



Sustaining an
incredible future

2024

NATURAL IMPACT ASSESSMENT REPORT





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Message from the Chairman

In recent years, global concern over natural capital risk has intensified. In its 2025 Global Risks Report, the World Economic Forum (WEF) identifies biodiversity loss and ecosystem collapse as central threats to human well-being and economic stability over the next decade. According to assessments, losses from natural disasters in 2024 reached USD 320 billion – far exceeding the annual averages of the previous ten and thirty years – underscoring the rapid escalation of nature-related risks. This shift highlights that corporate management can no longer focus solely on efficiency and profit but must also take responsibility for the natural systems that underpin our economies.

Nature-related risks now profoundly impact operational continuity, supply chain resilience, and capital market valuations. Companies that disregard the finite nature of natural resources and the ecological tipping points of ecosystems face not only financial risk, but also challenges to stakeholder trust and long-term survival. Conversely, companies that become aware of and respond to these risks early will be best positioned to harness innovation and reshape value in transformations ahead.

The adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in 2022 advanced the goal of achieving nature-positive growth by 2030. The framework aligns with other international standards – namely the Task Force on Nature-related Financial Disclosures (TNFD), the Science Based Targets Network (SBTN), and the Global Reporting Initiative (GRI) – to provide companies with a common language and coherent roadmap for implementing nature-related governance.

ASUS has consistently upheld its Focus on Fundamentals & Results sustainable development strategy, leveraging our core competencies to drive long-term impact through our initiative of “Using Digitized Data and Scientific Management Practices to Support Sustainable Value Creation through Core Competencies.” We believe that corporate awareness and response to nature-related risks must be grounded in rigorous analysis and systems thinking.

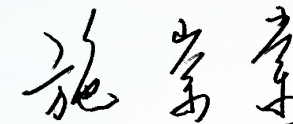
In 2023, ASUS introduced the ASUS Natural Capital Strategy Roadmap, structured along two axes – within the value chain and beyond the value chain – and integrating Environmental Profit & Loss (EP&L) assessments with the TNFD LEAP (Locate, Evaluate, Access, Prepare) process. This enables us to identify and quantify our dependencies on and impacts to natural capital across our global operations.

We further focus on freshwater resources, supplier regions, and biodiversity hotspots, driving cross-departmental integration and strategic responses to enhance overall operational resilience and adaptive capacity.

Beyond the value chain, ASUS also proactively participates in nature-positive projects to realize our vision of symbiosis between technology and nature. In 2024, we joined the Forestry and Nature Conservation Agency’s Carbon Sink and Biodiversity ESG Project Matching Platform and advanced the Dasyuehshan Middle-Altitude Pangolin Habitat Enhancement and Conservation Project. Through collaboration with government agencies, academic and research institutions, and local communities, we help promote the cultivation of native plant species and have established a long-term ecological monitoring database. By supporting the restoration of native species habitats, ASUS became one of the first corporate entities to receive biodiversity certification.

As natural capital risk increasingly becomes a critical issue for operational continuity, brand trust, and supply chain resilience, ASUS will continue to deepen our nature governance, uniting technological innovation with cross-sector collaboration to strengthen disclosure transparency. We will also continue to partner with ecosystem stakeholders to drive nature-positive outcomes and enduring corporate value.

ASUS Chairman
Jonney Shih




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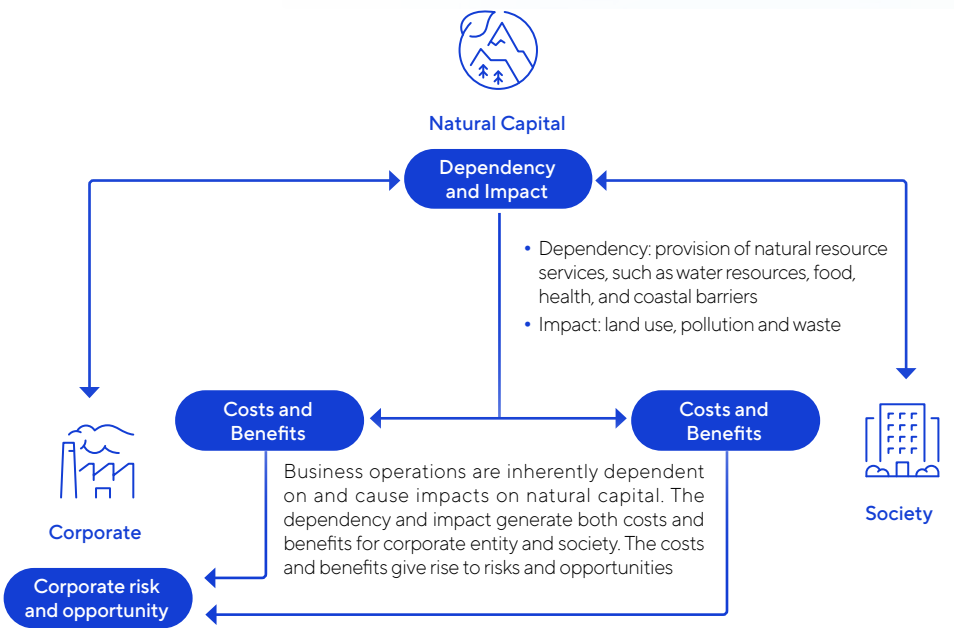
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01 Introduction

Trends and Importance of Biodiversity Issues

Corporate operations depend on natural resources and ecosystem services—collectively referred to as natural capital. The Natural Capital Protocol clearly underscores the importance of biodiversity to the health and stability of natural capital.¹For example, rich biodiversity can help mitigate the impacts of extreme weather events such as floods and droughts, accelerate ecosystem recovery, and support fundamental processes such as carbon cycling, water cycling, and soil formation. Thus, biodiversity is not only an integral part of natural capital but also the very foundation of ecosystem services.



Source: Natural Capital Protocol

With rapid economic growth, the heavy consumption of resources is placing mounting pressure on the natural and ecological environment. In 2024, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released the Nexus Assessment Report on the Interlinkages among Biodiversity, Water, Food and Health under Climate Change. The report indicates that biodiversity in every region of the world is declining by 2% to 6% per decade. More than half of the global population currently lives in areas experiencing biodiversity loss, water scarcity or declining water quality, food insecurity, heightened health risks, and severe impacts from climate change. If current economic activities and the drivers of biodiversity loss are not effectively managed, they will significantly undermine humanity’s food security, access to clean water and water quality, public health, and capacity to adapt to climate change.

In 1992, at the United Nations Earth Summit, the UN adopted the Convention on Biological Diversity (CBD), establishing three primary biodiversity objectives: (1) Conservation of biodiversity—protecting rare species and ecological environments; (2) Sustainable use of biodiversity resources—utilizing natural resources responsibly without damaging ecosystems; and (3) Fair and equitable sharing of benefits arising from the use of genetic resources—ensuring that the benefits from developing natural resources (e.g., medicinal plants, genetic resources) are fairly distributed to relevant countries and communities. Unfortunately, the convention lacked concrete standards and detailed implementation guidelines, leading to significant divergence in national practices and allowing global biodiversity and natural environment challenges to continue to worsen.

In 2022, the United Nations Biodiversity Conference (CBD COP15) held in Montreal, Canada, adopted the Kunming-Montreal Global Biodiversity Framework (GBF), setting out key pathways and targets for biodiversity action through 2030. A central goal of the framework is to “ensure that by 2030, at least 30% of degraded terrestrial, inland water, marine, and coastal ecosystems are effectively restored to enhance biodiversity, ecosystem functions and services, ecological integrity, and connectivity.”² The framework also calls for companies to regularly monitor species richness and environmental quality to assess and manage biodiversity risks, thereby reducing impacts on business operations.

At COP16, which concluded in 2024, discussions on biodiversity targets continued, resulting in the adoption of the Planning, Monitoring, Reporting, and Review (PMRR) mechanism for national biodiversity targets under the GBF. This mechanism aims to support countries in setting and implementing biodiversity targets to achieve the long-term vision of the Kunming-Montreal Global Biodiversity Framework.

¹ Natural Capital Protocol

² “Connectivity” refers to the ecological linkages between different habitats that allow species to move freely, forage, and reproduce. When forests are fragmented by roads, rivers are blocked by dams, or wetlands are divided by development, previously intact ecosystems become isolated “ecological islands.” This isolation forces plant and animal populations apart, preventing genetic exchange and ultimately leading to inbreeding and population decline. Maintaining such connectivity not only ensures that animals can migrate safely but also allows plant seeds to disperse into new areas, helping to preserve genetic diversity and sustain the health of ecosystems.



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ASUS Natural Capital Actions and Environmental Management Milestones

ASUS and the Supply Chain

ASUSTeK Computer Inc., founded in 1989, is the world’s largest manufacturer of motherboards and ranks among the top three consumer notebook brands globally. The company’s core business is in 3C information products, encompassing the design, research and development, and sales of computer systems, motherboards, various types of expansion cards, tablets, smartphones, and other handheld devices. ASUS focuses on product design and marketing, while manufacturing is entirely reliant on a global network of over 700 suppliers for raw materials, components, and product assembly. The majority of the company’s environmental impact originates from supply chain operations, making it a critical area for Environmental Profit and Loss (EP&L) assessment. Through green product design and environmentally friendly manufacturing processes, combined with close collaboration with supply chain partners, ASUS works to reduce its “dependency” on and “impact” to natural capital, striving to be among the world’s leading green high-tech enterprises and fulfilling its commitment to making meaningful contributions to humanity.

Environmental Management Milestone

ASUS has long implemented systematic management of nature-related and environmental issues. In 2008, its operations centers obtained ISO 14001 Environmental Management System certification. Starting in 2013, supplier environmental footprint assessments were incorporated

into supply chain management. In 2018, ASUS launched its Environmental Profit and Loss (EP&L) initiative, focusing initially on notebook products, and published its first EP&L report. In 2019, ISO 14001 certification was established as a mandatory requirement for qualified suppliers. To gain a comprehensive understanding of the environmental impact of ASUS’s operations and value chain, the EP&L scope has been expanded annually to include more core products, and by 2021, it covered products accounting for 90% of the company’s revenue. In response to the Kunming-Montreal Global Biodiversity Framework requirements for corporate biodiversity monitoring and risk management, ASUS in 2024 leveraged the EP&L framework to assess the impacts of its operational value chain on the natural environment.

In 2024, in accordance with the latest disclosure guidance under the TNFD reporting framework, ASUS published its first Natural Impact Assessment Report, established the ASUS Biodiversity Policy, and extended its biodiversity issue identification process. The environmental impacts of both ASUS operations and its suppliers were formally incorporated into the company’s sustainability management scope. In the same year, ASUS launched its biodiversity project—the Dasyuehshan Middle-Altitude Pangolin Habitat Enhancement and Conservation Project becoming one of the first companies participated the Forestry and Nature Conservation Agency’s Carbon Sink and Biodiversity ESG Project Matching Platform. In 2025, this project received the Annual Biodiversity Achievement Certificate, making ASUS one of the first companies certified by the Agency.





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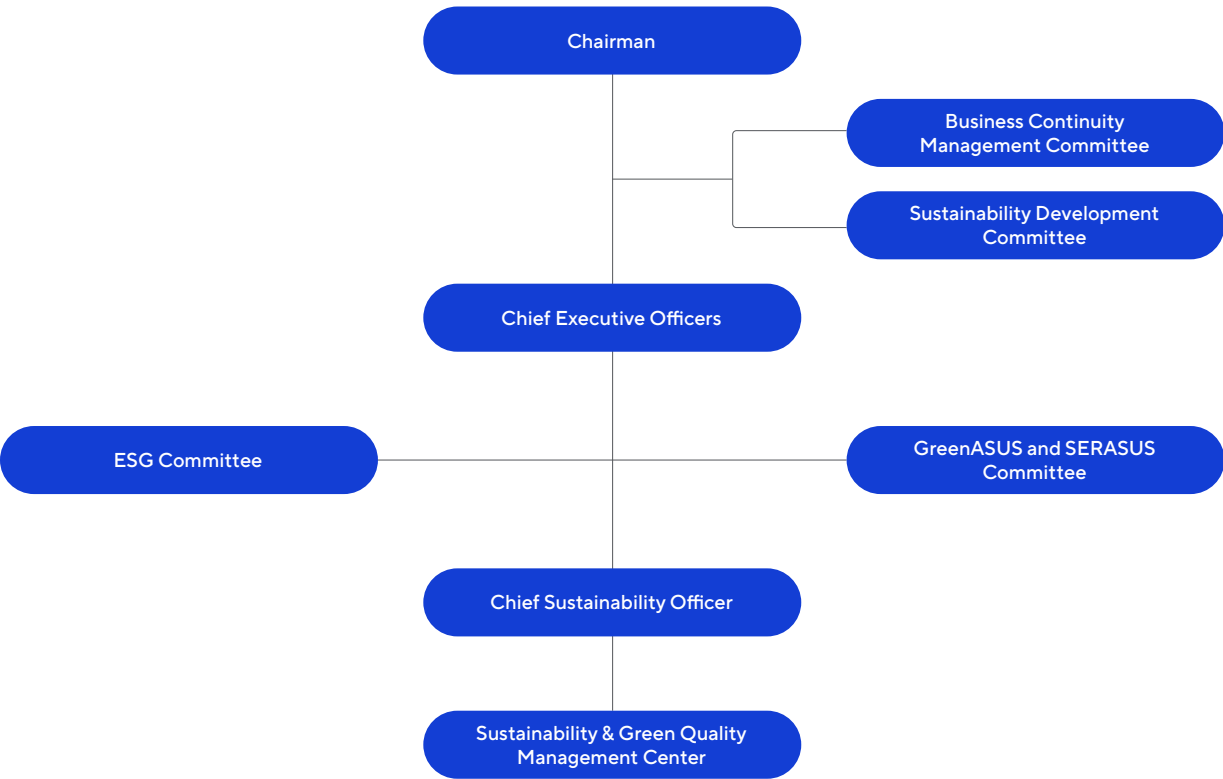
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ASUS’s governance and management framework for environment and biodiversity is directly overseen by the Board of Directors, with the Chairman delegating authority to the Chief Executive Officer as the highest responsible executive management level.

In 2002, ASUS established a dedicated sustainability unit and appointed a Chief Sustainability Officer (CSO) to represent its management. The CSO assists the Group in monitoring global sustainability trends and analyzing key ESG topics across governance, environmental, and social dimensions. By integrating these insights with core operations, product innovation, and services, the unit formulates strategic sustainability objectives and drives project initiatives—effectively concentrating on the sustainability of the company’s products, marketing, and design—and translates those strategies into concrete actions.



- Sustainability Development Committee
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Sustainability Development Committee

To address evolving sustainability trends and seize accompanying opportunities and challenges, the ASUS Sustainability Development Committee was established in 2025. Comprised of five independent directors and the two Co-Chief Executive Officers, it serves as ASUS's highest-level sustainability governance body. The Committee reviews the Group's sustainability management operations and execution progress and reports annually to the Board of Directors. Under its oversight, the Sustainability Center convenes quarterly meetings with Sustainability Management Representatives from each subsidiary to jointly formulate and implement action plans addressing Group-wide sustainability issues. Supply chain management is one of the key focus areas, and subsidiaries will be required to adopt the Responsible Business Alliance (RBA) Code of Conduct and conduct audits of their supply chains.

Sustainability and Green Quality Management Center

ASUS established a unit dedicated to sustainable development in 2009 to monitor global sustainable development trends, analyze sustainability issues in governance, environment, and society. It integrated the core of operation with our innovation in product and service to form strategic sustainable direction to execute relevant programs. The Sustainability and Green Quality Management Center is established with the CEO serving as the highest-level manager, as mandated by the Chairman. The CEO is responsible for overseeing the sustainability projects and ensuring the achievement of goals related to material issues. The unit is led by the Chief Sustainability Officer (CSO) who is responsible for analyzing the trend of global sustainability, managing sustainability policy, objectives, and actions. The CSO regularly reports to the Board of Directors each year and submits the policies and targets, key sustainability projects and the performances for review. For sustainable supply chain management, the Sustainability & Green Quality Management Center has established a Supplier Code of Conduct to promote the protection of labor rights, responsible mineral sourcing, and the management of initiatives to reduce the environmental footprint of manufacturing.

ESG Committee

To strengthen horizontal cross-unit communication within the company, ESG Committee was established in 2022. Committee members were from each business unit as well as the design center, certification, marketing, sales and other support units. We consolidate the sustainability progress and requirements of each unit, facilitating the centralized integration of resources. This ensures the efficient allocation of resources, enabling all departments to progress in a unified sustainability direction. With respect to procurement and the supply chain, we place particular emphasis on implementing sustainable sourcing strategies to ensure that every link in the supply chain complies with current international regulations and emerging trends. Through ESG Committee meetings, we not only strengthen the internal team's understanding of and commitment to the core values of sustainable development, but also encourage active participation in sustainability practices across the entire supply chain.

GreenASUS and SERASUS Committee

To facilitate cross-departmental coordination on highly impactful issues such as products, supply chains, and organizational operations, ASUS established the GreenASUS Management Committee and the SERASUS Management Committee. Senior management appoints representatives to oversee the Company's ISO 9000 Quality Management System, QC 080000 Hazardous Substance Process Management System, ISO 14001 Environmental Management System, and others. These committees regularly communicate information related to environmental safety, health, and management systems to all employees. Members are drawn from business units, procurement, customer service, administration, and legal departments, enabling horizontal communication and coordination across departments. This ensures the effective allocation of resources and aligns all ASUS employees toward a unified sustainability direction, truly integrating sustainability into core operations as a component of the Company's competitive advantage.



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According to estimates by the Intergovernmental Panel on Climate Change (IPCC), the value of global ecosystem services amounts to USD 150 trillion, with approximately 47% of national GDP generated from services provided by biodiversity. However, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has identified economic and social activities as major sources of pressure leading to environmental degradation. The key drivers include changes in land and sea use, climate change, direct exploitation of natural resources, pollution, and invasive species. Incorporating these five primary drivers of natural environmental loss into value chain risk assessment and management reviews can help mitigate the environmental impact of a company's value chain.

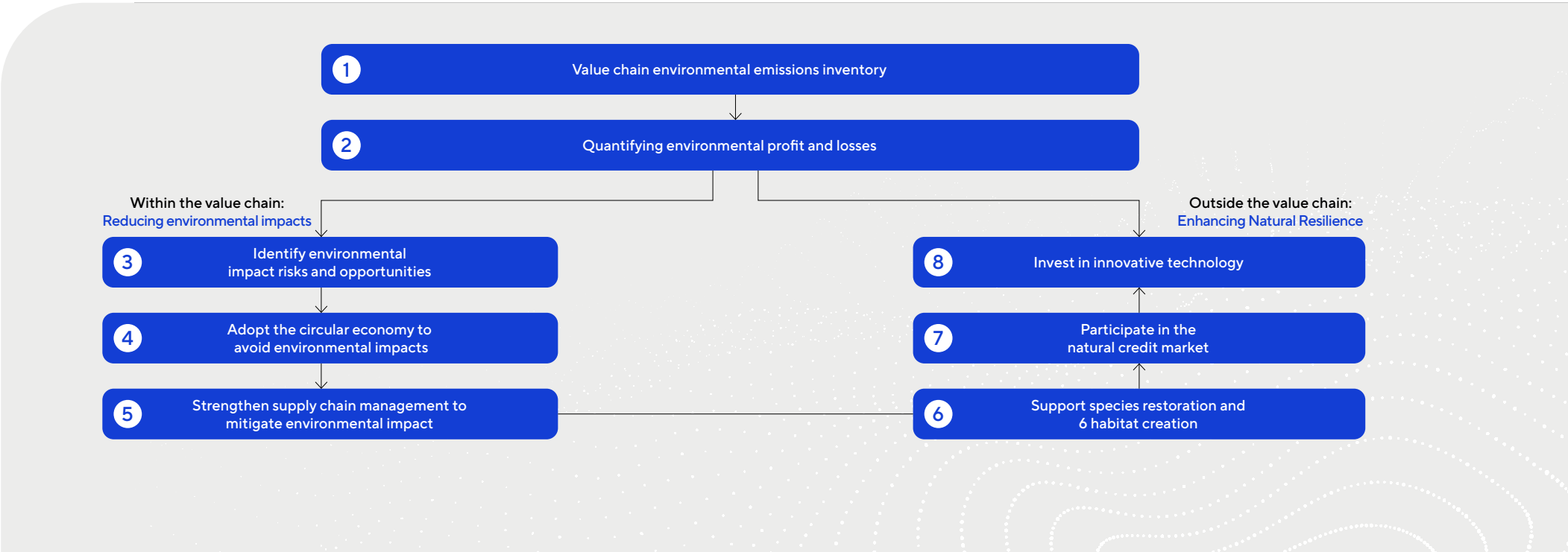
Statistics show that over 80% of Fortune 500 companies have set carbon reduction or net-zero targets, yet only 6% have established goals to reduce impacts on and restore biodiversity. Furthermore, BlackRock, in its article "Our Approach to Engaging on Natural Capital," noted that more than half of global GDP (approximately USD 58 trillion) is moderately or highly dependent on the natural environment, yet only a small portion of natural capital's value is adequately reflected in market pricing. As pressures on natural capital intensify and related policies and regulations become increasingly stringent, asset prices will progressively adjust to account for nature-related risks and opportunities. For companies whose strategies or supply chains are

heavily dependent on natural capital, effectively managing nature-related risks and opportunities has become a critical factor in generating long-term financial returns.

In response to the growing attention from external capital markets on nature-related issues, as well as the requirements of the United Nations Sustainable Development Goals (SDGs) and the Kunming-Montreal Global Biodiversity Framework (GBF), ASUS has launched biodiversity monitoring initiatives, established a Biodiversity Policy, and developed a Natural Capital and Biodiversity Strategy Map. This dual-track approach—comprising "value chain management" and "beyond value chain actions"—aims to reduce environmental impacts and enhance ecological restoration.

Within value chain management, ASUS identifies and assesses the dependence and impact of its operation centers and supply chain on nature, aligning with the Science Based Targets Network (SBTN) AR3T (Avoid, Reduce, Restore, and Regenerate) action framework. Through the implementation of climate action, circular economy practices, and strengthened supply chain environmental management, ASUS seeks to minimize the negative impacts of its operations on the environment.

Beyond the value chain, ASUS will engage in initiatives such as the restoration of endangered local species and the exploration of nature-related innovative technologies to enhance ecosystem resilience, striving to realize the vision of harmonious coexistence with nature.



- Identifying the level of dependence of ASUS' value chain on natural capital

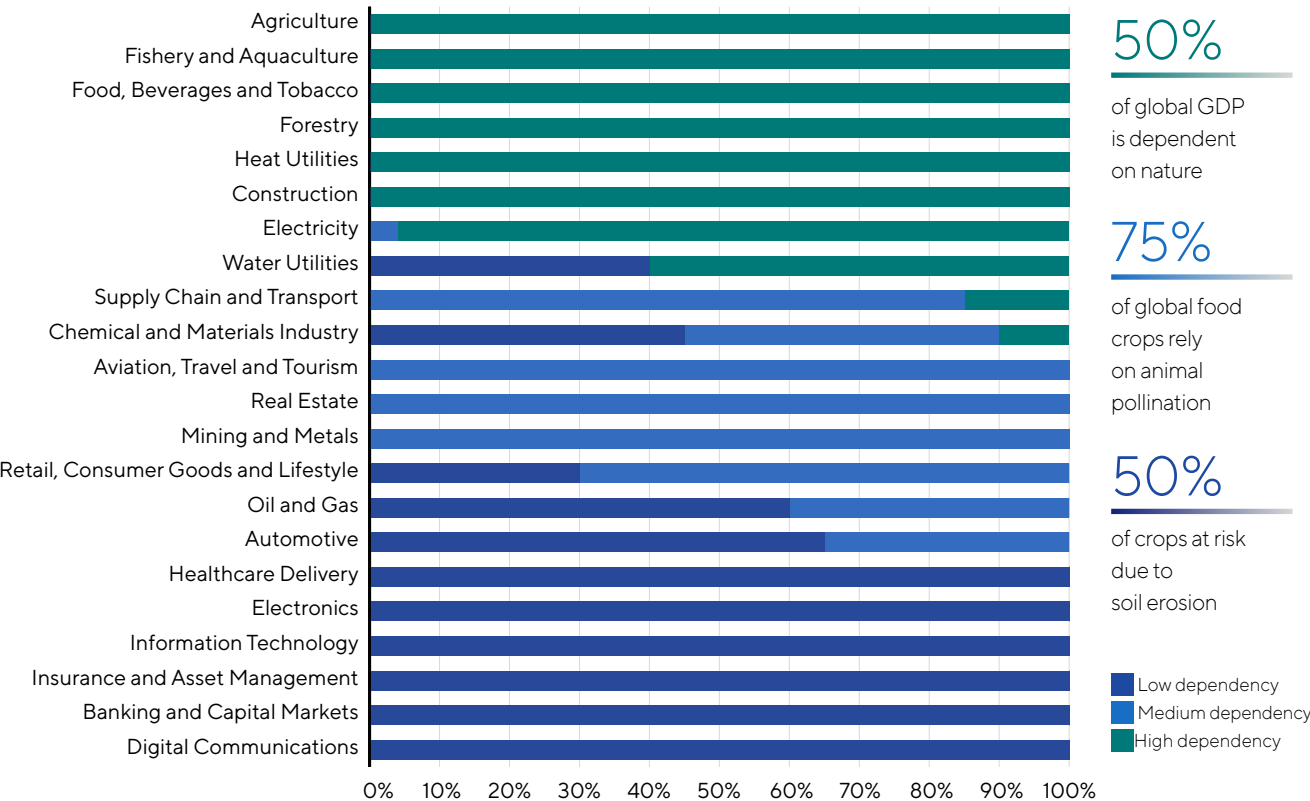
Defining the Dimensions and Scope of Natural Capital Impacts

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According to the Natural Capital Protocol framework, business operations and natural capital have a two-way interaction, specifically reflected in the two dimensions of “dependence” and “impact.” This bidirectional relationship is closely linked to the risks and opportunities faced by a company and can significantly affect its financial performance. ASUS adopts the MSCI Natural Capital Risk Assessment framework as its analytical foundation, referencing data from the United Nations Environment Programme’s ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) database, and combining it with internal operational experience to identify and assess the natural capital impacts of its operations and value chain. The assessment results indicate that, as a company in the information technology sector, ASUS’ core operational activities—including product design, R&D, manufacturing, sales, product use, and recycling—show a relatively low level of dependence on natural capital. However, the primary source of ASUS’ impact on natural capital lies in the “impact” dimension, specifically through activities such as raw material extraction and use, greenhouse gas emissions, water consumption, raw material usage, and waste generation, all of which cause negative effects on the natural environment. Based on these results and the principle of prioritizing resource allocation, ASUS will focus its subsequent analysis and corresponding management actions on value chain’s environmental impacts.

Dependencies of industries on natural capital



Sources: MSCI ESG Research, November 2023; World Economic Forum and PwC. 2020. "Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy."



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Defining the Dimensions and Scope of Natural Capital Impacts

ASUS identifies the impacts of value chain activities on natural capital, which can be categorized into two main types based on their sources: natural resource depletion and environmental quality degradation. Natural resource depletion primarily arises from raw material extraction activities, including the mining of mineral resources and the utilization of forest resources, which directly consume the stock of natural capital. Environmental quality degradation encompasses the negative impacts caused during operations, including water pollution, GHG Emission, soil contamination, and water consumption, all of which affect environmental quality.

(1) Natural Capital Depletion: Raw Material Extraction and Use

The greatest impact of ASUS products on natural capital comes from the extraction of raw materials within the supply chain, such as minerals and forest resources. According to the 2021 report by the Electronic Product Environmental Assessment Tool (EPEAT), a voluntary environmental labeling program, electronic products contain 40 types of critical metals. For example, metals account for approximately 70% of the raw materials in laptops and as much as 79% in desktops. The mining of these metals causes large-scale environmental destruction, alters landscapes and terrain, affects natural scenery, and severely disrupts local biodiversity balance. Research indicates that upstream mining industries have a biodiversity pressure index of 6%, while logging industries score as high as 11%, with the main sources of impact being the overexploitation of natural resources and changes in land use.

(2) Environmental Quality Degradation: Environmental Impacts of Value Chain Activities

ASUS' operational activities have direct negative impacts on the environment, primarily including greenhouse gas emissions, water pollution, and solid waste generation. These forms of pollution directly affect the quality of natural habitats and worsen living conditions for species. According to research by the German League for the Environment and BCG in The Biodiversity Imperative for Business, the manufacturing sector has a biodiversity pressure index of 7%, with sources of impact including land-use change, climate change, and environmental pollution. In addition, water resource availability poses an increasing risk to the electronics manufacturing industry. The United Nations World Water Development Report 2023 estimates that by 2030, nearly half of the global population will face severe water stress, and by 2050, the urban population experiencing water shortages will be twice that of 2016. Extreme climate events exacerbate water resource fluctuations, with every 1°C increase in global average temperature reducing water availability by 20%. Furthermore, between 2001 and 2018, nearly three-quarters of natural disasters were water-related. International voluntary environmental labeling programs such as EPEAT and TCO have begun strengthening water resource management requirements, encouraging the electronics industry supply chain to adopt more proactive water management measures.





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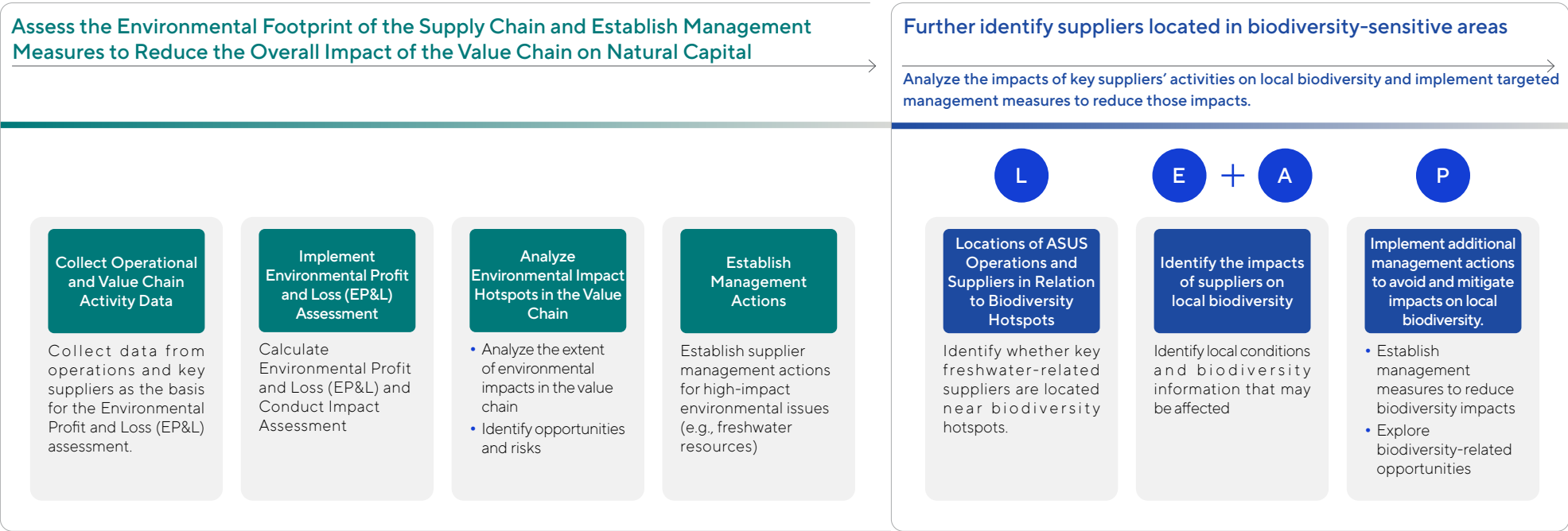
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ASUS Natural Capital / Biodiversity Impact Assessment Methodology

Building on its past Environmental Profit and Loss (EP&L) assessment experience, ASUS employed a two-phase analytical approach to evaluate the impacts of its operations and supply chain activities on natural capital and biodiversity:

Phase 1 – Quantitative Environmental Impact Assessment: ASUS conducted regular surveys of operational and value chain activity data and applied the Environmental Profit and Loss (EP&L) methodology to measure the overall environmental impacts of its global operations and supply chain. This process identified environmental risks and opportunities and established corresponding management measures to reduce environmental impacts. The 2024 assessment results showed that greenhouse gas emissions pose the greatest impact, followed by water pollution and water resource usage (collectively referred to as freshwater resources)³, which indirectly affected biodiversity. Accordingly, ASUS disclosed its greenhouse gas management strategies and actions in full through the Task Force on Climate-Related Financial Disclosures (TCFD) report. For freshwater-related assessments and management, as well as the development of corresponding biodiversity protection strategies, ASUS responded to international framework requirements and mitigated operational risks through this Natural Impact Assessment Report.

Phase 2 – Biodiversity-Sensitive Area Assessment: Following the LEAP (Locate, Evaluate, Assess, Prepare) methodology recommended in the TNFD guidance, ASUS used the second-largest environmental impact identified in the Phase 1 EP&L assessment—freshwater resources—to determine whether key freshwater-related suppliers are located in biodiversity-sensitive areas. This process strengthened biodiversity audits and management efforts.



³ From both an academic perspective and that of the Science Based Targets Network (SBTN), the hydrological cycle approach considers water withdrawal and wastewater discharge as two interconnected stages within the same freshwater flow. In this cycle, pollutant discharges reduce the usability of downstream water bodies, decreasing the effective freshwater supply within the watershed and thereby limiting a company's future water withdrawal potential. Therefore, from a risk management standpoint, integrating water quality and water quantity under a unified "freshwater resources" management objective enables a more effective assessment of watershed water stress and the reduction in effective water availability caused by pollution. This integration facilitates the establishment of management targets that simultaneously achieve both water conservation and pollution reduction benefits.

- ASUS Value Chain Impact Assessment on Natural Capital

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ASUS Value Chain Impact Assessment on Natural Capital

Natural Capital Depletion: Avoiding the Impacts of Raw Material Extraction on Natural Capital Mineral

Electronic products require a variety of functionally significant metals depending on their performance needs, among which tantalum, tin, tungsten, and gold are essential for the operation of electronic devices. These metals are used in manufacturing components such as resistors, capacitors, central processing units, hard drives, memory modules, motherboards, and connectors. In 2024, analysis showed that the metals used by ASUS were sourced from 693 smelters, with the distribution as follows: Asia 62.0%, the Americas 14.8%, Europe 14.8%, Africa 7.5%, and Australia 1.0%. In line with the Organization for Economic Cooperation and Development (OECD) due diligence procedures, ASUS conducts supply chain smelter investigations, establishing management mechanisms, identifying and assessing risks, formulating risk mitigation measures, and disclosing management results to ensure responsible minerals management. Since 2018, 100% of ASUS' tantalum, tin, tungsten, and gold have been sourced from qualified smelters, thereby avoiding issues such as labor exploitation, armed coercion, child labor abuse, and environmental destruction caused by illegal operations.

As one of the designated responsible minerals, tin is not only prohibited by ASUS from being sourced from conflict-affected areas but also monitored for origins linked to unsustainable mining in Indonesia. Unregulated extraction, coupled with neglect by multinational corporations, has resulted in poor working conditions and severe environmental damage in Indonesian mining operations. The Indonesian Tin Working Group—a coalition of electronics companies, tin producers, industry associations, and civil society advocates—seeks to address these challenges. ASUS has joined this organization to support project initiatives aimed at mitigating the environmental impacts of unsustainable mining in the region.

Cobalt, a critical material for battery production, is another focus area. According to the European Union's Critical Raw Materials Review Report, one-third of the world's cobalt is sourced from the Democratic Republic of Congo and neighboring countries, where illegal mining risks are prevalent. In 2019, the Responsible Minerals Initiative (RMI) classified cobalt as a fifth-category managed mineral. ASUS has developed a five-year smelter qualification transition plan, requiring suppliers to progressively increase the proportion of cobalt sourced from qualified smelters, with the goal of achieving 100% qualified cobalt sourcing by 2025.

Packaging

According to a 2016 study by the World Economic Forum and the Ellen MacArthur Foundation, most packaging is used only once, and of the vast amount of plastic waste generated afterward, only 5% is effectively recycled. As a result, since 2018, countries around the world have been implementing plastic reduction policies to achieve the vision of a circular plastics economy. Since 2019, ASUS has replaced PE bags with PET non-woven fabric and increased the use of recycled pulp to 90% in paper-based packaging materials. Extending its commitment to resource and ecosystem protection, ASUS began sourcing Forest Stewardship Council (FSC)-certified paper in 2020, using over 1,090 metric tons to date. In its core product—laptops—ASUS uses over 90% recycled paper and is progressively incorporating more environmentally friendly paper materials.





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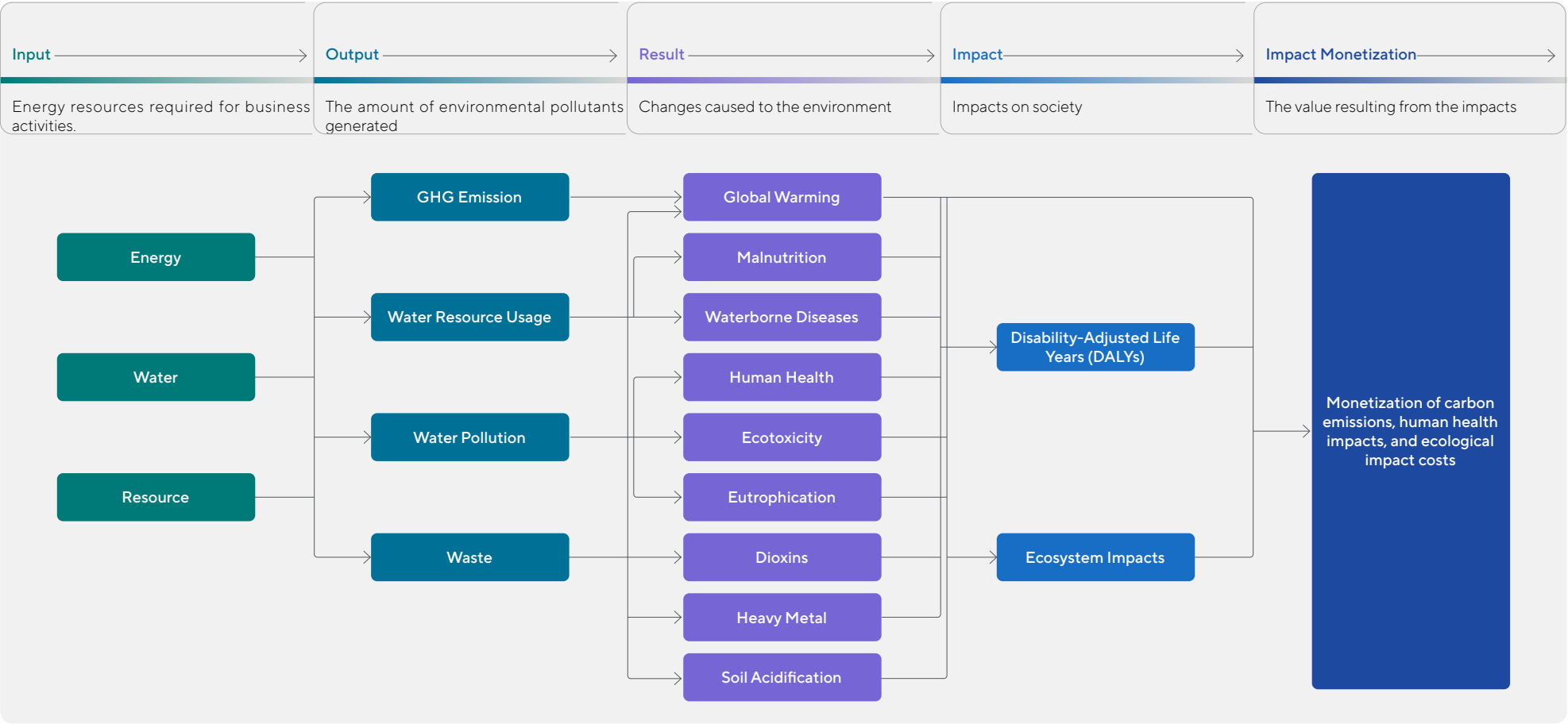
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Environmental Quality Degradation: Mitigating the Value Chain’s Impact on Natural Capital

Since 2018, ASUS has adopted Environmental Profit and Loss (EP&L) assessment as a core tool for measuring the environmental impacts of its value chain. Based on the ISO 14040 life cycle assessment standard, PwC’s environmental impact monetization methodology, and the Natural Capital Protocol, ASUS applies Input-Output Analysis (IOA) to comprehensively evaluate energy and resource inputs throughout the value chain and convert environmental outputs into quantifiable impacts. ASUS monetizes the environmental profit and loss of its main products—which account for 90% of revenue (laptops, desktops, motherboards, monitors, and smartphones)—with a focus on the external costs of four environmental indicators: greenhouse gas emissions, water resources, water pollution, and waste. This enables precise management of operational activities and optimization of biodiversity strategies.

Recognizing that historical monetization factors are based on past research data and may no longer accurately reflect current conditions due to methodological advancements and changes in environmental and social contexts, ASUS has comprehensively updated its monetization factor database with the latest parameters. Building on Disability-Adjusted Life Years (DALY), ASUS has integrated ecosystem impact pathways and monetized both human health and ecosystem impact costs, thereby providing a more accurate reference for biodiversity-related decision-making.





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Boundaries and Scope

In accordance with the definition in the Product Category Rules (PCR), ASUS defines the boundaries and scope to cover the main components and supply chains of products that account for 90% of its revenue:

- Value chain: Tier 3 raw materials, Tier 2 components, Tier 1 assembly by contract manufacturers, and Tier 0 ASUS operations, including product design, validation, and marketing activities.
- Main components: CPU, memory, display, GPU, resistors, capacitors, motherboards, connectors, mechanical parts, hard drives, cables, batteries, power supplies, keyboards, and packaging.
- Environmental impact indicators: greenhouse gases, water resources, waste, and water pollution.

Environmental Footprint Data Collection

Following the 2024 assessment of operational activities and value chain environmental footprints, ASUS reports the current status for water resources, solid waste, and greenhouse gases as follows:

Water Resource

Water Resource Usage

- In terms of freshwater resources, motherboard suppliers and display manufacturers consume the most water, with the highest annual water withdrawal and wastewater discharge occurring in the downstream Pearl River Delta in China, followed by the Yangtze River Delta.
- Overall, the value chain’s operational water resources are primarily sourced from municipal water utilities, with only 10% coming from other sources such as surface water and groundwater.

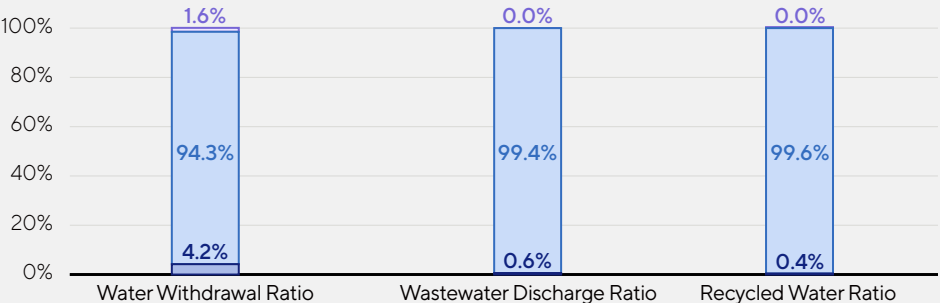
Water Pollution

- Panel, motherboard, chip, and EMS contract manufacturing suppliers have relatively high levels of wastewater pollution discharge.
- Annual wastewater volumes are also highest in the downstream Pearl River Delta in China, followed by the Yangtze River.

Value Chain Water Resource Usage and Water Pollution Inventory

Unit: %

Taiwan Region Mainland China Region Others



In 2024, the value chain’s total water withdrawal amounted to 6,624 million liters per thousand metric tons, with wastewater discharge at 2,808 million liters per thousand metric tons and recycled water volume at 2,793 million liters per thousand metric tons.

*Wastewater discharge figures are aligned with the 2024 Sustainability Report, reflecting supplier-reported data.

Solid Waste

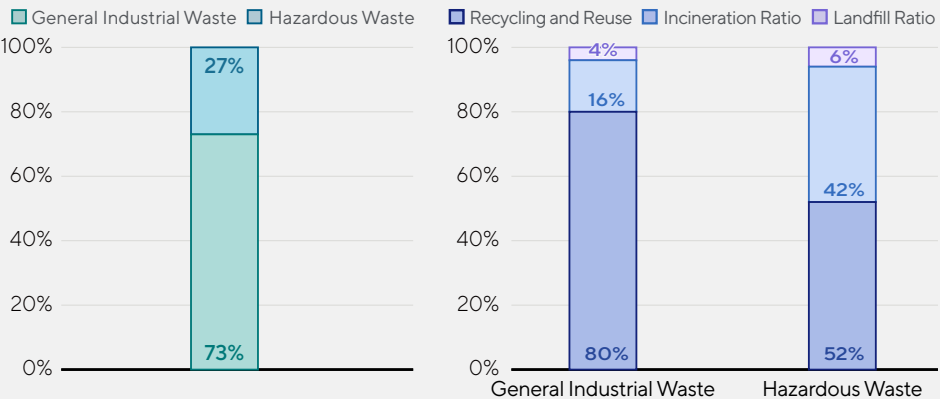
The primary waste output from value chain and operational activities is general industrial waste, accounting for over 70% of the total. Among these, general waste generated after the processing of system components is the highest, with a recycling rate of up to 80%.

Hazardous industrial waste is primarily generated by motherboard suppliers and assembly plants, mainly due to the extensive use of organic solvents during production and the offcuts produced after processing. The recycling rate for hazardous waste can reach 52%.

Value Chain Waste Categories

Value Chain Waste Disposal Methods

Unit: %





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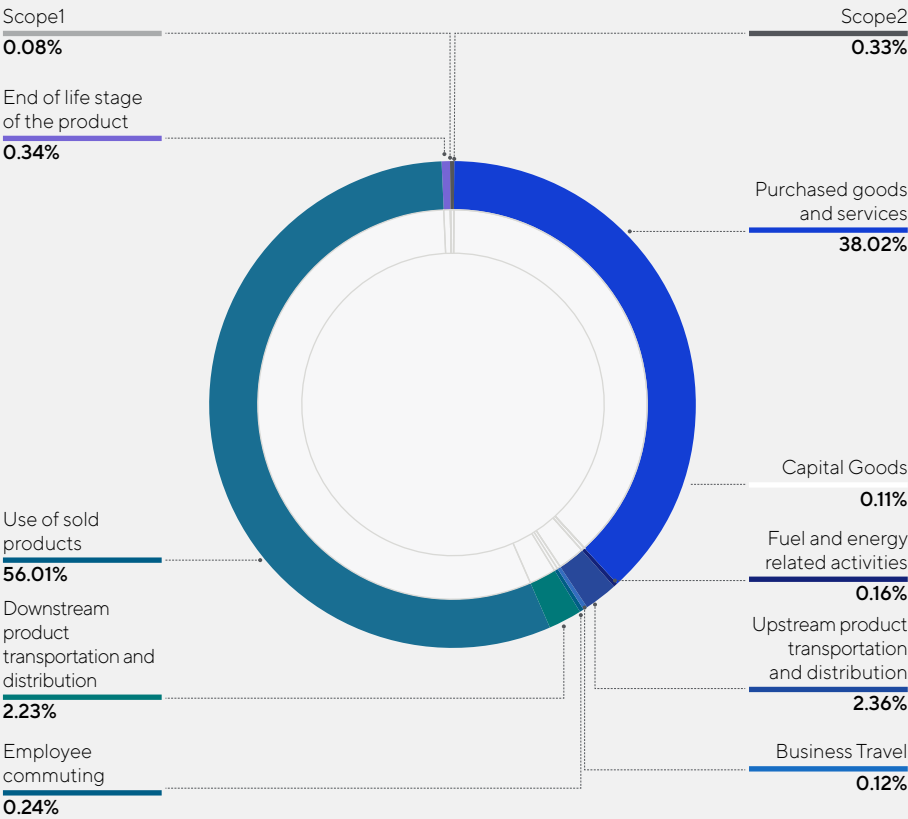
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GHG Emission

According to the 2024 inventory results, Scope 1 (direct emissions) and Scope 2 (indirect emissions from purchased electricity) account for only 0.41%, as ASUS has reduced these emissions by expanding renewable energy use and replacing high-energy-consuming equipment.

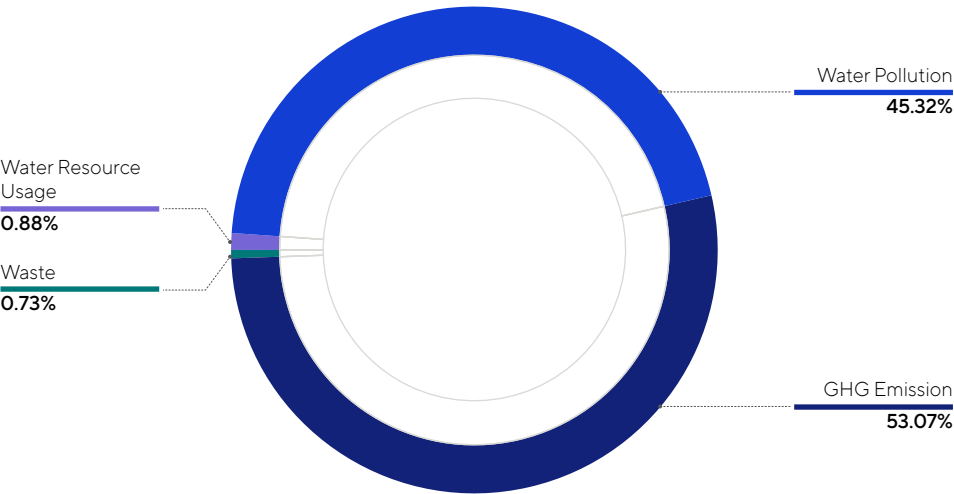
Scope 3 (other indirect emissions in the value chain) is dominated by product energy efficiency (56.01%) and supply chain procurement (38.02%) as the largest contributors to carbon emissions.



Environmental Profit and Loss Analysis Results

The results of the Environmental Profit and Loss analysis are as follows: greenhouse gases account for the highest share at 53.07%, followed by freshwater resources—comprising wastewater pollution at 45.32% and water resource usage at 0.88%—and waste at 0.73%.

2024 Category Breakdown



Unit: million dollars

	2022	2023	2024
GHG Emission	218	235	363
Water Pollution	392	442	311
Waste	13	13	5
Water Resource Usage	3	3	6
Total	625	693	685

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Breaking down further by environmental hotspots for each tier—Tier 0 ASUS operations (design, validation, and marketing), Tier 1 contract manufacturing assembly, Tier 2 components, and Tier 3 raw materials (as shown in the figure):

- Greenhouse gases: The primary impacts are concentrated in Tier 1 and Tier 2 of the value chain, mainly from energy consumption and process emissions, indicating that carbon reduction remains ASUS’ top environmental management priority. The relative increase in greenhouse gas emissions in 2024 is mainly due to updates to monetization factors and increased procurement from upstream suppliers.
- Wastewater pollution: Accounting for 45.32% of total environmental impact, wastewater pollution is the second-largest environmental factor. It primarily originates from the use of chemicals and cleaning activities in production processes, highlighting the need to strengthen wastewater discharge management.
- Water resource usage: Water usage accounts for 0.88%, with the majority concentrated in water-intensive manufacturing processes. In the future, water recycling, reuse, and efficiency optimization should be strengthened to address the increasing global pressure on water resources.
- Solid waste: The greatest environmental impacts occur during the raw material extraction and component manufacturing stages. ASUS headquarters adheres to a zero-landfill standard, reducing waste generation and environmental burdens by improving process efficiency, promoting a circular economy, and expanding material recycling. ASUS also collaborates with suppliers to enhance waste management at the production stage and promote resource reuse.
- Compared to climate change, which can be addressed through global-scale mitigation and removal of greenhouse gas emissions to achieve unified targets such as limiting warming to within 1.5°C, biodiversity issues involve highly complex interactions between freshwater, marine, and terrestrial natural capital and human activities. Due to variations in geographical conditions and sources of pressure, biodiversity management requires more region-specific assessment and management approaches.

Compared to climate change, which can be addressed through global-scale mitigation and removal of greenhouse gas emissions to achieve unified targets such as limiting warming to within 1.5°C, biodiversity issues involve highly complex interactions between freshwater, marine, and terrestrial natural capital and human activities. Due to variations in geographical conditions and sources of pressure, biodiversity management requires more region-specific assessment and management approaches.





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Risk and Opportunity Identification

Based on the environmental hotspot analysis results⁴, ASUS focused on freshwater resources—the second-largest environmental impact—and, in accordance with the TNFD guidance and the Network for Greening the Financial System’s report Nature-related Financial Risks: A Conceptual Framework to Guide Action by Central Banks and Supervisors, identified nature-related risks and opportunities for its operations and key suppliers.

ASUS defines nature-related risks as follows:

- Physical risks: Water resource usage, where ASUS’ access to water resources may be reduced due to environmental degradation and the loss of ecosystem services, potentially resulting in economic losses for ASUS and its supply chain.
- Transition risks: The likelihood of facing stricter regulations on water resources, soil, and waste, with an expanded regulatory scope for the supply chain in the future, requiring the development of corresponding measures.

Impact Categories	Risk Classification	Sources of Risk	Risk Categories	Risk Identification	Risk description	Stages of occurrence ⁵	Impact scenarios (Event outcome)	Impact on ASUS
Fresh Water Resource	Physical risks	Taiwan	Climate Change and Local Hydrology	Freshwater Withdrawal and Discharge	Extreme weather events, such as reduced precipitation combined with local water resource usage, can result in water scarcity.	In the long term, within the next 10 years, reduced rainfall and increased local water usage may occur.	Operational headquarters water shortage and work suspension: <ul style="list-style-type: none">Remote workSeeking temporary relocation solutions	Source of impact: ASUS Level of impact: Medium Impact on ASUS: Increase in operating expenses
	Physical risks	Suppliers	Climate Change and Local Hydrology	Freshwater Withdrawal and Discharge	Rainfall patterns combined with local water resource usage can lead to local water stress.	In the long term, within the next 10 years, reduced rainfall and increased local water usage may occur.	Supply chain production efficiency decline or suspension due to water outage: <ul style="list-style-type: none">Seeking alternative water sourcesDelayed product delivery or relocation of production sites	Source of impact: Suppliers Level of impact: High Impact on ASUS: Decrease in operating revenue / Increase in expenses
	Transition risks		Policies and regulations	Pilot Implementation Measures for Water Resource Tax Reform	The shift from water fees to water taxes reflects stricter regulations on water resource usage. For example, a value-added tax of approximately 3–10% may be imposed, and water consumption exceeding 20% of the planned allocation may be subject to a tax more than double the standard rate.	In the near term, implementation across all provinces is expected within 1 to 3 years.	Supply chain water resource management: <ul style="list-style-type: none">Investment in water purification and recycling facilitiesFines for non-compliance with reporting requirements	Source of impact: Suppliers Level of impact: High Impact on ASUS: Increase in operating expenses
Soil and Solid Waste	Transition risks	Suppliers	Policies and regulations	China Soil Pollution Source Prevention and Control Action Plan	Regulations on soil and waste are becoming more stringent, with increasing requirements for information disclosure.	In the near term, implementation across all provinces is expected within 1 to 3 years.	Supply chain waste management: <ul style="list-style-type: none">Investment in pollution control equipmentFines for non-compliance with reporting requirementsWaste disposal costs Supply chain heavy metal air pollution management: <ul style="list-style-type: none">Investment in air filtration equipmentInvestment in air monitoring and testing equipmentFines for non-compliance with reporting requirements	Source of impact: Suppliers Level of impact: Medium Impact on ASUS: Increase in operating expenses

⁴ Given the fundamental differences between climate and biodiversity assessment methodologies, ASUS has developed tailored plans and responses for each. For greenhouse gases, which represent the most significant impact, comprehensive inventories, management strategies, and actions are disclosed in the dedicated report—Climate-related Financial Disclosure Report. For freshwater resources (wastewater pollution and water usage) and solid waste, management strategies and actions are disclosed in the Natural Impact Assessment Report.

⁵ Timeframe of occurrence: Near term 1–3 years, Medium term 3–10 years, Long term 10 years and beyond



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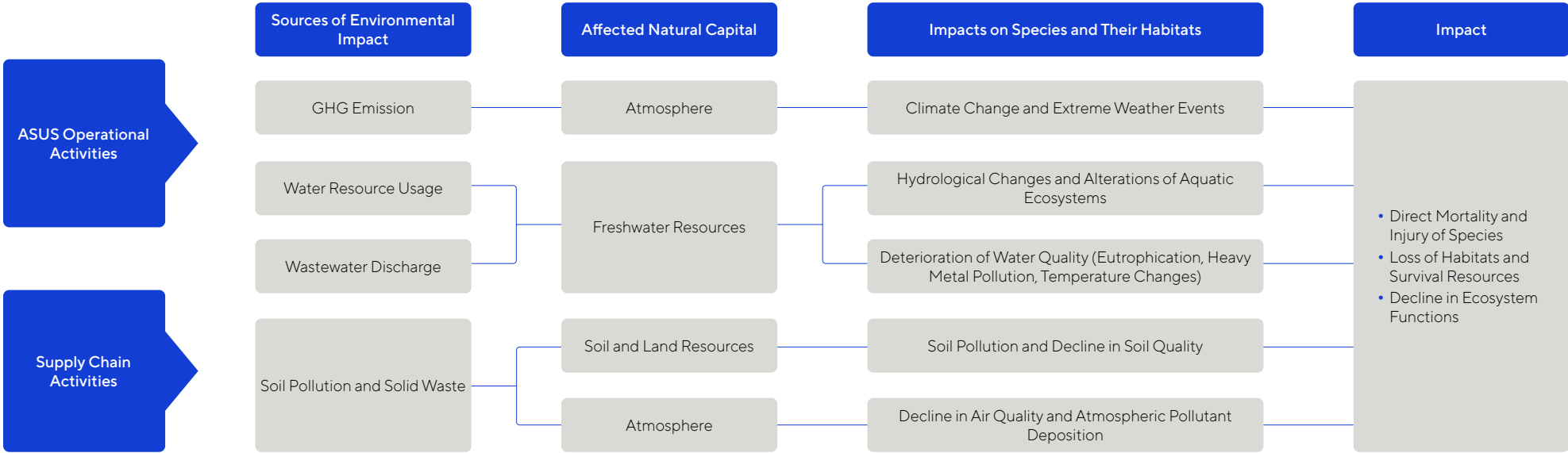
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Based on the risk and opportunity assessment, for suppliers with relatively high freshwater risks, ASUS adopted the LEAP (Locate, Evaluate, Assess, Prepare) methodology recommended by the TNFD framework to further overlay the geographic locations of key freshwater suppliers (panel, motherboard, chipset, EMS assembly facilities, battery) with biodiversity hotspot areas. For key suppliers located in biodiversity-sensitive regions, ASUS has enhanced management measures and initiated proactive audits to mitigate impacts on the local environment and biodiversity issues. The following illustrates the impact pathways through which ASUS’ operational activities may indirectly affect biodiversity.

ASUS Natural Capital Impact Pathways



ASUS Value Chain Biodiversity Impact Assessment Tool

In 2023, ASUS identified supplier impacts on biodiversity by utilizing geospatial databases such as the Integrated Biodiversity Assessment Tool (IBAT) and Key Biodiversity Areas (KBA). In 2024, ASUS further enhanced its biodiversity inventory capabilities. Considering that key suppliers are primarily located in mainland China, ASUS incorporated official local biodiversity databases, including data layers for National Nature Reserves, National Wetland Parks, and National Parks, to improve the accuracy and comprehensiveness of overall biodiversity risk assessments.

Biodiversity Impact Assessment of Operational Headquarters on the Local Environment

Last year, the operational headquarters conducted analysis using online databases such as the Integrated Biodiversity Assessment Tool (IBAT) and Key Biodiversity Areas (KBA), and was not located within internationally recognized biodiversity key areas. Considering that overall environmental impacts across the value chain are primarily concentrated in the supply chain, ASUS will focus on supply chain location analysis.



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Biodiversity Impact Assessment of Supplier Sites on the Local Environment

ASUS has approximately 700 suppliers worldwide, with around 70% located in mainland China. Among these, about 26% are in the Pearl River Delta region, such as Shenzhen and Guangzhou; approximately 21% are in the Yangtze River Delta region, including Suzhou and Shanghai; around 10% are in the Chongqing area and Central China; and about 4% are in the Eastern Fujian region. Other suppliers are located in the Indochina Peninsula and Taiwan, accounting for approximately 30%.

ASUS Operational Sites and Supply Chain Distribution



Based on the results of the environmental profit and loss assessment and natural capital impact pathways, ASUS conducted point-based analysis using the latitude and longitude data of key freshwater resource suppliers. This was supplemented with both global biodiversity mapping scales and national-level analyses to evaluate the relationship between supplier sites and biodiversity-sensitive areas, thereby strengthening biodiversity-related audits and management.

The 2024 analysis identified one new supplier in Vietnam located near the An Hai Biodiversity Hotspot, and two new suppliers in mainland China situated near ⁶ six National Wetland Parks, as illustrated in the figure below. To prevent potential impacts from ASUS suppliers on local biodiversity, newly identified suppliers in 2024 are subject to enhanced biodiversity audits—for example, reviewing biodiversity policies and verifying compliance reports and reduction plans related to wastewater and waste. Suppliers identified in the previous year will continue to be included in the annual audit process to ensure ongoing compliance.



Through analysis of online databases such as Key Biodiversity Areas (KBA), it was identified that one supplier in Vietnam is located near the local An Hai Biodiversity Hotspot. According to supplier audit results, the supplier has obtained government approval documents for plant establishment, and based on the local government’s determination, the facility poses no biodiversity-related concerns.



ASUS utilized the database of the Institute of Public and Environmental Affairs (IPE) in mainland China, which indicated that Supplier A is located near the Cuiheng National Wetland Park in Zhongshan, Guangdong. Given its proximity to an ecologically sensitive area, ASUS required the supplier to undertake follow-up actions, such as establishing management mechanisms and enhancing disclosure and communication. Further details will be provided in Section 05: Natural Capital Actions.

6 Definition of Proximity: Referring to the Nature Positive Initiative (NPI), the assessment is based on a maximum range of 5 kilometers from areas where endangered species may be affected.

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Actions within the Value Chain – Operational Sites / Supply Chain

Management measures at ASUS operational sites are categorized into freshwater resource management and waste management, as described below.

Freshwater Resource Management:

In 2022, the ASUS operational headquarters, Li-Gong Building, obtained the ISO 46001 Water Efficiency Management System certification and set a water-saving target of reducing water consumption by 1% annually. To ensure effective water resource management, improve efficiency, and reduce waste, ASUS has implemented multiple measures in both hardware and software. Water meters were installed on pipelines to monitor and analyze water usage, enabling the identification of efficiency improvements and issuing alerts to relevant personnel in case of abnormal usage, thereby minimizing waste. At the corporate headquarters, a water recycling and reuse facility was established to collect overflow water for use in restrooms, air conditioning cooling, and landscaping maintenance. Wastewater primarily originates from general office sewage and is discharged into designated wastewater treatment systems in accordance with government regulations.

Waste Management:

ASUS classifies waste into two categories: general industrial waste and hazardous industrial waste. Hazardous industrial waste primarily originates from R&D materials and defective products. Such waste is strictly identified, classified, and managed, and then handed over to qualified recycling contractors for reuse. General industrial waste refers to all other types of waste, mainly office and employee household waste. Recyclable materials are properly sorted for recovery, while non-recyclable portions are ultimately incinerated or landfilled.

Since 2015, ASUS has promoted a Zero Waste to Landfill program at its corporate headquarters, adopting the UL Zero Waste to Landfill (UL ECVP 2799) standard. Quantitative indicators are used to track the flow of waste and ensure that it is properly recycled, reused, or converted, rather than directly landfilled.

In response to the aforementioned nature-related risks, ASUS has adopted circular economy practices and strengthened supply chain management to reduce the overall environmental impact of its value chain.

Circular Economy Actions and Performance

The extraction of raw materials during the product manufacturing stage generates environmental impacts, including deforestation (packaging paper) and mineral extraction (metal chassis), which may lead to land-use changes, habitat destruction, and biodiversity loss. Through circular economy strategies, ASUS maximizes resource utilization efficiency, reduces the demand for virgin materials, and consequently lessens the pressure on natural ecosystems.

Key Actions and Performance

- Circular Supply Chain: Focused on reducing raw material consumption by introducing environmentally friendly materials (recycled plastics, recycled metals, recycled paper) to lower the proportion of virgin materials, while ensuring proper management of chemicals in products. In 2024, ASUS proactively regulated more than 450 chemical substances and accumulated the use of over 30,000 tons of environmentally friendly materials.
- Product Lifecycle Extension: Adopted modular design to improve product disassembly and extend product lifecycles. According to the French Repairability Index, the ASUS ROG Strix G18 model achieved a score of 8.6. Another service to extend product lifecycles is Device as a Service (DaaS), which replaces purchasing with leasing to reduce waste.
- Recycling System Establishment: In 2024, ASUS' global recycling services covered more than 82% of its sales markets, collecting over 12,000 tons of electronic waste. The total annual recycling volume accounted for 13% of the global sales product weight.

For more details on circular economy, please refer to the [Circular Economy](#) section of the [ASUS Sustainability Report](#).



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Supply Chain Management and Performance

Environmental impacts generated from supply chain processes are the primary source of ASUS value chain impacts on natural capital. These include freshwater consumption and wastewater discharge during manufacturing (affecting aquatic ecosystems), and improper waste disposal (polluting soil and groundwater), which directly damage three core elements of ecosystems: water, land, and soil. Such impacts contribute to biodiversity loss and degradation of ecosystem functions. Through supply chain management strategies, ASUS improves suppliers’ environmental practices to help protect biodiversity and the integrity of natural capital.

Key Actions and Performance

- Responsible Minerals: ASUS conducts smelter due diligence in accordance with the five-step framework of the OECD Due Diligence Guidance. Based on the investigation results of the Responsible Minerals Initiative (RMI) and the regions defined under the EU Conflict Minerals Regulation that took effect in 2021 (Conflict-Affected and High-Risk Areas, CAHRAs), ASUS sourced metals in 2024 from 693 smelters, primarily located in Asia (62.0%), followed by the Americas (14.8%), Europe (14.8%), Africa (7.5%), and Oceania (1.0%). All smelters were verified as qualified by either the RMI or the London Bullion Market Association (LBMA).
- Freshwater Resource Management:
 - Introduced water-saving equipment and technologies (e.g., rainwater recycling and reuse) and implemented process wastewater recycling, along with establishing water quality monitoring systems to enhance wastewater treatment capacity. In 2024, ASUS strengthened supplier environmental footprint investigations, with key suppliers collectively treating 5,592 thousand tons of wastewater (including 2,808 thousand tons discharged and 2,784 thousand tons recycled). Furthermore, 100% of motherboard manufacturers provided compliant wastewater testing reports, and 61% of key suppliers established water-saving targets. ASUS will continue to strengthen supplier collaboration and management in water resource practices.
 - To deepen supplier awareness and strengthen action, ASUS organized a “Water Resource Management and Reduction” assistance meetings in 2024. The meeting introduced global water risk trends for high water-consuming suppliers and applied the WRI Water Risk Atlas (Aqueduct) tool to conduct regional risk assessments, helping suppliers identify water stress and water quality risks at their operational sites. The conference also referred to the CDP Water Security framework, guiding suppliers in disclosing management strategies and response actions, and used case studies and data to demonstrate the environmental impacts of process water usage.
 - Rogress of Freshwater Resource Management Support Program

Conduct an inventory of key water-resource suppliers.	Develop risk awareness and management capabilities.	Establish reduction targets.	Track progress regularly.
2023	2024	2025	2026
<ul style="list-style-type: none">• Using water-footprint data and product-process analysis, identify high water-use processes and supplier groups.• Establish a tiered list to inform subsequent management and assistance efforts.	<ul style="list-style-type: none">• Organize educational training sessions and seminars to communicate water-related regulatory developments and corporate responsibilities.• Leverage the WRI Aqueduct tool to evaluate water stress and risk in the regions where suppliers’ operational sites are located.• Implement the CDP Water Security framework to support suppliers in self-assessing their current water resource management practices.• Deliver risk-hotspot analysis reports to help suppliers identify sources of water-related risk and develop appropriate response capabilities.	<ul style="list-style-type: none">• Assist suppliers—in accordance with their operational contexts and regional water risk profiles in establishing specific, measurable reduction targets.• Introduce technology to driven improvements—such as wastewater recycling and treatment systems, as well as process optimization—to reduce water consumption.• Offer industry best practices and illustrative case studies as reference points for continuous improvement.	<ul style="list-style-type: none">• Establish a semi-annual monitoring mechanism to regularly report water usage data and improvement progress.• Leverage a data platform for trend analysis to identify anomalies or elevated risks at an early stage.

- Waste Management: Ensuring that suppliers entrust qualified contractors to handle waste. In 2024, 100% of ASUS suppliers engaged qualified waste disposal contractors; 14% of suppliers obtained Zero Waste certification; and 54% of suppliers established waste reduction targets.

For more details on the supply chain, please refer to Chapter 08: Responsible Manufacturing in the ASUS Sustainability Report

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Biodiversity Management Measures and Performance at Operational Sites

As ASUS sites are located near Guandu Nature Park, and in recognition of the importance of environmental conservation, ASUS has supported the Coastal Cleanup Adoption Program initiated by the Environmental Protection Administration (EPA). Since 2017, ASUS has adopted a 500-meter coastal stretch of the Wazihwei Nature Reserve in New Taipei City. This area, adjacent to Guandu Nature Park, contains a valuable wetland ecosystem and serves as an important habitat for migratory birds, aquatic species, and diverse wildlife. In 2024, ASUS organized two coastal cleanup events with a total of 204 volunteers participating, encouraging employees to engage in environmental initiatives and raise awareness of conservation.



Supply Chain Biodiversity Actions and Performance

Supply Chain Management Measures

- Integration of Biodiversity: Biodiversity identification and management have been incorporated into the Supplier Code of Conduct. ASUS suppliers are required to consider the local environmental impacts of their operations and establish biodiversity policies.
- Water Resources: Suppliers are required to provide ASUS with quarterly water-saving performance data and annual compliant wastewater testing reports, obtain ISO 46001 Water Efficiency Management System certification, or establish water recycling targets. Currently, 61% of suppliers have set water reduction targets.
- Waste Management: 14% of suppliers have obtained Zero Waste certification, and 54% of suppliers have established waste reduction targets.
- Biodiversity Audits: Suppliers located in biodiversity-sensitive areas are included as key suppliers in the annual on-site audit plan.
- Supply Chain Transparency: Suppliers are required to provide detailed information on production processes, operational management reports, and raw material sources.
- Supplier Selection Criteria: Priority is given to packaging suppliers with environmental certifications such as FSC and PEFC.

Supply Chain Management Case

Supply Chain Biodiversity Management

Based on the Key Biodiversity Areas (KBA) database, ASUS identified that Supplier A is located near the Cuiheng National Wetland Park in Zhongshan, Guangdong. This area is an important ecological habitat, covering 625.6 hectares with a wetland ratio of 63.21%, and includes diverse ecosystems such as estuarine waters, mangroves, permanent rivers, and marshes. It is home to several nationally protected wildlife species in China, including the Black Kite, Black-winged Kite, and Common Kestrel.

Supplier A is a manufacturer of IC packaging and storage equipment, with critical processes including IC baking, solder paste printing, surface mounting, reflow soldering, burn-in testing, and final assembly and packaging – all highly intensive processing steps. During its annual on-site audit, ASUS reviewed the supplier's environmental impact assessment reports and annual pollution emission testing data (covering domestic wastewater, process exhaust gases, and noise), confirming compliance with government approvals and regulatory requirements.

Given its proximity to an ecologically sensitive area, ASUS further required the supplier to undertake the following actions:

- Establish a biodiversity management mechanism: Integrate a biodiversity policy into its internal management system, set specific protection goals and action plans, and regularly review performance.
- Enhance communication and disclosure: Effectively convey relevant policies and objectives to internal employees and external stakeholders, and consider disclosing biodiversity commitments through public channels to strengthen corporate transparency and accountability.



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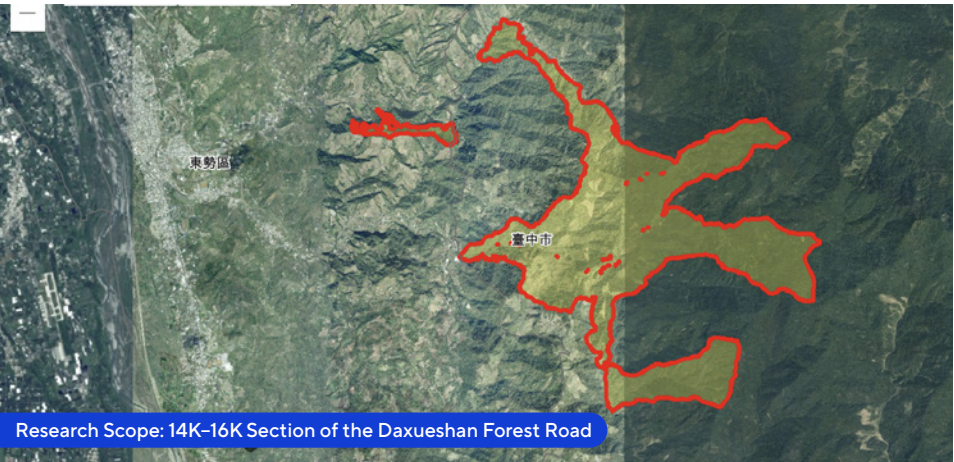
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Dasyuehshan Middle-Altitude Pangolin Habitat Enhancement and Conservation Project

Project Background

Taiwan is a densely populated island with limited arable land, where agricultural development has mainly relied on intensive farming. To improve crop quality, yield, and field management efficiency, farmers have commonly adopted conventional farming practices — applying chemical fertilizers, pesticides, and herbicides. However, while such practices prevent crop diseases and pests, they often leave chemical residues in agricultural products and soils, and through bioaccumulation, affect higher-level species in the local food chain. In contrast, herbaceous cultivation avoids the use of herbicides and instead relies on more frequent mowing. This approach allows harmless weeds to remain while removing harmful or excessively tall species, gradually reducing unwanted weeds and lowering the chemical burden on the soil.

In certain areas of Daxueshan, changes in forestland policy required alignment with government initiatives to promote more environmentally friendly farming practices. The Forestry and Nature Conservation Agency invited the Kuan Shu Educational Foundation, a non-profit organization experienced in supporting eco-friendly agriculture, to assist local farmers in adopting sod culture. During this transition, farmers increasingly observed pangolin activity in the fields. In response, ASUS collaborated with the Kuan Shu Educational Foundation and engaged Professor Ching-Min Sun from National Pingtung University of Science and Technology to lead a three-year research project. The study, focusing on the 14K-16K section of the Daxueshan Forest Road and adjacent leased national forest land, evaluates the effects of conventional farming versus herbaceous cultivation on pangolin habitat quality, food resources, and activity frequency, while also strengthening community-based pangolin reporting and conservation efforts. In addition, ASUS leverages its corporate platform to promote awareness of nature and biodiversity through both online and offline communication channels.



Project Description

With the recommendation of the Kuan Shu Educational Foundation and discussions with the Taichung Branch of the Forestry and Nature Conservation Agency, ASUS launched a Nature Positive Action Project. In alignment with the agency's "Nature Carbon Sink and Biodiversity Project Matching Platform" policy, ASUS submitted a self-initiated proposal and became one of the first successful corporate applicants in 2024. Chairman Jonney Shih represented ASUS at the press conference celebrating the project-matching outcomes and presented the company's Natural Capital Strategy Map, emphasizing its commitment to advancing both within the value chain management and actions beyond the value chain. Through the conservation of endangered native species and the application of innovative technologies, ASUS aims to respond to nature-positive goals and realize a vision of harmony with nature.

The 2024 phase of the project focused primarily on farmer interviews and habitat surveys, aiming to understand the historical and environmental relationships between tenant farmers on leased national forest lands and the surrounding ecosystem. The study also sought to document sightings of pangolins, including the contexts and locations of such encounters, to help the research team determine the connection between sod culture practices and pangolin habitat suitability. Preliminary interviews revealed that many farming families in the region trace their roots back to the Japanese colonial era, when shallow mountain areas were opened for agriculture or camphor production to boost food supply. After the Nationalist government arrived in Taiwan, forestry operations expanded, leading to the development of local communities. However, the recent shift toward reforestation under the Forestry and Nature Conservation Agency's policies has significantly impacted the local economy. In response, farmers have increasingly transitioned to natural farming methods or incorporated afforestation into their agricultural plots. With support and guidance from the Kuan Shu Educational Foundation, more farmers have adopted sod culture, avoiding chemical agents in favor of environmentally friendly cultivation.



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Key Outcomes

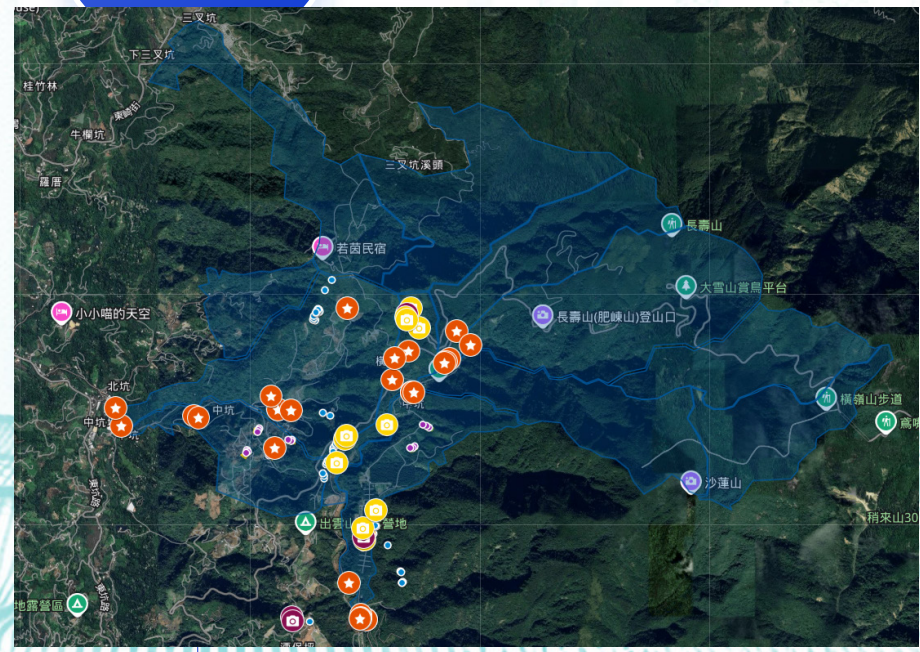
Among the farmers interviewed in local communities, all reported having seen pangolin burrows, and all but one had personally seen a pangolin. The community’s pangolin sighting rate reached 96%, and photographic records from interviews and local reports are shown in the image set below. Additional pangolin sightings by the research team are presented as below. Since the project launch in 2024, the research team conducted pangolin burrow searches around Fushan Lane near the 14K section of the Daxueshan Forest Road. A total of 13 burrows were identified along ridge lines adjacent to the roadside, as shown in the location diagram below. These findings suggest that pangolin habitats are in very close proximity to the local community. The 2024 research findings were reviewed and validated by the Forestry and Nature Conservation Agency, and ASUS became one of the first companies to receive a biodiversity certification.

By the first quarter of 2025, a total of 68 burrows had been recorded in the study area; an additional 67 burrows were discovered in the second quarter, bringing the cumulative total to 135. Except for two community-reported burrows located in conventionally farmed fields, all others were found in areas practicing herbaceous cultivation or using significantly less agrochemicals. However, 42.86% of community-reported burrows were misidentified, indicating a need for awareness. In response, a pangolin ecology and habitat identification training session was held for farmers on April 18, 2025, with course photos shown below. To further enhance local farmers’ understanding of the species, provide emergency rescue training, and establish a community-based reporting mechanism, additional training sessions are planned.



Interview and Community-Reported Pangolin Sightings

As of June 2025, a total of 135 pangolin burrows had been identified within the project site. Automated cameras were installed nearby to monitor pangolin activity and habitat conditions in real time.



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From the launch of the project in 2024 through the second quarter of 2025, a total of 13 pangolin burrow surveys were conducted, including 7 community-reported cases, of which 3 were confirmed as false identifications. Additionally, the research team completed 1 vegetation survey, 1 termite survey, 5 ant surveys, and 1 soil sampling and testing session. A total of 15 automated cameras were installed, including 3 positioned based on community reports of potential pangolin activity routes. As the project is still in its early phase, further analysis of soil and vegetation samples, as well as chemical residue assessments, will be conducted progressively.



Professor Sun's research team conducted vegetation and ant surveys in the 14K-16K section of the Daxueshan Forest Road.



Farmer Training – Introduction to Pangolins



專案編號: C06113008


農業部林業及自然保育署
自然碳匯與生物多樣性專案
-成果證明-

持有單位: 華碩電腦股份有限公司
專案名稱: 大雪山中海拔穿山甲棲地改善及維護計畫
執行期間: 2024.08.26 - 2024.12.31
專案位置: 大雪山林區14K-16K及周邊國有林(含社區)
生物多樣性目標(GBF): 目標 4、10、15
永續發展目標(SDGs): 目標 15、17

-專案完成事項-

本計畫研究國有林林地慣行農法與單生栽培對環境及穿山甲棲地的影響，經本署審核達成113年度專案事項，執行林農訪談、土壤採樣及植被調查，透過企業活動、全球新聞稿與文章內容推廣，提升員工參與與社會關注。


林華慶
農業部林業及自然保育署 署長
2025.01.24

The outcomes of ASUS's Pangolin Habitat Enhancement and Conservation Project in the Mid-Altitute of Daxueshan were recognized by the Forestry and Nature Conservation Agency, making ASUS one of the first companies to receive official project outcome certification.

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- Actions within the Value Chain – Operational Sites and Supply Chain Actions on Biodiversity
- Actions Beyond the Value Chain

Corporate Biodiversity Education and Awareness

Recognizing that nature and biodiversity are emerging and complex issues, ASUS, as a technology leader, understands that education and awareness-raising are powerful tools for driving impact. These efforts help the public better understand the relationship between nature, people, and ecosystems. In 2024, ASUS participated in the press conference hosted by the Forestry and Nature Conservation Agency and independently organized two in-person events—an employee experiential activity and a project discussion forum. In addition, ASUS promoted biodiversity awareness through news releases, videos, social media, and internal communication channels. To further integrate issue-based education with its environmental strategy, ASUS published a theme report on Nature Impact Assessment, bridging environmental management analysis and biodiversity topics to achieve a comprehensive approach to evaluation and management.

Taiwan Pangolin: The Last Hope for Global Pangolins – Documentary and Panel Discussion

To enhance employees’ understanding of the current status and ecological importance of the endangered pangolin, ASUS hosted a documentary and Panel discussion featuring Taiwan Pangolin: The Last Hope for Global Pangolins. The event invited Mr. Tsui-Jan Hung, Executive Director of the Kuan Shu Educational Foundation, and Professor Ching-Min Sun of National Pingtung University of Science and Technology to share the background and objectives of the Pangolin Habitat Improvement and Conservation Project in the Mid-Elevation Area of Daxueshan. The event attracted approximately 60 participants. Professor Sun highlighted the ecological value of pangolins, explaining that they play a key role in ecosystems. He noted that pangolins and their primary food source—ants—are not in a competitive relationship but rather in a mutualistic interaction. Leftover ants from pangolin foraging can become food for other nearby ants, helping to revitalize the local ecological network and support biodiversity.



Employee Engagement: Visiting a Community Below Sea Level – Chenglong Wetlands Tour

Chenglong Wetlands, located in Kouhu Township, Yunlin County, was originally farmland. However, due to low elevation and prolonged over-extraction of groundwater, the area experienced severe land subsidence. In the 1980s and 1990s, typhoons triggered seawater intrusion, submerging the farmland and rendering it unsuitable for cultivation. The area naturally transformed into a wetland. The Forestry and Nature Conservation Agency commissioned the Kuan Shu Educational Foundation to collaborate with the local community on regular ecological resource surveys and management efforts, while continuously monitoring the wetland’s biodiversity to promote the sustainable development of Chenglong Village. Through environmental education and experiential tours designed by the foundation, Chenglong Wetlands has become a leading climate change adaptation site. One of its landmark adaptive structures, “Shrimp Boss’s Stilt House”, serves as a model of flood prevention, elder-friendly design, and energy-efficient green building. The project demonstrates how Chenglong Village has transformed to coexist with water amid increasingly extreme climate conditions.





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As nature-related issues gain increasing attention in capital markets, integrating these topics into corporate assessment and management processes will remain a critical area of focus. ASUS will continue to monitor the development of international reporting frameworks and initiatives, while deepening its research methodologies and expanding its evaluation of additional forms of natural capital. In parallel, ASUS will remain committed to biodiversity restoration projects, aiming to mitigate environmental impacts and enhance ecosystem resilience.



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- Appendix 2: Water Resource Usage by ASUS Suppliers
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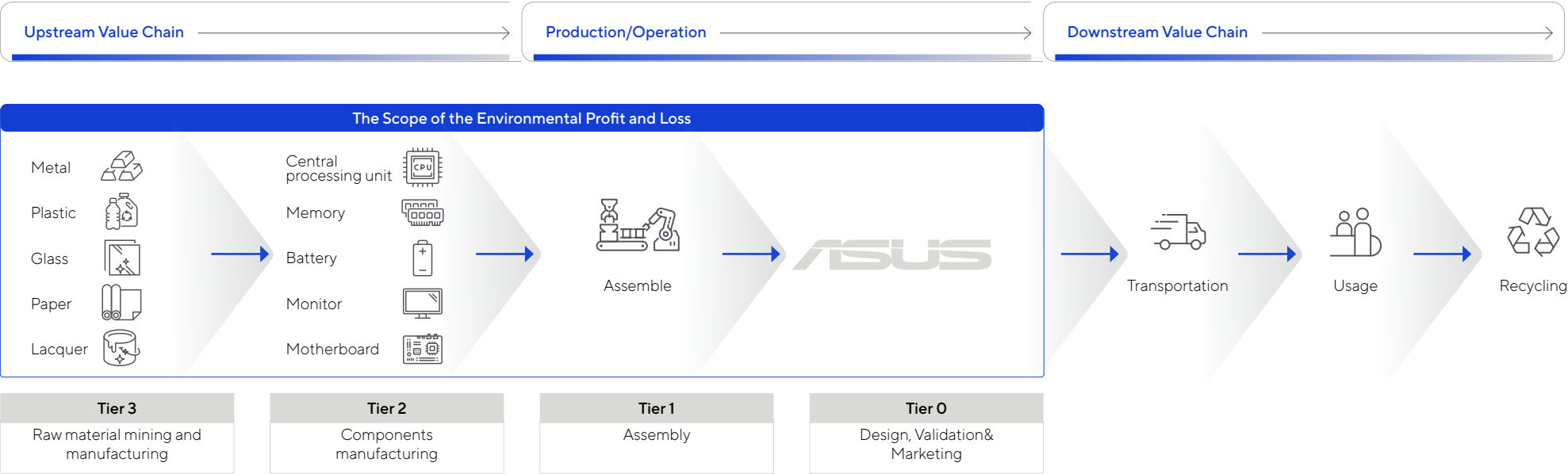
Appendix

Appendix 1: Environmental Profit and Loss

Boundary and Scope

According to ASUS’ definition of Product Category Rules (PCR), the boundaries and scope cover 90% of the main components and supply chain of revenue-generating products.

- Value chain and geographic boundaries: Tier 3 raw materials, Tier 2 components, Tier 1 contract manufacturers for assembly, and Tier 0 ASUS operations including design, verification, and marketing.
- Main components: CPU, memory, display, GPU, resistors, capacitors, motherboard, connectors, mechanical parts, hard drive, cables, battery, power supply, packaging, keyboard.
- Environmental impact indicators: Greenhouse gas emissions, water resources, waste management, and water pollution



Collect activity data

Environmental activity data across the value chain is categorized into Primary Data and Secondary Data. Primary data refers to actual site-level surveyed data, while secondary data (also known as Tier 2 data) is sourced from industrial environmental databases:

- Tier 0 (ASUS operations) and Tier 1 (OEM assembly) stages are based on primary data. ASUS operations include field-surveyed data on electricity consumption, water usage, wastewater discharge, and waste generation from offices, laboratories, and warehouses. OEM assembly data covers electricity and water usage, wastewater, and waste from production lines and personnel activities.
- Tier 2 (component manufacturing) and Tier 3 (raw material extraction) stages rely on secondary data, primarily sourced from the Ecoinvent database within the SimaPro life cycle assessment software.



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Appendix 2: Water Resource Usage by ASUS Suppliers

Appendix 3: References

Appendix 2: Water Resource Usage by ASUS Suppliers

Unit: Metric			
Item	2022	2023	2024
Water Withdrawal	5,411	5,858	6,417
Water Discharge	3,812	2,087	2,808
Recycled Water Volume	1,746	1,853	2,783

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