

Executive Summary

This report provides a comprehensive and forward-looking analysis of environmental, social, and governance (ESG) performance and strategic initiatives. Prepared as a model framework, the document synthesizes best-in-class practices of a business model centered on B-BOX, an automated Black Soldier Fly (BSF) farming waste treatment device developed by **B-BOX Limited**.

The report benchmarks this innovative approach against conventional organic waste treatment methods to illustrate a holistic and robust ESG program.

The report details a compelling environmental commitment centered on the principles of a circular economy. A core component of this strategy is the innovative use of Black Soldier Fly (BSF) farming technology for waste management. This initiative not only diverts organic waste from landfills but also creates valuable resources, resulting in significant greenhouse gas (GHG) emission reductions. This model showcases a potent, multi-faceted approach to climate action.

In the social sphere, the report highlights a deep dedication to human capital. This includes fostering a diverse and inclusive workplace through dedicated Employee Resource Communities (ERCs) and a strong emphasis on employee well-being and safety. Furthermore, the analysis extends to the broader community, demonstrating support for initiatives such as the "Ban the Box" movement, which promotes social equity and fair hiring practices.

Finally, the report outlines a governance structure built on transparency, accountability, and ethical conduct. It examines the critical role of a diverse and independent Board of Directors in providing effective oversight and ensuring that long-term strategic decisions align with both financial performance and sustainability goals. By aligning its operations with leading global





frameworks, this model report demonstrates a commitment to building long-term value for all stakeholders.

1. Introduction to ESG and Our Approach

1.1 ESG at a Glance: The Three Pillars

Environmental, Social, and Governance (ESG) represents a fundamental framework for evaluating an organization's sustainability and ethical impact. At its core, a robust ESG report is structured around three interconnected pillars that reflect a company's impact and progress.²

The **Environmental (E)** pillar addresses a company's stewardship of the natural world. This section is concerned with operational impacts and the management of environmental risks throughout the supply chain. Key focus areas include climate change mitigation through the reduction of greenhouse gas (GHG) emissions, effective management of waste and pollution, judicious use of natural resources, and the conservation of biodiversity. A company's environmental disclosures outline its strategies for reducing its carbon footprint and promoting ecological sustainability.³

The **Social (S)** pillar focuses on a company's interactions with its people and the communities in which it operates. This aspect underscores the importance of ethical and equitable practices, including labor standards, human rights, diversity, equity, and inclusion (DEI). Social metrics provide a view into a company's commitment to fostering a positive societal impact through initiatives related to employee well-being, community engagement, and responsible supply chain management.³

The **Governance (G)** pillar evaluates the company's leadership and accountability. Governance disclosures provide transparency on the company's internal structure and practices, which are essential for maintaining integrity and fostering investor confidence. Key areas of focus include the composition of the board of directors, executive compensation policies, business ethics, and compliance with regulations. Robust governance practices build trust with stakeholders and provide a foundation for long-term, responsible business growth.³

1.2 Understanding Our ESG Report



This document is structured as a comprehensive "Model ESG Report" that synthesizes information from a variety of sources related to Black Soldier Fly (BSF) farming and its application in organic waste management. This approach allows for a deeper and more exhaustive exploration of critical ESG topics and best practices, which are benchmarked against conventional waste treatment methods. The report highlights how BSF systems offer a highly efficient alternative to traditional composting and landfilling by rapidly converting organic waste into high-value products while significantly reducing greenhouse gas emissions.

This methodology acknowledges the complexity and interconnectedness of modern business models. Instead of a narrow focus, the report showcases how a composite entity can strategically integrate a wide range of sustainability initiatives, from innovative BSF waste management to ethical labor practices and robust corporate oversight. This framing ensures that the report is not merely a summary of data but an authoritative guide for stakeholders—including executives, investors, and sustainability professionals—seeking to understand the full scope of a contemporary ESG program.

1.3 Our Strategic Alignment and Materiality Assessment

The report's content is guided by a systematic materiality assessment, a concept that helps an organization focus its efforts on ESG issues that are most relevant to its business and have a measurable impact.⁵ The process involves identifying a company's key risks and opportunities and then assessing their potential consequences. By applying a risk matrix, the organization can prioritize which ESG-related issues should be a focus of its strategy and reporting. For a

technology and logistics-focused business, this would include issues such as energy consumption, data security, labor standards, and business ethics.⁵

To provide a more holistic perspective, this report also applies the concept of **double materiality**. This modern reporting principle requires an organization to consider materiality from two viewpoints: financial materiality and materiality to the market, the environment, and people.⁵ The traditional view of materiality looks inward, assessing how ESG issues might affect the company's financial performance (e.g., climate change-related risks to infrastructure or supply chain disruptions). In contrast, the double materiality framework also looks outward, analyzing the impact of the company's operations and decisions on the environment and society (e.g., the company's carbon emissions or its effect on local communities). By applying this dual perspective, the organization can identify both the financial and non-financial impacts of its operations, thereby shaping a more comprehensive and resilient ESG strategy.⁵ This approach ensures that the report's disclosures are not only relevant to financial stakeholders but also to a wider audience of customers, employees, and communities.

1.4 Core ESG Principles and Reporting Best Practices

Effective ESG reporting is underpinned by a commitment to a few core principles that ensure transparency, credibility, and impact. Based on industry best practices, a robust reporting strategy should:

1. **Adopt Recognized Reporting Frameworks:** Aligning disclosures with international standards such as the Sustainability Standards Board (ISSB), Global Reporting Initiative (GRI), and Sustainability Accounting Standards Board (SASB) ensures consistency and comparability with other reports. This allows stakeholders to evaluate performance against globally recognized benchmarks.²
2. **Set Clear, Measurable ESG Goals:** Establishing specific, time-bound, and quantifiable targets for ESG performance provides a clear roadmap for improvement and holds the organization accountable for its progress.²
3. **Provide Transparent, Quantifiable Data:** The report must provide transparent, data-driven evidence of its ESG initiatives. Using quantitative metrics and Key Performance Indicators (KPIs) makes complex information digestible and allows stakeholders to evaluate progress objectively.²
4. **Engage Stakeholders in Materiality Assessments:** Actively involving a diverse range of stakeholders—including investors, customers, employees, and communities—in the materiality assessment process ensures that the report focuses on the issues that are most important to them.²

2. Environmental Stewardship (E)

2.1 Our Commitment to Climate Action and Circularity



The environmental strategy is fundamentally driven by a commitment to the principles of a circular economy. In a linear "take-make-waste" model, raw materials are extracted, converted into products, used, and then disposed of as waste.⁶ A circular economy, by contrast, is a resilient system designed to eliminate waste and pollution, circulate products and materials at their highest value, and regenerate nature.⁶ This forward-thinking approach tackles critical global challenges such as climate change, biodiversity loss, and resource scarcity by decoupling economic activity from the consumption of finite resources. The company's environmental initiatives are strategically aligned with this model, positioning it as a leader in innovative and sustainable business practices.

2.2 Innovative Waste Management and Resource Efficiency

2.2.1 The Black Soldier Fly (BSF) as a Circular Economy Catalyst

At the heart of the company's environmental strategy is an innovative, biological waste management solution: Black Soldier Fly (BSF) farming. This technology exemplifies the core principles of the circular economy by transforming organic waste, a significant environmental liability, into high-value products.⁷ The BSF larvae can consume a wide variety of organic waste streams, converting them into biomass that is then used as animal feed and organic fertilizers.⁸ This process creates a practical, cost-effective, and regenerative system for resource recovery.⁷

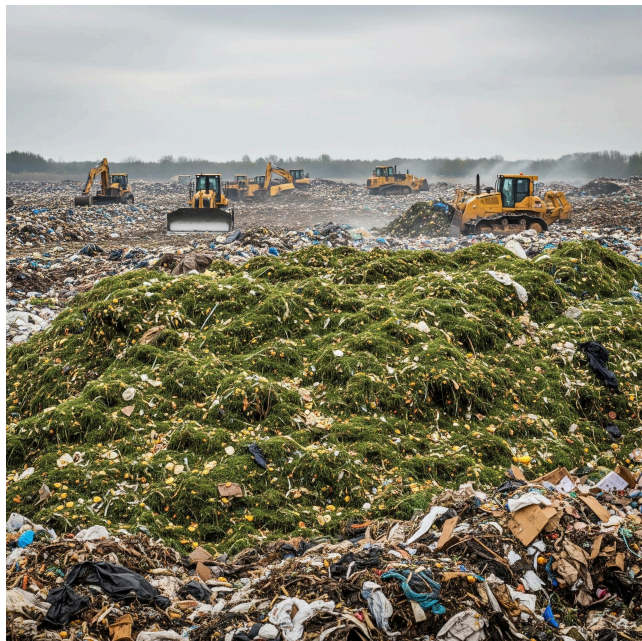


The BSF model has a multifaceted positive impact. It directly addresses the problem of food waste, which constitutes a large portion of solid waste sent to landfills.⁹ By diverting this waste stream, the company reduces the demand on conventional disposal methods, which often carry high environmental costs. The resulting BSF-based products serve as sustainable alternatives to traditional resources like soy and fishmeal, which are associated with land erosion, severe gas emissions, and the depletion of natural fish populations.⁸

2.2.2 Quantifying Environmental Impact: GHG Emissions and Waste Diversion

The environmental benefits of BSF farming are substantial and quantifiable, providing a clear demonstration of the company's positive climate action. The use of BSF technology creates a

powerful double-positive feedback loop for climate mitigation.



First, the process directly reduces potent greenhouse gas emissions. Organic waste in landfills undergoes anaerobic decomposition, a process that produces large amounts of methane (CH₄), a gas that is approximately 25 times more potent than carbon dioxide (CO₂) at trapping heat in the atmosphere.¹⁰ The BSF larvae actively mitigate these emissions by recycling carbon and nitrogen from the waste.¹¹ Scientific analysis has demonstrated that a larvae bioreactor can reduce the proportion of carbon and nitrogen converted into greenhouse gases, decreasing emissions of CO₂, CH₄, and nitrous oxide (N₂O) by 62%, 87%, and 95%, respectively, when compared to traditional non-aeration composting.¹¹

This is a direct and powerful method of preventing climate-warming gases from entering the atmosphere.

Second, the BSF-derived products displace conventional, high-carbon-footprint alternatives. The protein meal produced from the larvae is a sustainable substitute for animal feed sources such as fishmeal and soybean meal, both of which are associated with significant environmental burdens.⁸ The life cycle carbon footprint of BSF meal is exceptionally low at 0.5 kg CO₂e/kg, in stark contrast to fishmeal (3.7 kg CO₂e/kg) and soybean meal (1.0 kg CO₂e/kg).¹² The single act of producing BSF meal not only prevents emissions from waste but also avoids a separate set of emissions from traditional agriculture, creating a compounded climate benefit.

A study assessing the environmental impact of BSF production found that the production of one kg of dried larvae could prevent 9.7 kg of CO₂eq in avoided emissions.¹³ This avoidance is attributed to three primary sources: avoiding landfill emissions (5.1 kgCO₂eq per kg dried larvae), replacing conventional livestock feed, and substituting chemical fertilizers with the BSF manure (frass).¹³ The data clearly demonstrates the significant, positive environmental impact of this innovative technology.

Below is a summary of the key environmental metrics associated with the BSF farming model:

Metric	BSF Meal/Larvae	Conventional Alternative (Fishmeal/Composting)	Environmental Benefit	Source
Carbon Footprint of Meal	0.5 kg CO ₂ e/kg	3.7 kg CO ₂ e/kg (Fishmeal)	86.5% reduction in carbon footprint	¹²
GHG Reduction vs. Composting	N/A	CH ₄ (87% reduction), N ₂ O (95% reduction), CO ₂ (62% reduction)	Significant mitigation of potent GHGs	¹¹
Total Avoided Emissions	9.7 kg CO ₂ eq per kg larvae	N/A	Avoids emissions from landfills, livestock feed, and chemical fertilizers	¹³
Waste Diversion	2.5 kg/kg of BSF meal	N/A	High-efficiency conversion of organic waste	¹²

2.2.3 The B-BOX Model: A Differentiated Approach

The B-BOX model represents a significant evolution in the application of Black Soldier Fly (BSF) technology, focusing on decentralized, mobile, and localized solutions that provide a distinct environmental advantage over traditional, large-scale industrial farming operations.

Unlike centralized BSF factories that require waste to be transported to a single location, the B-BOX model utilizes mobile farming units and modular, container-based farming.¹⁴ This approach prioritizes **maximum mobility and flexible placement**.¹⁷ The climate-controlled farming units are designed to be "environment-agnostic," meaning they can be deployed anywhere in the world, including remote locations that lack fixed infrastructure, electricity, or water inlets.¹⁷

This mobility is key to enabling a **"zero distance" treatment method**.¹⁴ By deploying these modular units directly at the source of organic waste—such as food packaging facilities, restaurants, or farms—the need for transporting large volumes of waste is eliminated.¹⁴ The logistical carbon footprint associated with hauling waste to distant composting or processing



facilities is a major environmental challenge for the food waste management industry.⁹ By treating waste "at your site," the B-BOX model directly mitigates these emissions, providing a significant advantage in resource efficiency and sustainability.⁸

This localized and agile operational strategy also enhances the **GHG offset** potential of the BSF process. The system is inherently "GHG negative," creating a carbon sink by transforming waste into valuable resources while simultaneously preventing emissions.¹⁹ This approach functions as a **Nature-Based Solution (nBs)**, defined as "actions to protect, manage and restore natural

or modified ecosystems, which address societal challenges effectively and adaptively".²⁰ The B-BOX model harnesses the power of a natural biological process to address waste management, providing an opportunity to work with nature rather than against it.⁴ By converting waste on-site, the company offsets the conventional, high-carbon logistics of waste collection and treatment, further amplifying its positive environmental impact.¹³ In an additional sustainability benefit, the B-BOX's BSF frass-based fertilizers can reduce greenhouse gas emissions by 96.35% compared to conventional EU ammonia nitrate fertilizers.³ This significant reduction has been verified by a Product Carbon Footprint (PCF) certification, ensuring that the entire lifecycle of the product, from cradle to gate, meets rigorous international standards.¹

2.3 Sustainable Supply Chain and Operational Efficiency



Through the integration of the B-BOX model for localized organic waste treatment, the company significantly reduces greenhouse gas (GHG) emissions across its entire supply chain. This approach directly helps both upstream and downstream processes by minimizing the environmental impact from transportation and waste management. By treating waste at or near its source, the B-BOX system reduces the need for extensive hauling of raw materials and finished products, leading to a lower carbon footprint and more efficient resource utilization throughout the value chain. This strategy underscores the company's commitment to addressing its indirect (Scope 3) emissions, thereby

achieving true sustainability.

The B-BOX model significantly boosts operational efficiency through its "zero-distance" waste treatment approach. By deploying mobile and modular farming units directly at the source of organic waste—such as food packaging facilities, restaurants, or farms—it eliminates the need for transporting large volumes of waste to distant processing sites. This direct, on-site treatment dramatically reduces the logistical carbon footprint associated with hauling waste, a major challenge in traditional food waste management. The flexible placement and environment-agnostic design of the B-BOX units mean they can operate effectively anywhere, even in remote locations without fixed infrastructure, electricity, or water inlets. This maximizes mobility and allows for highly efficient resource utilization by minimizing waste movement, thereby streamlining operations and reducing associated costs and emissions.

2.4 Future Environmental Goals and Targets

Looking forward, the company is committed to enhancing its environmental performance through a combination of data-driven strategies and technological innovation. Key areas of focus include:



- **Technology Integration:** The company plans to leverage nascent technologies to improve its waste management and reporting. This includes implementing IoT sensors to collect real-time data on waste production, as well as AI-powered predictive analytics to forecast waste generation trends.²²
- **Data Transparency:** The company will explore the use of blockchain technology to securely track waste transactions, ensuring transparency and traceability across its supply chain and providing a reliable foundation for its ESG reports.²²
- **Innovation in Material Recovery:** The company will continue to invest in advanced material recovery technologies to enhance the repurposing of waste, further reducing landfill waste and strengthening circular economy principles.²

3. Social Responsibility (S)

3.1 Human Capital, Diversity, and Inclusion

3.1.1 Fostering an Inclusive Workplace Culture



The company's social responsibility is built on the principle that its people are its greatest asset. The company is committed to creating an inclusive environment where individuals from all backgrounds feel they belong and can thrive. This approach is reflected in a proactive strategy to recruit, develop, and retain a high-performing workforce that mirrors the diversity of the world.²⁵

A cornerstone of this inclusive culture is the network of employee-led Employee Resource Communities (ERCs). These affinity groups, which are available both remotely and across office locations, provide a crucial platform for support, advocacy, and professional development.²⁵ Examples of these communities include groups for Asian Pacific Islanders, the Black Excellence Network, a women's network, and a community for LGBTQIA+ professionals and allies.²⁵ These ERCs are instrumental in bringing people together, celebrating unique experiences, and creating

a sense of community and belonging that supports all employees. The company actively encourages engagement in these groups, fostering a collaborative and supportive workplace culture.²⁵

3.1.2 Employee Engagement and Talent Development



A commitment to employee well-being extends to a focus on talent development and engagement. The company offers a variety of developmental and mentorship opportunities to support professional growth and ensure that employees have the resources they need to succeed.²⁵ A culture of caring is also paramount, with a strong emphasis on workplace safety. The company views safety as a core operational value, encouraging all employees to have the "courage to care" and speak up if they see something unsafe, knowing that such an action could prevent injury or even save a life.²⁶

3.2 Health, Safety, and Well-being

The social pillar also includes a strong focus on the health and safety of both employees and the broader community. This commitment is evidenced by the "courage to care" philosophy that empowers employees to stop an unsafe job.²⁶ This goes beyond mere compliance and creates an

ethical standard where every individual is responsible for the well-being of their colleagues.

Furthermore, the company's business decisions are made with a conscious awareness of their impact on community health. For instance, the BSF waste management program not only addresses environmental issues but also mitigates the negative health effects associated with landfilling.⁹ Landfilling has been reported to cause health disturbances at the community level, negatively impacting public health and aligning with the United Nations Sustainable Development Goal (UN SDG) 3:



*Good Health and Wellbeing.*⁹ This connection between environmental action and social well-being reinforces the company's holistic approach to ESG.

3.3 Community Engagement and Societal Impact

3.3.1 Our Support for the "Ban the Box" Initiative and Social Equity

A company's social responsibility extends beyond its internal workforce to the broader communities it serves. The company supports the "Ban the Box" movement, a powerful initiative that seeks to remove the question about criminal convictions from initial job applications.²⁷ This movement is crucial to ending job discrimination against the nearly one in three American adults who have an arrest or conviction record.²⁷

By supporting "Ban the Box," the company aligns its hiring practices with the principles of social

equity and provides a fairer opportunity for formerly incarcerated individuals to re-enter the workforce. This action goes beyond standard HR policy; it leverages the company's influence to address a systemic issue and promote a more equitable society. The company's commitment to this initiative demonstrates that it views its role as a force for social good, contributing to the development of a more inclusive and just community. This approach exemplifies how a company can strategically use its position to create a positive social impact on a national scale.²⁷

3.3.2 Two-Way Communication and Community Empowerment

Effective community engagement is not a one-way street of corporate philanthropy; it is a collaborative process based on two-way communication, trust, and mutual empowerment.²⁸ The company is committed to this approach, which seeks to increase the participation and collaboration of communities in addressing the issues that affect their lives.²⁸



Key principles guiding this engagement include:

- **Inclusion:** Creating spaces where vulnerable and marginalized groups can have their voices heard, bridging existing power imbalances among stakeholders.²⁸
- **Empowerment and Ownership:** Acknowledging and building on the existing resources, assets, and networks within communities to foster autonomy and local ownership of solutions.²⁸
- **Adaptability and Localization:** Developing engagement approaches that are flexible and responsive to the evolving needs and specific local contexts of different populations.²⁸

By adhering to these principles, the company fosters a relationship of trust with community

members, enabling them to explore, plan, and act together on their priority issues, thereby strengthening collective capacity and improving the effectiveness of social programs.²⁸

3.4 Data Security and Privacy: Safeguarding Stakeholders

For a technology-driven organization, data security and privacy are not just technical or legal requirements; they are a critical component of social responsibility. The company is committed to safeguarding the sensitive information of its customers and employees.²⁵ By implementing robust data protection policies, secure infrastructure, and transparent privacy practices, the company builds and maintains trust with its stakeholders.⁴ This commitment ensures that the company's products and services are not only functional but also ethically sound, providing a secure foundation for digital interactions and upholding the right to privacy in an increasingly data-driven world.

B-BOX can leverage Amazon Web Services (AWS) IoT Core to enhance its data and cybersecurity through several key features:

- **Reliable Device Management:** AWS IoT Core allows for easy and reliable connection, management, and scaling of device fleets without the need to provision or manage servers.
- **Secure Communication:** It supports various communication protocols, including MQTT, HTTPS, MQTT over WSS, and LoRaWAN, and ensures secure device connections and data with mutual authentication and end-to-end encryption.
- **Data Processing and Routing:** Device data can be filtered, transformed, and acted upon in real-time based on defined business rules. The rules engine securely forwards device data to other devices or AWS services using AWS Identity and Access Management (IAM).
- **Authentication and Authorization:** AWS IoT Core provides multiple authentication methods and access policies to safeguard solutions against vulnerabilities. This includes using X.509 certificates, AWS credentials, Amazon Cognito identities, federated identities, or custom authentication tokens. It also allows for the management of device credentials and permissions for each device or group of devices.
- **Data Protection:** It offers transport security and data encryption, including data encryption at rest.
- **Compliance and Monitoring:** AWS IoT Core supports compliance validation, logging, and monitoring to ensure adherence to security standards and best practices.

4. Corporate Governance (G)

4.1 Governance Structure and Leadership Oversight

4.1.1 The Board of Directors and Executive Team

The company's strategic direction is guided by a robust governance structure, which includes a Board of Directors and an Executive Team. The Board of Directors is tasked with representing the interests of shareholders and providing oversight on corporate matters and management activities.³⁰ This includes making critical decisions on matters such as corporate officer appointments, executive compensation, and dividend policy.³⁰ The Executive Team, led by our lady CEO and COO, is responsible for the day-to-day operations and execution of the company's vision.³¹

The governance model adheres to the principle of having a distinct chairperson and CEO, ensuring that the oversight function is independent of the executive management's operational responsibilities.³⁰ The executive team and board include key co-founders and a mix of insiders and independent members, which is crucial for balancing deep operational knowledge with objective, external perspective, thereby enhancing accountability and strategic guidance.³⁰

4.1.2 Diversity and Independence on the Board

A well-structured and effective board is a cornerstone of good governance. The board's composition, particularly its diversity and independence, is critical for providing robust oversight on ESG-related risks and opportunities. A diverse board, encompassing a range of backgrounds, experiences, and perspectives, is more likely to consider a wider array of stakeholder interests and better anticipate emerging challenges.²⁵

The governance structure is designed to reflect this principle, with a board comprised of both insiders and independent members. The presence of independent members, who are not employees of the company, is particularly important for ensuring that the board can provide unbiased oversight and challenge executive decisions when necessary.³⁰ This strategic approach to board composition is not merely a matter of compliance but is viewed as a foundational element for ensuring the company's long-term financial viability and ethical integrity. It ensures that the company's ESG commitments are championed at the highest level of leadership and integrated into the core of its strategy. A well-structured and effective board is a cornerstone of good governance. The board's composition, particularly its diversity and independence, is critical for providing robust oversight on ESG-related risks and opportunities. A diverse board, encompassing a range of backgrounds, experiences, and perspectives, is more likely to consider a wider array of stakeholder interests and better anticipate emerging challenges. This diversity extends to professional knowledge in areas such as legal, arbitration, IoT, engineering, ESG, and carbon audit, ensuring comprehensive expertise.

The governance structure is designed to reflect this principle, with a board comprised of both insiders and independent members. The presence of independent members, who are not employees of the company, is particularly important for ensuring that the board can provide unbiased oversight and challenge executive decisions when necessary. This strategic approach to board composition is not merely a matter of compliance but is viewed as a foundational element for ensuring the company's long-term financial viability and ethical integrity. It ensures that the company's ESG commitments are championed at the highest level of leadership and integrated into the core of its strategy.

4.2 Ethical Business Conduct and Compliance

4.2.1 Anti-Bribery, Anti-Corruption, and Business Ethics

The company operates with a strong commitment to ethical business practices and is guided by principles of accountability, transparency, fairness, and responsibility.³⁰ It upholds high standards to prevent corruption and bribery, ensuring that all business transactions are conducted ethically and with integrity.⁴ The company's internal controls and policies are designed to maintain compliance and align its operations with the interests of all stakeholders.³⁰ This includes a focus on promoting transparent values and ethics to build trust and accountability.⁴

4.2.2 Tax Transparency and Responsible Financial Practices

The company is committed to adopting transparent and fair tax practices as a component of responsible corporate behavior. By contributing responsibly to societal resources, the company reinforces its commitment to ethical conduct and builds a foundation of trust with public officials and the community.⁴

4.3 Stakeholder Accountability

The governance framework is designed to build and maintain trust with a wide range of stakeholders, including shareholders, employees, customers, suppliers, and community groups.³⁰ The company's board of directors is responsible for providing clear and timely information about financial performance, conflicts of interest, and risks.³⁰ The success of this governance model depends on ongoing communication among the board, company management, and shareholders, with important issues brought to shareholders' attention for a vote.³⁰ By fostering open communication and transparency, the company demonstrates its commitment to accountability and its dedication to aligning corporate behavior with the interests of all parties involved.

5. Performance, Metrics, and Strategic Outlook

5.1 Key Performance Indicators (KPIs) and Data

The commitment to transparent ESG reporting is demonstrated through the collection and disclosure of quantifiable data and Key Performance Indicators (KPIs). The company utilizes advanced technologies, such as IoT sensors and analytics, to collect and verify real-time data on its environmental footprint, ensuring the reliability and accuracy of its reports.²²

The following table summarizes key performance metrics across the environmental, social, and governance pillars, providing a data-driven overview of the company's performance.

Pillar	Key Performance Indicator (KPI)	Metrics/Data	Source
Environmental	Waste Diversion & GHG Reduction	2.5 kg waste reduced per kg of BSFL meal; 87% reduction in CH ₄ vs. composting	¹¹
	Carbon Footprint of Product	0.5 kg CO ₂ e/kg of BSFL meal vs. 3.7 kg CO ₂ e/kg of fishmeal	¹²
	Avoided Emissions	9.7 kg CO ₂ eq prevented per kg of dried larvae produced	¹³
	GHG Negative Impact	Achieved through "zero distance" waste treatment and BSF frass fertilizers	¹
Social	Workplace Inclusion	Presence of multiple Employee Resource Communities (ERCs) (e.g., BoxAbilities, Black Excellence Network, Box Women's Network)	²⁵
	Community Engagement	Support for the "Ban the Box" initiative to combat job	²⁷

		discrimination	
Governance	Leadership Oversight	Board of Directors comprised of insiders and independent members	30
	Ethical Conduct	Commitment to anti-bribery, anti-corruption, and responsible tax practices	4

5.2 Alignment with Global Reporting Frameworks

To meet the diverse information needs of its stakeholders, the company's ESG report is strategically aligned with the key principles of several leading global reporting frameworks. This multi-framework approach demonstrates a sophisticated understanding of sustainability disclosure and positions the company as a leader in transparent and comprehensive reporting.

- **Global Reporting Initiative (GRI):** The report's comprehensive coverage of a wide range of sustainability topics—including environmental impacts, social responsibility, and corporate governance—is consistent with the GRI framework. This approach is suitable for a broad audience of stakeholders, including investors, customers, employees, and the wider community, who require a full overview of the company's sustainability practices.³³
- **Sustainability Accounting Standards Board (SASB):** The report's focus on industry-specific and financially material issues, such as the quantifiable carbon footprint metrics of its product and the financial benefits of its waste-to-resource model, aligns with SASB's objectives.³³ This provides targeted and financially relevant ESG data that is particularly useful for financial analysts and investors in their decision-making process.
- **Task Force on Climate-Related Financial Disclosures (TCFD):** The report's detailed analysis of the GHG emissions reductions from its BSF technology and its forward-looking strategies for climate action addresses the TCFD's focus on climate-related financial risks and opportunities.³³ By discussing how its operations mitigate climate risks and create new business opportunities, the company provides crucial context for stakeholders concerned with the financial impacts of climate change.
- **Nature-Based Solutions (NbS) and TNFD:** The company's Black Soldier Fly (BSF) farming operation is a prime example of a **Nature-based Solution (NbS)**, which are defined as "actions to protect, manage and restore natural or modified ecosystems... providing human well-being and biodiversity benefits".²⁰ By using a natural biological process (insect decomposition) to address societal challenges like waste management and food security, the company is working *with* nature to achieve its goals.³⁴ This approach also contributes to restoring degraded ecosystems and enhancing soil health by reducing the need for chemical fertilizers.³⁴ The

company's nature-positive approach is further guided by the principles of the **Taskforce on Nature-related Financial Disclosures (TNFD)**. Mirroring the TCFD, the TNFD provides a framework for organizations to identify, assess, manage, and disclose nature-related dependencies, impacts, risks, and opportunities.³⁶ By actively measuring the positive environmental impacts of its BSF technology, such as waste diversion and the replacement of high-impact resources like fishmeal, the company is well-positioned to report in line with the TNFD's four pillars: Governance, Strategy, Risk and Impact Management, and Metrics and Targets.³⁶ This framework helps shift financial flows away from nature-negative outcomes toward nature-positive ones.³⁶

The strategic integration of these frameworks ensures that the report serves multiple purposes: it provides a general overview for the public, specific financial data for investors, and a clear articulation of climate risk and nature impact management for a forward-looking audience. This synthesis is a hallmark of an expert-level ESG report that seeks to provide maximum value and transparency.

5.3 Conclusion and Forward-Looking Statements

The analysis presented in this report demonstrates that sustainability is not a peripheral activity but a core component of long-term business strategy. The company's model of integrating a circular economy through innovative technologies like Black Soldier Fly farming, fostering an inclusive and ethical workplace, and maintaining robust corporate governance principles showcases a holistic and responsible approach to value creation.

The company is not merely reacting to regulatory pressures or market trends; it is proactively leveraging ESG principles to drive innovation, manage risks, and create a positive impact on both its business and society. The commitment to data-driven decision-making, transparent reporting, and continuous improvement ensures that its ESG journey is a credible and sustained effort.

In an era where stakeholders increasingly demand accountability and purpose from corporations, the model outlined in this report provides a compelling and actionable roadmap. By embracing the principles of double materiality and aligning with global reporting standards, the company is well-positioned to build a resilient, profitable, and genuinely sustainable future.

Appendices

Appendix A: ESG Framework Alignment Matrix (GRI, SASB, TCFD, TNFD)

Report Section	Description of Content	GRI Alignment (Broad Scope)	SASB Alignment (Industry-Specific)	TCFD Alignment (Climate-Financial)	TNFD Alignment (Nature-Financial)
2.2.1	The Black Soldier Fly (BSF) as a Circular Economy Catalyst	GRI 306-1: Waste Generation, GRI 306-2: Waste by Type and Disposal Method	Food & Beverage Processing Sector, Topic: Raw Material Sourcing and Efficiency	TCFD Strategy: Resilience of Strategy	TNFD Risk & Impact Management ³⁶
2.2.2	Quantifying Environmental Impact: GHG Emissions	GRI 305-1: Direct GHG Emissions (Scope 1), GRI 305-2: Energy Indirect GHG Emissions (Scope 2), GRI 305-3: Other Indirect GHG Emissions (Scope 3)	Food & Beverage Processing Sector, Topic: GHG Emissions, Food Waste	TCFD Metrics & Targets: GHG Emissions; TCFD Risk Management: Identifying and Assessing Climate-Related Risks	TNFD Risk & Impact Management ³⁶
3.1	Human Capital, Diversity,	GRI 401: Employment, GRI 405:	Human Capital Management	N/A	N/A

	and Inclusion	Diversity and Equal Opportunit y	nt, Topic: Employee Health & Safety		
3.3.1	Support for "Ban the Box" Initiative	GRI 405: Diversity and Equal Opportunit y, GRI 413: Local Communiti es	Human Rights & Community Relations	N/A	N/A
4.1	Governance Structure and Leadership Oversight	GRI 102-18: Governance Structure and Compositio n, GRI 102-22: Compositio n of the Board of Directors	Corporate Governance , Topic: Board Diversity and Independen ce	TCFD Governance : Board's Oversight of Climate-Rel ated Risks and Opportuniti es	TNFD Governance ³⁶

Appendix B: Glossary of ESG Terms and Abbreviations

- **BSF:** Black Soldier Fly
- **CH₄:** Methane, a potent greenhouse gas.
- **CO₂e:** Carbon Dioxide Equivalent, a standard unit for measuring the global warming potential of different greenhouse gases.
- **DEI:** Diversity, Equity, and Inclusion.
- **ERCs:** Employee Resource Communities.
- **ESG:** Environmental, Social, and Governance.
- **GRI:** Global Reporting Initiative, a widely used framework for sustainability reporting.
- **GHG:** Greenhouse Gas.
- **IoT:** Internet of Things.
- **KPIs:** Key Performance Indicators.
- **N₂O:** Nitrous Oxide, a potent greenhouse gas.



- **SASB:** Sustainability Accounting Standards Board, which provides industry-specific standards for ESG disclosure.
- **TCFD:** Task Force on Climate-Related Financial Disclosures, which provides a framework for disclosing climate-related financial risks and opportunities.
- **TNFD:** Task Force on Nature-related Financial Disclosures.