process include the Project Proponent, the Holder of Rights to claim UBCs, as well as Project Developers. Listing a project requires a Project Description Document. The listing period ends when a valid Validation Report has been issued which is the first step of the registration process.

12.2.2. The Validation Report describes the expected outcomes of the project in terms of Biodiversity, Ecosystem Services, and social value creation.

12.2.3. The right to claim future Urban Biodiversity Credits associated to a specific project can be recognized based on expected outcomes as far as the expected outcomes of the project have been Validated in accordance with the relevant rules. After Validation, rights to future UBCs can be traded. Validation will follow a prudential approach and will be subject to regular, periodic monitoring.

12.2.4. The Foundation will publish guidelines with the rules to allocate rights to claim future Urban Biodiversity Credits to Project Developers.

12.3. **Project Registration**

12.3.1. Once the project is registered, the implementation phase begins. The Project Proponent or the Registry, on their behalf, will periodically evaluate performance of the project, draft a Monitoring Report and calculate the number of UBCs originated in the period. The Monitoring Report will be verified. All relevant information will be registered in the Project Proponent's account and UBCs will be ready to be sold to investors and cleared.

12.4. **Project Verification**

12.4.1. Verification allows the issuance of UBCs, (following independent approval by a Verification Entity). The Verification Report will reflect

the allocation of the UBCs to their corresponding periods which can be different to calendar years.

12.5. Credit issuance

- 12.5.1. For each of years 5, 10, 15 and 20 the Project Proponent may forward sell the anticipated UBC rights to the extent envisaged under the Validation Report for the next 5-year period as far as there are no outstanding forward selling commitments that have not been met.
- 12.5.2. The issuance of UBCs shall be based on the volume of Biodiversity and/or Ecosystem Services creation acknowledged in the Verification Report. The issuance of UBC and its deposit into the holder's account can be issued in different statements up to the limit set out in the Validation Report.
- 12.5.3. UBCs are issued under the Standard when Biodiversity creation and the Ecosystem Services delivered have been verified.
- 12.5.4. The Foundation will publish guidelines with safeguards, including if necessary buffer Credits, in order to address "non-permanence risk" situations for specific projects.
- 12.5.5. Projects are expected to run for a period of up to 25 years. It is envisaged that projects will generally issue UBCs once every 5 years from year 6 to year 25 so the issuance of credits will be for 20 years.

12.6. Retirement of UBC

- 12.6.1. UBC can be retired and removed permanently from circulation in the Registry if the Holder of Rights wants to claim either that specific UBCs are offsetting specific Holder of Right's negative impacts on Biodiversity, or that the investment is part of a nature positivity communication.

13. STANDARD REVIEW PROCESS

- 13.1. The Standard will be updated regularly.
- 13.2. The first review start date for the Standard will be set by the Foundation.
- 13.3. On the review start date, the Foundation will initiate the review process.
- 13.4. The Review Process will be administered by the Foundation and overseen by members of a Review Panel.
- 13.5. The Review Panel will be constituted of Supporters, in accordance with the selection criteria set out on the Foundation website from time to time.
- 13.6. At any time prior to a review start date, any Supporter may propose updates to the Standard.

- 13.7. The Foundation will define the timeline for the review process and will facilitate participation open to any individual or entity with a legitimate interest in the Standard.
- 13.8. The Foundation will consolidate all proposed updates to remove effective duplicates.
- 13.9. The Secretariat will make the proposed updates available to the Review Panel and the Scientific Committee and Advisory Committee.
- 13.10. Members of the Scientific Committee and Advisory Committee may make comments on each proposal which will be visible to other members of the panel.
- 13.11. Members of the Review Panel may also vote whether to accept or reject a proposed update.
- 13.12. The Standard will be published by the Foundation, indicating the date of the republication, and highlighting any changes made. Changes will take effect immediately on publication.

APPENDIX 1 - SHANNON INDEX

$$H' = - \sum_{i=1}^s (p_i \times \log_2 p_i)$$

Where:

S = Number of species (species richness)

pi = proportion of individuals of species i compared with the total individuals (that is the relative abundance of species i) calculated as

$$\frac{n_i}{N}$$

ni = number of individuals of species i

N = number of all the individuals of all the species

APPENDIX 2 - ECOSYSTEM SERVICES

After reviewing and analysing the various classifications of Ecosystem Services, this Standard adopts the classification of Ecosystem Services proposed by IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) for several reasons:

- **Focus on social interactions:** It considers how social, cultural, and local values shape the perception and use of nature's contributions.
- **Cultural flexibility:** It recognizes that contributions vary depending on cultural and geographical contexts, avoiding a strictly utilitarian perspective.
- **Bidirectional relationship:** It highlights the interaction between people and nature, emphasizing mutual dependence and the impacts generated by human activities.

This framework is especially relevant in the formulation of more inclusive policies adapted to local cultural realities.

CATEGORY	ECOSYSTEM SERVICE
Regulating contributions	Habitat creation and maintenance Pollination and dispersal of seeds and other propagules Regulation of air quality Regulation of climate Regulation of ocean acidification Regulation of freshwater quantity, location, and timing Regulation of freshwater and coastal water quality Formation, protection, and decontamination of soils and sediments Regulation of organisms detrimental to humans
Material contributions	Energy Food and feed Materials and assistance (e.g., fibres, wood) Medicinal, biochemical, and genetic resources
Non-material contributions	Learning and inspiration Physical and psychological experiences Mental health and wellbeing Cultural and identity support Maintenance of future options

APPENDIX 3 - LIST OF ADDITIONAL GUIDANCE POLICIES

1. Additional Guidance to measure the stock of vegetation
2. Additional Guidance to measure Ecosystem Services
3. Additional Guidance to measure social value
4. Additional Guidance in relation to Microprojects
5. Additional Guidance in relation to monitoring of project
6. Additional Guidance in relation to offsetting activities
7. Additional Guidance in relation to the Baseline Conditions
8. Additional Guidance in relation to the Standard and the Singapore Index
9. Additional Guidance in relation to Urban Green Infrastructure maintenance projects

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