Waste Management Criteria

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Version 2.0

Climate Bonds Standard and Certification Scheme



Climate Bonds INITIATIVE

Prepared by the Climate Bonds Initiative

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Final Criteria Document

June 2026

Document revision number	Date	Summary of changes
2	June 2026	New version, improving applicability, strengthening methane abatement measures, and incorporating new activities such as biochar production, black soldier fly products, dumpsite closure, and upgrading to landfills. Inclusion of agricultural waste as part of the eligible feedstock for some activities. Waste incineration removed as a Certifiable activity. Performance-based criteria introduced.
1.1	August 2022	Clarification made for sorting facilities, to align with the correct Background Paper wording. Facilities sorting waste for energy from waste must demonstrate recycled waste goes to an eligible recycling facility, along with the residual waste going to an eligible energy from waste facility.
1.0	October 2019	Published for certification

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Acronyms

AD	anaerobic digestion
BSF	black soldier fly
CBSB	Climate Bonds Standard Board
DNSH	do no significant harm
ECN-QAS	European Compost Network Quality Assurance Scheme
GCCS	gas collection and control systems
GHG	greenhouse gas
IWG	Industry Working Group
LAC	Latin America and Caribbean
LCA	life cycle assessment
SLD	sustainability-linked debt
tCO_2e	tonnes of carbon dioxide equivalent
TWG	Technical Working Group
UoP	use of proceeds
US	United States

Definitions

Anaerobic digestion (AD): A natural, engineered process where microorganisms break down organic matter – such as food waste, manure, or sewage sludge – in an oxygen-free sealed vessel or digester. This process generates biogas for renewable energy and nutrient-rich digestate used as fertiliser, effectively recycling waste and reducing greenhouse gas (GHG) emissions.

Biodegradable waste: Defined as a type of waste typically originating from a plant or animal source, that can be degraded by living organisms. It commonly includes green waste, food waste, paper waste, and biodegradable plastics found in municipal solid waste.

Biogas: A mixture of methane, carbon dioxide, and small quantities of other gases produced by anaerobic digestion of organic matter in an oxygen-free environment. The precise composition of biogas depends on the type of feedstock and the production pathway.

Biomethane: Also known as renewable natural gas, a near-pure source of methane produced either by upgrading biogas, a process that removes any carbon dioxide and other contaminants present in the biogas, or through the gasification of solid biomass followed by methanation.

Black soldier fly (BSF): *Hermetia illucens*, commonly known as black soldier fly, an insect known for its ability to process various organic waste streams and convert them into valuable protein and fats suitable for animal feed, insect oil, and frass.

Climate Bonds Initiative (Climate Bonds): An investor-focused not-for-profit organisation, promoting large-scale investments that will deliver a global low-carbon and climate-resilient economy. Climate Bonds seeks to develop mechanisms to better align the interests of investors, industry, and government to catalyse investments at a speed and scale sufficient to avoid dangerous climate change.

Climate Bonds Standard: A screening tool for investors and governments that allows them to identify green bonds the proceeds of which are being used to deliver climate change solutions. This may be through climate mitigation impact and/or climate adaptation or resilience. The Climate Bonds Standard is made up of two parts: the parent standard (CBS v4.0) and a suite of sector-specific eligibility Criteria. The parent standard covers the Certification process and pre- and post-issuance requirements for all Certified bonds, regardless of the nature of the capital projects. The Sector Criteria detail specific requirements for assets identified as falling under that specific sector. The latest version of the Climate Bonds Standard is published on the Climate Bonds website.

Climate Bonds Standard Board (CBSB): A board of independent members that collectively represents USD34tn of assets under management. The CBSB is responsible for approving: (i) revisions to the Climate Bonds Standard, including the adoption of additional Sector Criteria; (ii) Approved Verifiers; and (iii) applications for Certification of a bond under the Climate Bonds Standard. The CBSB is constituted, appointed, and supported in line with the governance arrangements and processes as published on the Climate Bonds website.

Climate Bond Certification: Allows the issuer to use the Climate Bond Certification Mark in relation to that bond. Climate Bond Certification is provided once the independent CBSB is satisfied the bond conforms with the Climate Bonds Standard.

Critical interdependencies: The asset or activity's boundaries and interdependencies with surrounding infrastructure systems. Interdependencies are specific to local context but are often connected to wider systems through complex relationships that depend on factors outside the asset fence that could cause cascading failures or contribute to collateral system benefits.

Composting: The active process of converting organic material to more stabilised forms of carbon through the action of microorganisms. Composting is defined as the biological decomposition of wastes consisting of organic substances of plant or animal origin, under controlled conditions, into a state sufficiently stable for storage and utilisation.

Daily cover: In landfill design and operation, a daily cover is understood as approximately 15 centimetres of compacted soil. However, other possible cover materials include composted green wastes, compost from municipal solid waste, sewerage sludge compost, foam, tarpaulins, shredded tyres, select processed construction and demolition waste, and certain industrial materials.

Digestate: The physical output of the anaerobic digestion process, consisting of organic materials that have been biologically decomposed in the absence of oxygen. It typically resembles a slurry and can be separated into digestate fibre and liquor offering significant nutrient value, particularly in nitrogen, depending on the feedstock used.

Dumpsite: Defined as a non-scientifically designed and constructed site where waste is disposed of unsystematically and where gas emissions, liquid leakage, and solids contamination of the surrounding environment are not controlled or managed, and where scavenging by waste pickers often takes place.

Engineered scientific landfills: Highly regulated and managed sites for solid waste disposal, designed to protect the environment and public health. They use technologies and process parameters to mitigate environmental impacts, such as liners to prevent groundwater contamination, systems to collect and treat leachate, and gas management systems to manage methane emissions.

GHG emission intensity: Measures the amount of GHG emissions per economic activity, providing insights into the environmental efficiency of economic production.

GHG Protocol: Represents a comprehensive global standardised framework for measuring and managing GHG emissions. It addresses private and public sector activities, value chains, and mitigation actions.

Green Bond: A bond of which the proceeds are allocated to environmental projects or expenditures. The term generally refers to bonds that have been marketed as green. In theory, proceeds from green bonds could be used for a wide variety of environmental projects or expenditures, but in practice they have mostly been earmarked for climate change projects.

Industry Working Group (IWG): A group of key organisations that are potential issuers, verifiers and investors convened by Climate Bonds. The IWG provides feedback on the draft Sector Criteria developed by the Technical Working Group before they are released for public consultation.

Investment period: The interval between the bond's issuance and its maturity date. Otherwise known as the bond tenor.

ISO 14067:2018: The international standard providing requirements and guidelines for quantifying and reporting the carbon footprint of products based on life cycle assessment. It focuses on climate change, covering GHG emissions from raw material acquisition to disposal.

Landfill cell: A landfill cell is a single waste-holding unit, shaped as a basin during excavation, with berms running along the sides to contain leachate and other liquids, along with an impermeable barrier. Landfills will contain multiple distinct cells in order to rotate the filling of each of them, with most high-volume facilities rotating cells daily and covering with a layer of soil to control odour and waste movement due to wind.

Landfill gas: A natural by-product of the decomposition of organic material in landfills. It is primarily composed of methane, carbon dioxide, and small amounts of non-methane organic compounds.

Landfill gas collection efficiency: Quantifies the effectiveness of a landfill gas management system in capturing the methane and carbon dioxide generated by decomposing waste, preventing their uncontrolled release into the atmosphere. This metric is a crucial indicator of a waste facility's environmental performance, directly linking waste management practice to global climate change mitigation and renewable energy production.

Leachate: Defined as a by-product derived from municipal solid wastes due to their physical, chemical, and biological changes. It will be formed in landfills, incineration plants, composting plants, and transfer stations, with high strength and toxicity.

Life cycle assessment (LCA): A standardised, scientific methodology used to quantify the environmental impact of a product, process, or service across its entire life – from raw material extraction (cradle) to disposal or recycling (grave) – and provide a holistic view of resource use.

Material recovery facility: A fundamental component in municipal solid waste management and commercial waste recycling. It receives co-mingled recycling collected from homes and other generators and separates recyclable materials into single material streams in preparation for commercialisation, recycling and reuse.

Municipal solid waste: Refers to the solid waste generated by urban residents in their daily lives or activities. This waste stream is made up of organic waste, plastic, paper, fabric, metal, glass, and furniture; however, the waste composition greatly varies depending on the city and country where it is generated.

Pretreatment: Involves a series of physical, chemical, or biological processes applied to mixed waste before final disposal and/or conversion.

Technical Working Group (TWG): A group of key experts from academia, international agencies, industry, and non-governmental organisations convened by Climate Bonds. The TWG develops Sector Criteria – detailed technical criteria for the eligibility of projects and assets – as well as guidance on the tracking of eligibility status during the term of the bond. Their draft recommendations are refined through engagement with finance industry experts in convened IWGs and through public consultation. Final approval of Sector Criteria is given by the CBSB.

Working face: Also known as the 'tipping face' or 'active area' of a landfill or landfill cell, where waste is deposited, spread, compacted, and covered daily. It is designed to minimise the area exposed to the environment, reducing odour, pests, and litter.

1 Introduction

1.1 The Climate Bonds Standard

Investor demand for climate bonds is strong and is expected to increase in line with the delivery of quality products into the market. However, investor concerns about the credibility of green labelling are also growing. Standards, assurance, and Certification will be essential to improve confidence and transparency, which in turn will enable further strong growth in the market.

Today, the Climate Bonds Standard and Certification Scheme is an easy-to-use screening tool that provides a clear signal to investors and intermediaries on the climate integrity of Certified Climate Bonds. Proposals are currently under consultation to also expand Certification to entities with climate integrity.

A key part of the Standard is a suite of sector-specific eligibility Criteria. Each set of Sector Criteria sets climate change benchmarks for that sector that are used to screen assets and capital projects, and increasingly entities, so that only those that have climate integrity – through their contribution either to climate mitigation and/or to adaptation and resilience to climate change – will be Certified.

These sector-specific Criteria are determined through a multi-stakeholder engagement process, including TWGs and IWGs, convened and managed by Climate Bonds. The Criteria are subject to public consultation. Finally, they are reviewed and approved by the CBSB.

The second key part is the overarching Climate Bonds Standard, which is available on the Climate Bonds website.[1] The standard documents the common management of proceeds and reporting requirements that all Certified climate bonds must meet, in addition to meeting the sector-specific Criteria.

1.2 Environmental scope

Currently, Certification requirements address:

- climate change mitigation; and
- the principle of 'do no significant harm' to climate adaptation and resilience or to other environmental objectives.

1.3 What can be Certified

Subject to meeting the eligibility Criteria for the respective sectors, the following can be Certified under these Criteria:

- use of proceeds (UoP)[2] bonds financing methane mitigation measures, e.g., retrofits (see Section 3);
- UoP bonds financing:
  - waste collection and transportation projects;
  - composting facilities;
  - anaerobic digestion facilities;
  - waste thermal treatment facilities;
  - black soldier fly projects;
  - engineered sanitary landfills; or
  - dumpsite closure and rehabilitation projects.

The following can be Certified after the update of the overarching Climate Bonds Standard:

- assets not linked to any specific financing instrument (waste management facilities) (see Section 4); and
- waste management and collection entities and sustainability-linked bonds issued by those entities, under the Climate Bonds Standard Version 4.3 checklists for Entity Certification and Sustainability-linked Debt (SLD) Certification.

To demonstrate compliance with the following Criteria, in accordance with the Climate Bonds Standard, it is the applicant's responsibility to provide the information to prove compliance with each component of these Criteria. Verifiers must include this information in the scope of verification.

Where the bond portfolio includes several separately identifiable projects, expenditures, or groups of assets, these Criteria must be met for each separately identified project or asset grouping. Applicants should determine these project boundaries, which may be based on geographical and/or supply chain linkages.

1.4 Documents supporting these Criteria

The following information to support issuers and verifiers is available from the Climate Bonds webpage on Waste Management Criteria:[3]

- Waste Management Background Paper (contains details on why the Criteria were chosen); and
- Waste Management Frequently Asked Questions (FAQ).

The Climate Bonds Standard Version 4.3 contains the requirements of the overarching Standard.[4]

The Entity Certification and SLD Certification checklists provide further information on the cross-sectoral requirements for entity and SLD Certification, respectively. [5],[6]

For more information on Climate Bonds and the Climate Bonds Standard and Certification Scheme, see the Climate Bonds website.[7]

1.5 Revisions to these Criteria

These Criteria will be reviewed on a regular basis, at which point the TWG will take stock of the bonds issued to date and any developments in improved methodologies and data, or advances in technologies or practices, that should be reflected to increase the climate integrity of the Criteria. As a result, the Criteria are likely to be refined over time, as more information becomes available. Certification will not be withdrawn retroactively from bonds Certified under earlier versions of the Criteria.

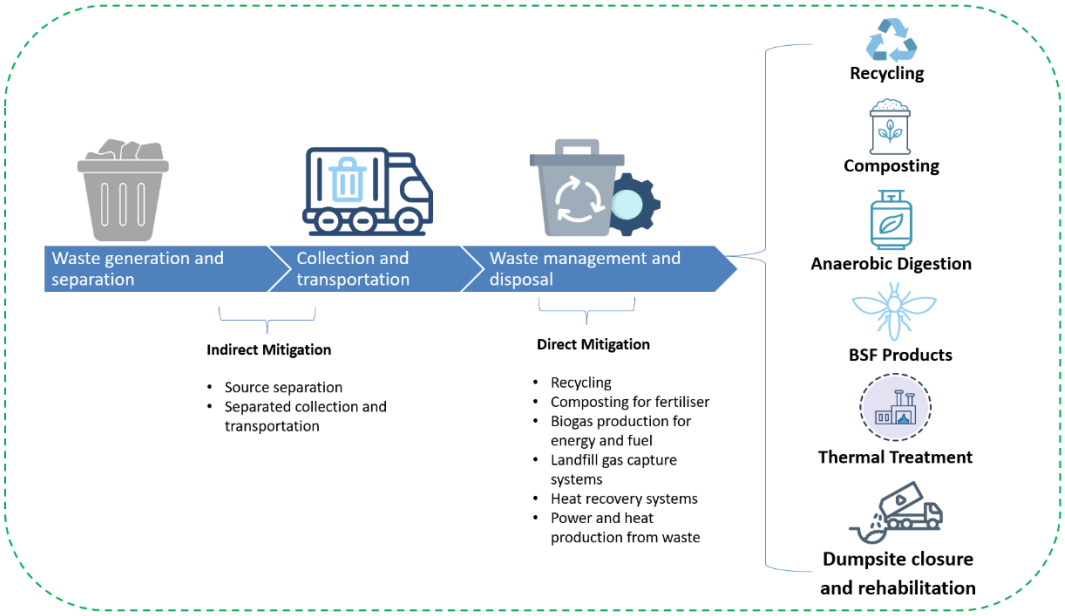
The Waste Management Criteria of the Climate Bonds Standard were originally launched in October 2019. The first revision took place in August 2022, when a clarification for sorting facilities was included and additional criteria were added for energy from waste. Now, as part of the Global Methane Hub project, Climate Bonds is expanding the scope of credible Criteria addressing methane emissions available to the market for a broader range of sectors, including the waste management sector.

2 Scope of the Criteria

2.1 Waste management activities covered

The Waste Management Criteria apply to eligible assets, projects, and entities relating to the collection and management of municipal solid waste. Figure 1 presents a simplified summary of the waste value chain and the activities in scope for waste management and collection Certification. Activities in scope are within the green boundary.

Figure 1: Simplified representation of waste management processes and activities in scope



2.2 Activities not covered by these Criteria

- Waste reduction
- Bioenergy production from non-waste feedstock

2.3 Greenhouse gas emissions in scope

All relevant GHGs must be considered, including methane, carbon dioxide, and nitrous oxide. Emissions should be expressed in Carbon dioxide equivalen (CO2e), using the most recent IPCC global warming potential (GWP) – Sixth Assessment Report (AR6).[8]

2.4 Alignment with other Sector Criteria

With respect to UoP Certifications of bonds, where the proceeds will be allocated to multiple sectors, proof of compliance with multiple Sector Criteria may be required across the portfolio. For example, if the UoP bond is financing both thermal treatment of waste and bio-based fuel production, then the applicant would have to prove compliance with the Waste Management Criteria in respect of the former and the Bioenergy Criteria in respect of the latter.

With respect to SLD Certification and Entity Certification, where the sustainability-linked bond or entity performance targets span multiple activities within the entity, all those activities will need to be assessed

against the appropriate Sector Criteria. See the Climate Bonds Standard v4.3, Part D Section 2.3, for further information.

In some cases, it may not immediately be clear whether activities, facilities, or projects might fall under these Criteria or other Sector Criteria. The possible overlaps, and appropriate Sector Criteria to be used, are clarified in Table 1.

Table 1: Assets or projects total or partially covered by other Sector Criteria

Potential use of proceeds	Sector Criteria
Biochar production within agricultural lands	Agriculture Production Criteria

3 Criteria for decarbonisation and methane mitigation measures within waste management facilities

These Criteria cover capital investments (decarbonisation and methane mitigation measures) within waste management facilities. This differs from an investment that would finance the cost of a whole facility or project, in that it is focused on measures or specific areas of improvement within a waste management project or facility.

3.1 Mitigation criteria

Table 2 lists decarbonisation and methane mitigation measures, retrofit projects, and activities eligible for Certification due to their climate mitigation potential, and any associated eligibility criteria specific to those investments.

Table 2: Mitigation criteria for eligible decarbonisation and methane mitigation measures

Area	Measure	Mitigation criteria
Landfill gas recovery	Acquisition or installation of landfill gas collection and control systems (GCCS).	**Input** • The landfill implements a minimum working face approach that considers technical indicators such as daily waste tonnage, waste types, and site-specific design conditions to minimise odour, pests, litter, fire risks, and fugitive methane emissions.[9] • The landfill ensures a gas collection efficiency of at least 75%. **Process** • The landfill or landfill cell where the GCCS is installed, extended, or retrofitted is closed and is no longer accepting organic or biodegradable waste, or has a short-term closure plan (less than two years). • The landfill implements GHG emissions monitoring within the landfill's area of influence. • The project must provide a yearly quantification of GHG emission intensity (tCO_2e per tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emissions must not increase over time. • For closed landfills, mitigation of GHG emissions is to be accomplished through the implementation of bio covers. **Output** • The biogas generated at the new landfill must be used for energy generation or heat generation or be upgraded to produce biomethane. • Biogas can be flared only when it cannot be used for energy generation because of a system downtime or the end of life of the landfill. Methane combustion rate must be at least 99%. • The leachate or wastewater generated must be treated and reused within the landfill.
Landfill retrofitting and upgrade activities	Revamps, modifications and acquisition of equipment and other infrastructure necessary for upgrading existing landfills into engineered landfills	**Input** • The existing landfill or landfill cell no longer accepts the entry of source-separated organic waste. • The existing landfill ensures the diversion of source-separated waste fractions, i.e., organic and recyclable waste, towards recycling or organic waste treatment plants, reducing the amount of landfilled waste. **Process** • The landfill has GHG emissions hotspots identified, and monitors and mitigates these emissions. • The project must provide a yearly quantification of GHG emission intensity (tCO_2e per tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emission intensity must not increase over time. • When technically viable, the received organic waste is separated from other waste streams and diverted to AD or composting.

Area	Measure	Mitigation criteria
		• The landfill ensures the implementation of daily cover of buried waste. • The landfill ensures continuous research and innovation aimed at improving operations within the site. • The landfill implements a landfill gas capture system meeting the landfill gas capture criteria. • The landfill implements a leachate management and treatment system. • The landfill implements a minimum working face approach that considers technical indicators such as daily waste tonnage, waste types, and site-specific design conditions to minimise odour, pests, litter, fire risks, and fugitive methane emissions.[10] **Output** • The biogas generated at the landfill must be used for energy generation or heat generation or be upgraded for the production of biomethane. • Biogas can be flared only when it cannot be used for energy generation because of a system downtime or the end of life of the landfill. Methane combustion rate must be at least 99%. • The leachate or wastewater generated must be treated and reused within the landfill.
Heat recovery	Heat recovery infrastructure, installation, and operation for thermal treatment facilities	• Only residual or pre-sorted waste is accepted as feedstock. • The heat recovery of waste-to-energy plant ensures an efficiency of 25%. • The plant ensures bottom ash recovery, with at least 75% recovery of metals from the generated ash.
Digital tools and sensors to monitor and measure methane emissions	Acquisition and installation of equipment and other infrastructure necessary for methane emissions detection and monitoring	Automatically eligible

4 Mitigation criteria for waste collection and management activities

For Certification, the facility or project must meet:

- the mitigation criteria (see Section 4.1 Waste collection, transport and storage criteria; 4.2 Materials recovery and recycling criteria**;** and 4.3 Waste management facilities and projects mitigation criteria); and
- the principle of do no significant harm (see Section 5).

4.1 Waste collection, transport, and storage criteria

Table 3: Mitigation criteria for waste collection, transport and storage

Activity	Mitigation criteria
Collection infrastructure Transport infrastructure Storage infrastructure	**Input** • Source-separated waste from municipal sources. • Collection activities for source-separated waste must be accompanied by waste prevention and recovery campaigns, as well as source-separation education campaigns, aimed at all waste generators. **Process** • Collection and transport infrastructure are designed to ensure source-separated collection and transportation.[11] • The collection and transportation systems are designed to transport waste to the nearest recycling or treatment facilities, unless there are reasons affecting the viability of the project not to send the waste to the nearest facilities. Reasons affecting transport viability include lack of treatment capability, capacity constraints, and higher overall system emissions. • The collection activity must demonstrate a time-bound transition plan towards zero direct-emission vehicles by 2035, including: o description of the baseline fleet composition; o annual fleet decarbonisation targets; o development of supporting infrastructure (charging and refuelling); o plan for the retirement, replacement, or upgrading of high-emission vehicles; o implementation of alternative and transitioning fuels such as biomethane, biofuels, and/or biomass-derived fuels and hybrid vehicles; and o retrofitting or refurbishing of existing vehicles, where the retrofitting results in measurable emission reductions against fleet baseline. **Output:** • The collected waste is transported in source-separated fractions towards reuse, recycling, or scientific treatment facilities.

4.2 Materials recovery and recycling criteria

Table 4: Mitigation criteria for waste materials recovery and recycling

Activity	Mitigation criteria
Waste sorting, separation and materials recovery facility[12]	**Process** • Recovery efficiency must be at least 50%. **Output** • The sorted waste can be used as secondary raw materials suitable for the substitution of virgin materials in production processes. • Facilities sorting mixed recyclables into separate glass, metal, plastic, paper, etc. are eligible for Certification where the outputs are demonstrated via invoices or weighbridge tickets to go to facilities that are or would be Certifiable under the materials recovery and recycling criteria. • Facilities processing mixed residual waste to produce feedstock for thermal treatment facilities are eligible where they separate waste components for recycling and both the recycling and residual outputs are demonstrated via evidence to go to facilities that are or would be Certifiable under the materials recovery and recycling criteria (for the recycling outputs), and under the thermal treatment criteria (for the residual outputs).
Recycling: Facilities processing recyclable waste fractions into secondary raw materials	Secondary raw materials (such as steel, aluminium, glass, and plastics) cease to be waste and are sold for use as secondary raw materials.
Recycling: Facilities collecting, sorting, cleaning, refurbishing, reconditioning, and/or repairing products.	The products are put back to their original use without any further pre-processing required. For waste electrical and electronic equipment specifically, the product is covered by an ecolabelling scheme and only those products meeting the three lowest energy use categories are eligible.

4.3 Waste management facilities and projects mitigation criteria

4.3.1 Composting

Table 5: Mitigation criteria for composting

Activity	Mitigation criteria
Large composting systems (> 365 tonnes/year)	**Input** • The waste used for composting is source-separated organic waste from municipal and agriculture sources.[13] Any other organic waste used as feedstock for composting must comply with quality requirements set out by internationally recognised standards such as the European Compost Network Quality Assurance Scheme (ECN–QAS).

	• A pretreatment or a separation system must be installed to remove contaminants that could hinder the composting process. • The feedstock must comply with the standards established through the Agriculture Production Criteria and Forestry Criteria when applicable. **Process** • An aeration or a composting pile mixing plan has been established to avoid anaerobic pockets in the pile. • A methane emission detection system, either individually or grouped among different composting systems, is in place, and periodical review of operations is conducted to avoid methane emissions from the operation. • The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emission intensity must not increase over time. • The project implements international quality standards for composting, such as British Standard Institution (BSI) PAS 100, ECN–QAS, the European Union Fertiliser Regulation (EU) 2019/1009, ISO 17088:2021 Plastics – Organic recycling – Specifications for compostable plastics, or other comparable standards and national regulations. • Leachate is recirculated or managed through adequate treatment. **Output** • The generated compost is used as soil fertiliser, conditioner, or landfill cover, meeting the quality standard and application methods for each type of product required by national law or international standards. • The reject waste generated from these facilities must be disposed of in scientific treatment facilities.[14] • The compost is not landfilled and replaces non-waste material in the market.
Small composting systems (< 365 tonnes/year)	**Input** • The waste is source-separated from sources including food waste, tree pruning waste, garden waste, agricultural waste, and sludge. • The waste used as feedstock in small composting systems must be generated onsite or at a maximum distance of 5 km. If the distance exceeds 5 km, the facility must justify the need for transporting longer distances for smaller quantity of waste (e.g., non-viability of onsite or decentralised composting). **Process** • The system must be designed to ensure adequate aeration, control, and management of leachate. • The project must provide a yearly report, detailing avoided emissions through implementation of the project, reported as CO_2e, and when possible specifying methane emissions. **Output** • The generated compost is not landfilled and replaces non-waste material in the market. It is used as soil fertiliser, conditioner, or landfill cover, meeting the quality standard and application method for each type of product required by national law or international standards. • The rejected waste generated from these facilities must be disposed of in scientific treatment facilities.

4.3.2 Anaerobic digestion

Table 6: Mitigation criteria for anaerobic digestion

Activity	Mitigation criteria
Large systems (> 3,650 tonnes/year)	**Input** • The organic waste used as feedstock includes only food waste, wastewater biosolids or sludge, agricultural waste, manure, green or garden waste, or co-digestion of multiple sources of organic waste. • The waste used is source-separated and separately collected and transported to the AD plant. • A pretreatment or separation system is installed in compliance with internationally recognised standards such as BSI PAS 110, ISO 19388:2023 – Sludge recovery, recycling, treatment and disposal, or EU Animal By-Products Regulation (EC) No 1069/2009. • The feedstock must comply with the standards established through the Agriculture Production Criteria and Forestry Criteria when applicable. **Process** • A monitoring and leakage detection plan is in place.[15] The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emission intensity must not increase over time. **Output** • The generated digestate is stabilised and used as a soil fertiliser and/or soil improver, or as feedstock for biochar production, and complies with international digestate quality standards such as ECN-QAS, the EU Fertiliser Regulation (EU) 2019/1009, or other comparable standards. • The biogas generated at the new landfill is used for energy generation or heat generation or is upgraded for the production of biomethane. • The rejected waste generated during the AD process is disposed of in scientific treatment facilities. • The solid and liquid products are not landfilled and replace non-waste materials in the market.

Small systems (< 3,650 tonnes/year)	**Input** • The waste is source-separated, separately collected, and transported to the AD plant. • The waste must be generated onsite or at a maximum distance of 5 km from the AD plant. If the distance exceeds 5km, the facility must justify the need for transporting longer distances for smaller quantity of waste (e.g., non-viability of onsite or decentralised AD). **Process** • A methane leakage monitoring and mitigation plan is in place, specifically in the pipelines and gas storage systems. **Output** • The generated digestate is stabilised and used as a soil fertiliser and/or soil improver, or as feedstock for biochar production, and must comply with international digestate quality standards such as ECN-QAS, the EU Fertiliser Regulation (EU) 2019/1009, or other comparable standards. • The biogas generated at the new landfill must be used for energy generation or heat generation or be upgraded to produce biomethane. • The rejected waste generated during the AD process must be disposed of in scientific treatment facilities. • The solid and liquid products are not landfilled and replace non-waste materials in the market.

4.3.3 Black soldier fly products

Table 7: Mitigation criteria for BSF products

Activity	Mitigation criteria
BSF products	**Input** • Feedstock for the production of BSF must come from sustainable biomass sources.[16] • The waste is separately collected and transported to the organic waste treatment facility, including a pretreatment or separation system to be installed and operated to stop any physical, chemical, or pathogenic contaminants from entering the BSF food chain and hindering the process. **Process** • The project includes a GHG emission monitoring and mitigation plan. • The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emissions intensity must not increase over time. **Output** • The generated fertiliser complies with the standards established through the composting criteria detailed above. • The generated larvae are dried, pasteurised, or blanched with energy complying with Climate Bonds Energy Criteria. • The generated protein feed complies with international standards such as Regulation (EU) No 142/2011 and Regulation (EC) No 999/2001. • If no other market alternative is viable and available, the insect oil generated through the BSF process must be used as feedstock for the generation of energy used for the BSF process.

4.3.4 Dumpsite closure and rehabilitation

Table 8. Mitigation criteria for dumpsite closure and rehabilitation

Activity	Mitigation criteria

Closure through upgrade into a controlled engineered landfill
In-place closure through waste coverage
Closure by waste removal from the site
	Input
	• The dumpsite must ensure it no longer receives waste and will cover existing waste with a layer of local soil or stabilised compost to ensure re-vegetation.
	• The dumpsite has an active plan to upgrade operation into a landfill as a strategy for dumpsite closure,[17] ensuring full compliance with the criteria established in Section 4.3.4.1 New controlled sanitary landfills.
	• The closure plan ensures that another waste management and disposal site is available to receive waste, which performs better than the existing dumpsite in terms of environmental, technical, and social safeguarding.
	Process
	• Closure through upgrading to an operating landfill, at a minimum includes the installation of:
	  ○ landfill gas collection systems, passive or active;
	  ○ capping and re-grading for leachate management;
	  ○ leachate collection and treatment system; and
	  ○ bio-cover capping for legacy waste.
	• The dumpsite must have a monitoring plan in place to identify possible methane emission hotspots, and a mitigation plan in place to manage the identified hotspots.
	• The monitoring plan must be in place throughout the lifetime of the expected methane emissions, or for at least 20 years after closure of the site.
	• The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA, or using top-down satellite or drone measurements.
	Output
	• The biogas generated must be used for energy generation or heat generation or be upgraded for the production of biomethane.
	• The leachate or wastewater generated must be treated and reused within the landfill.

4.3.4.1 New controlled sanitary landfills

Applicable only to transition from dumpsite in regions that lack controlled waste management systems and infrastructure.

Table 9: Mitigation criteria for new landfills

Abatement activity	Mitigation criteria

Construction and operation of new controlled sanitary landfills	**Input**
	• The new landfill does not accept the entry and landfilling of source-separated organic waste when organic waste treatment infrastructure is available.
	• For regions that lack infrastructure and systems for organic waste diversion, mixed organic waste can be accepted, and the landfill operation ensures implementation of the following technical requirements:
	  ○ capture of landfill gas during the cell's operating lifetime with a temporary/daily cover meeting the landfill gas capture criteria;
	  ○ installation and maintenance of impermeable covers;
	  ○ installation and operation of a bioreactor with more than 60% of waste kept in humid conditions; and
	  ○ optimised treatment of residual methane, including oxidation and biofilters, as well as preservation of high-performance covers.
	• The landfill implements a minimum working face approach that considers technical indicators such as daily waste tonnage, waste types, and site-specific design conditions to minimise odour, pests, litter, fire risks, and fugitive methane emissions.[18]
	• The new landfill complies with national legal and regulatory instruments on waste management and national climate mitigation plans.
	Process
	• The landfill ensures identifications of GHG emission hotspots at least four times a year and provides emissions monitoring and mitigation mechanisms.
	• The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA, or using top-down satellite or drone measurements.
	• When technically viable, the received organic waste is separated from other waste streams and diverted to AD or composting.
	• The new landfill ensures effective control and monitoring systems in line with national and local requirements.
	Output
	• The biogas generated at the new landfill must be used for energy generation or heat generation, or be upgraded for the generation of biomethane.
	• The leachate or wastewater generated must be treated and reused within the landfill.
	• The landfill has a monitoring plan in place throughout the lifetime of the expected methane emissions, or for at least 20 years after closure of the site.

4.3.5 Thermal treatment

Table 10: Mitigation criteria for thermal treatment

Activity	Mitigation criteria
Production of biochar from organic waste	**Input** • Feedstock to produce biochar must come from sustainable biomass sources.[19] • The feedstock must comply with the standards established through the Agriculture Production Criteria and Forestry Criteria when applicable. • For agricultural waste, sustainable collection requires that at least 30% of residues are left in the field to avoid decreasing soil health and crop levels. However, should the generated biochar be used as soil amendment within the same field where the agricultural waste was sourced from, the 30% benchmark may not be applied. • For woody biomass to be included as eligible feedstock, it must come from forest or sources certified by one of the certification schemes listed in Table 11. • For contaminated feedstock, ensure that the biochar produced is used as non-agricultural inputs. **Process** • Additives to improve pyrolysis conditions and biochar quality must not exceed 10% of the overall mass.[20] • If the biochar production process is performed through pyrolysis, the gases must go through engineered emission controls to ensure efficient gas capture and treatment, such as the collection and treatment of syngas and the installation of scrubbers and/or filters to remove particulates and harmful compounds. • A monitoring system must be in place to measure emission levels in the process, and mitigation measures must be implemented. • A monitoring and leakage detection plan must be in place.[21] The project must provide a yearly quantification of GHG emission intensity (tCO_2e/tonne of treated waste) and avoided emissions, with methane emissions specified, compared against baseline results. This may be achieved using carbon accounting methodologies such as the GHG Protocol, ISO 14067:2018, or an LCA. Emission intensity must not increase over time. **Output** • A characterisation is performed on the generated biochar to ensure the product's stability, and the ratio of hydrogen to organic carbon (H/C_{org}) is lower than 0.2. This characterisation can be performed using proxies consistent with international quality standards such as the World Biochar Certificate,[22] the European Biochar Certificate or the International Biochar Initiative guidelines. • The generated biochar must be used in applications that ensure the preservation of the carbon storage potential. Some examples of biochar application include use as soil conditioner, surface water barrier, animal feed additive, wastewater treatment, landfill or mine remediation, and soil additives. • The generated biochar must comply with the quality requirements established through international quality standards such as the World Biochar Certificate, the European Biochar Certificate or the International Biochar Initiative guidelines.

	• If the biochar produced will not be used as an agricultural input, the activity ensures that only contaminated raw material (organic matter) is used. • Periodic monitoring of the carbon content of the soil where the biochar is applied must be performed to ensure carbon levels remain acceptable. • Use of biochar as fuel is highly discouraged. However, the Criteria cannot restrict end uses.

Table 11: Accepted certification schemes for waste woody biomass feedstock

Scheme	Complete name
ISCC-EU	International Sustainability and Carbon Certification EU
FCS	Forest Stewardship Council
SBP	Sustainable Biomass Programme
GGL	Green Gold Label

5 Do no significant harm principle: criteria for waste management activities and methane mitigation measures

This section describes the component of the eligibility Criteria for waste management and transport activities and measures that relates to the principle of do no significant harm (DNSH). To demonstrate compliance, all facilities must satisfy the requirements of the checklists detailed below in Sections 5.1.1 and 5.1.2.

The DNSH assessment aims to demonstrate that the activity or investment that contributes substantially to climate change mitigation does not cause harm to other environmental objectives. The checklist addresses the following environmental objectives:

- climate change adaptation and resilience;
- sustainable use and protection of water and marine resources;
- transition to a circular economy;
- pollution prevention and control; and
- protection and restoration of biodiversity and ecosystems.

5.1.1 Pre-assessment

The following checklist helps to identify which other environmental objectives need to be considered to conduct the DNSH assessment for the activity (see Section 5.1.2 below).

Table 12: DNSH pre-assessment

Might the activity be expected to have an impact on the following environmental objectives?		
Environmental objective	**Yes (Conduct the assessment in Section 5.1.2)**	**No (Provide a brief justification)**
Climate change adaptation and resilience		
Sustainable use and protection of water and marine resources		
Circular economy, including waste prevention and recycling		
Prevention and control of pollution to air, water, or land		
Protection and restoration of biodiversity and ecosystems		

5.1.2 Do no significant harm assessment

The checklists are tools to verify that the applicant has implemented sufficient processes and plans in the design, planning, and decommissioning phases of a facility or facilities, to ensure that the operation

and construction of the facility minimises environmental harm and the facility is appropriately adaptive and resilient to climate change and supports the adaptation and resilience of other stakeholders in the surrounding system, if applicable.

All elements of the checklist must be addressed, and appropriate evidence provided that these requirements are being met or are not applicable in respect of the specific facility linked to Certification. It is expected that the applicant's evidence will encompass a range of assessment and impact reports and associated data, including but not limited to those reports required to meet national and local licensing and approval processes. This might include development consent orders, planning regulations adhered to, environmental impact assessments, vulnerability assessments, and associated adaptation plans.

It is the applicant's responsibility to provide the relevant information to the verifier. Verifiers must include this information in the scope of verification.

For each question in the scorecard:

- 'yes' indicates sufficient proof given;
- 'no' indicates insufficient proof; and
- in the case of 'n/a,' please justify why the question is not applicable.

Table 13: DNSH criteria for waste management activities and methane mitigation measures

No.	DNSH checklist	Proof given	Overall assessment
		For verifier to complete	
Section 1: Climate change adaptation and resilience			
1.1	Clear boundaries and critical interdependencies are identified between the asset or activity and the system it operates within.		
1.2	An assessment has been undertaken to identify the key physical climate hazards to which the asset or activity will be exposed and vulnerable over its operating life.		
1.3	The measures that have or will be taken to address those risks and mitigate them to a level such that the asset or activity is suited to climate change conditions over its operational life have been identified and planned, if not yet undertaken.		
1.4	The facilities do no significant harm to the climate resilience of the defined system they operate within.		
1.5	There will be ongoing monitoring and evaluation of the relevance of the risks and resilience measures and related adjustments to those measures will be taken as needed. Indicators are provided for risks identified under item 1.2 in this checklist. Indicators are provided for risk mitigation measures identified under item 1.3 in this checklist. Applicants have a viable plan to annually monitor and evaluate climate risk thresholds or triggers, climate resilience performance, and appropriateness of climate resilience measure(s), and to adjust as necessary to address evolving climate risks.		
1.6	The activity ensures the provision of a climate risk and vulnerability assessment.		
Section 2: Sustainable use and protection of water and marine resources			

2.1	An environmental impact assessment for the activity or asset is conducted by an independent third-party expert and addresses potential impacts on water, **OR**		
	Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential.		
	A water use and protection management plan, for the potentially affected water body or bodies, has been developed in consultation with relevant stakeholders.		
	The activity does not hamper the achievement of good environmental status of marine waters or does not deteriorate marine waters that are already in good environmental status.		
2.2	The activity ensures no interference in legally protected areas, except in cases where it is unequivocally proven that alternatives that minimise environmental impacts are not feasible.		
2.3	The activity ensures prior consultation with stakeholders and the local community before the activity starts operations.		
2.4	The activity ensures compliance with local regulations on water usage, effluent discharge, and water quality monitoring.		
Section 3: Transition to a circular economy			
3.1	The activity must not cause significant inefficiency in the use of materials or the direct or indirect use of natural resources.		
3.2.	The activity does not increase the generation of waste.		
3.3	The activity ensures that separately collected waste fractions are not mixed at storage and transfer facilities with other types of waste or materials according to the definition of waste types in the relevant jurisdiction.		
3.4	The activity ensures that organic waste is collected and transported to a designated treatment facility frequently, to avoid GHG emissions due to decay.		
3.5	The activity implements efficient equipment and technologies that allow the optimal utilisation of rejected waste to prevent final disposal through waste treatment.		
3.6	The activity follows the waste hierarchy and is an option because of the lack of other waste management alternatives.		
3.7	The activity complies with the standards on resource efficiency established through IFC Performance Standard 3: Resource Efficiency and Pollution Prevention[23]		
Section 4: Pollution prevention and control			
4.1	The activity does not pose significant risk of harm to air quality, addressing pollutants such as particulate matter, carbon monoxide, ozone, nitrogen dioxide, and sulphur dioxide, following the Best Available Techniques (BAT) Reference Document for Waste Treatment.[24]		
4.2	The activity does not lead to a significant rise in the emission of hazardous substances into the air, water, or ground, or cause other environmental damage.		
4.3	For composting plants treating over 75 tonnes per day, emissions to air and water are within or lower than the emission levels associated with the latest relevant best available techniques (BAT–AEL ranges)		

	set out for aerobic treatment of bio-waste, or meet national regulations.[21]		
4.4	The activity ensures the availability of a leachate management system that prevents leachate reaching groundwater.		
4.5	For activities treating large quantities of waste (over 100 tonnes per day) through anaerobic digestion, emissions to air and water are within or below the emission levels associated with best available techniques, or nationally regulated standards applicable to the activity.		
4.6	The activity ensures adequate separation between rainwater, leachate, and groundwater, to prevent contact and protect water quality.		
4.7	For final disposal, the activity ensures the implementation of daily coverage techniques, such as applying soil cover or alternatives including tarpaulins or synthetic materials to control odours, pests, and the dispersion of particulate matter into the atmosphere.		
4.8	The activity ensures that truck and machinery wheel cleaning procedures are strictly enforced to prevent mud or debris from being transported to public roads. Measures such as extending paved internal roads, using mechanical sweepers, installing wheel washing facilities, and effective maintenance of internal roads may be necessary.		
4.9	Containment measures may be necessary to prevent the spread of waste, such as collection along access roads and buffer zones, installation of portable or semi-permanent fences, and proper management of light waste to reduce its dispersion inside and outside the landfill.		
4.10	An environmental impact assessment for the activity or asset is conducted by an independent third-party expert and it addresses potential impacts on pollution to soil, air, and water.		
4.11	The activity complies with the standards on pollution prevention established through IFC Performance Standard 3: Resource Efficiency and Pollution Prevention.		
Section 5: Protection and restoration of biodiversity and ecosystems			
5.1	The activity does not significantly harm the good status or resilience of ecosystems.		
5.2	The activity does not harm the conservation status of habitats or species.		
5.3	The activity does not lead to biodiversity loss and ecosystem degradation.		
5.4	An assessment of potential land use change risks and indirect land use change risks is conducted and mitigation measures proposed.		
5.5	For sites/operations located in or near biodiversity-sensitive or protected areas (including the Natura 2000 network of protected areas, UNESCO World Heritage Sites, and Key Biodiversity Areas), an appropriate assessment in line with IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management,[25] where applicable, has been conducted, and based on its conclusions the necessary mitigation measures are implemented.		
5.6	The activity implements effective bird control measures, such as adequate waste coverage, to limit the attraction of animals, and prevent birds from nesting or breeding onsite.		

5.7	The activity/waste management site must not be located in areas that impact critical habitats for fauna and flora, including conservation and environmental protection units and wildlife.		
5.8	An environmental impact assessment for the activity or asset is conducted by an independent third-party expert and addresses potential impacts on local biodiversity and ecosystems.		

5.1.3 Social safeguards

When applicable, the project must demonstrate the following.

- The activity does not represent any public health risk, related to exposure to toxic substances.
- The activity supports local economies by creating jobs in waste collection, processing facilities, and/or recycling units (both skilled and unskilled labour).
- The activity recognises the services of informal waste workers, such as waste pickers, and includes them in decision-making.
- The activity involves public and private stakeholders and incorporates appropriate local community perspectives and needs.
- The activity complies with national and local regulations on labour standards.
- The activity complies with IFC Performance Standard 2: Labour and Working conditions.[26]
- The activity complies with IFC Performance Standard 4: Community Health, Safety, and Security.[27]
- The activity complies with IFC Performance Standard 7: Indigenous Peoples.[28]

If these safeguards are not applicable for the type of project, the applicant must explain the reason.

5.1.4 Disclosure

In the interests of transparency and disclosure, issuers of Certified Climate Bonds are required to publicly disclose the following in respect of the assets and UoP incorporated in that deal:

- the planning standards, environmental regulations, and other regulations that the facility has been required to comply with; and
- the environmental impact assessment and measures to address potential risks.

Appendix A: Members of Technical Working Group and Industry Working Group

Climate Bonds Lead		
Marian Rodríguez	Head of Standards, Climate Bonds Initiative	
External Technical Lead		
Vishwas Vidyaranya	CEO, Ambire Global; waste expert	
Technical Working Group Members		
Kait Siegel	Director, Waste Methane, Clean Air Task Force	United States (US); Latin America and Caribbean (LAC)
Jose Luis Davila	Independent Environmental Consultant; landfill expert	LAC
José Alejandro Martínez	Associate Professor, EAN University; circular economy and waste expert	LAC
Karthik Kapoor	Independent Waste Management Consultant	Asia; Africa
Herwig Ragossnig	CEO, Carbon Turnaround	Europe; LAC
Magda Correal	Senior Specialist in Water, Sanitation and Solid Waste Division, Inter-American Development Bank	US; LAC
Carolina Piamonte	Consultant in Waste Management and Circular Economy, Inter-American Development Bank	US; LAC
Rafaela Craizer	Technical Director, BlackForest Solutions	Europe; Global
Aditi Ramola	Technical Director, International Solid Waste Association; waste management expert	Global
Sandra Mazo-Nix	Solid Waste Management Senior Associate, Abt Global	LAC
Jiao Tang	Deputy CEO, Catalytic Finance Foundation	Asia; Global
Carolina Urmeneta	Director, Circular Economy, Global Methane Hub	LAC; Global
Suneel Pandey	Senior Fellow and Director, Environment & Waste Management Division, The Energy and Resources Institute	Asia; Africa
Industry Working Group Members		
Vivek Sadevra	ESG & Sustainability Head, Blue Planet Environmental Solutions	India; Singapore
Karri Ving	Managing Principal, Business Consulting and ESG, Brown and Caldwell	North America
Kobrat Chotruangprasert	Senior Sustainability Assessor, DNV	Thailand; Global
Isobel Edward	Global Head of Sustainable and Impact Fixed Income Research, Goldman Sachs	UK; Global

Kosuke Kajiwara	Verifier, Japan Credit Rating Agency	Japan
Yuki Fukasawa	Verifier, Japan Credit Rating Agency	Japan
Ikechukwu Iheagwam	Verifier, Agusto & Co.	Nigeria
Heena Shah	ESG/Sustainability Senior Associate	US; Global
Tarun Rohra	Verifier, Morningstar Sustainalytics	UK; Global
Zoë Lenkiewicz	Director, Global Waste Lab; waste management specialist	UK; Global
Jonas Lau Kristensen	Managing Director and Co-Head of Green Energy and Infrastructure, Impact Fund Denmark	Denmark
Kunu Joel Dingana	Director/CEO, Green Initiatives Association	Cameroon

[1] Climate Bonds Initiative. Climate Bonds Standard. https://www.climatebonds.net/our-expertise/standard-sector-criteria-certification/the-standard

[2] Use of proceeds (UoP) is used as shorthand throughout this document for a variety of targeted finance instruments, including green loans, repurchase agreements, and asset-backed securities. Annex 1 of the Climate Bonds Standard details the full list of instruments that can be certified.

[3] Climate Bonds Initiative. Waste Management. https://www.climatebonds.net/our-expertise/climate-bonds-standard-and-certification-scheme/sector-criteria/waste-management

[4] Climate Bonds Initiative. 2025. Climate Bonds Standard Version 3.4. https://www.climatebonds.net/files/documents/publications/Climate-Bonds_Climate-Bonds-Standard_V4.3_Aug-2025.pdf

[5] Climate Bonds Initiative. Company/Entity Level Certification. https://www.climatebonds.net/expertise/standard-sector-criteria-certification/certification/company-entity-level-certification

[6] Climate Bonds Initiative. Sustainability-linked Debt Certification. https://www.climatebonds.net/expertise/standard-sector-criteria-certification/certification/sustainability-linked-debt-certification

[7] Climate Bonds Initiative. https://www.climatebonds.net

[8] Intergovernmental Panel on Climate Change (IPCC). Sixth Assessment Report. https://www.ipcc.ch/assessment-report/ar6/

[9] The working face operations must be designed considering best practices and standards such as the guidelines on solid waste management (United States Environmental Protection Agency, 2026); state-specific landfill operation manuals, e.g., California Code of Regulations, Title 27 – Environmental Protection (CalRecycle, 2025);

Sanitary landfill design and siting criteria (World Bank, 2004); *Landfill Operational Guidelines 3rd Edition* (International Solid Waste Association, 2019); and *Sitting, design, operation and rehabilitation of landfills* (Environment Protection Authority Victoria, 2015).

[10] Ibid.

[11] Containers for residual waste are not eligible unless they are part of an investment that also includes an equivalent number of separate containers for separately collecting waste streams, including organic waste for material reuse, recycling, or scientific treatment facilities.

[12] Equipment such as conveyor belts, compactors, pelletisers, air classifiers, magnetic belts, and other infrastructure required for material recovery are eligible.

[13] Food waste, tree pruning waste, garden waste, agricultural waste and sludge, etc.

[14] A scientific treatment facility is defined as a specialised facility employing technology, research, and innovation to manage waste in an environmentally safe and sustainable manner. These facilities include advanced sorting and separation technologies, biological treatment of waste, chemical treatment, thermal treatment, and physical treatment.

[15] Infrared cameras, optical gas imaging, handheld lasers, or differential absorption lidar (DIAL).

[16] Waste biomass from agricultural farms; residues generated by municipalities, landowners, landscaping contractors, etc.; residual biomass, organic residues, and wastes from industrial processes or from collection/separation by specific recycling companies; food processing residues on vegetable bases.

[17] Dumpsite closure is to be done through i) closure through upgrade into a controlled sanitary landfill; ii) in-place closure through waste coverage; or iii) closure by waste removal from the site.

[18] The working face operations must be designed considering best practices and standards such as the guidelines on solid waste management (United States Environmental Protection Agency, 2026); state-specific landfill operation manuals, e.g., California Code of Regulations, Title 27 – Environmental Protection (CalRecycle, 2025); *Sanitary landfill design and siting criteria* (World Bank, 2004); *Landfill Operational Guidelines 3rd Edition* (International Solid Waste Association, 2019); and *Sitting, design, operation and rehabilitation of landfills* (Environment Protection Authority Victoria, 2015).

[19] Sustainable biomass sources include: waste biomass from agricultural farms; natural bark and wood, untreated or mechanically treated, from forestry operations, sawmills, or similar operations; residues generated by municipalities, landowners, landscaping contractors, etc.; residual biomass, organic residues, and wastes from industrial processes or from collection/separation by specific recycling companies; food processing residues on vegetable bases; water maintenance and vegetable marine biomass; digestate from anaerobic digestion, i.e., plant-based digestate, manure digestate, animal by-product digestate, and digestate from secondary plant biomass; sludge from wastewater treatment; and animal by-products.

[20] The mineral and organic additives may include lime, bentonite, rock powder, argile, clay, and soil.

[21] Infrared cameras, optical gas imaging, handheld lasers, or differential absorption lidar (DIAL).

[22] Carbon Standards International. 2023. World Biochar Certificate (WBC). https://www.carbon-standards.com/docs/7559c8e1c37551fdb0713b7c20347a9c_Pr%C3%A4sentation_WBC_V3.pdf

[23] International Finance Corporation. 2012. Performance Standard 3: Resource Efficiency and Pollution Prevention. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-3

[24] Pinasseau, A. et al. 2018. *Best Available Techniques (BAT) Reference Document for Waste Treatment.* European Union, Luxembourg. https://bureau-industrial-transformation.jrc.ec.europa.eu/sites/default/files/2019-11/JRC113018_WT_Bref.pdf

[25] International Finance Corporation. 2012. Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-6

[26] International Finance Corporation. 2012. Performance Standard 2: Labor and Working Conditions. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-2

[27] International Finance Corporation. 2012. Performance Standard 4: Community Health, Safety, and Security. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-4

[28] International Finance Corporation. 2012. Performance Standard 7: Indigenous Peoples. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-7