

Nanya Technology Corporation

Sustainable Raw Materials Report 2023

I. Sustainable Raw Materials Policy

Nanya Technology Corporation (hereinafter referred to as "Nanya") is dedicated in the development, manufacturing and distribution of DRAM (Dynamic Random Access Memory). Nanya is committed to green manufacturing with strategies centering around the goal of "creating shared value." We have established performance indicators to evaluate the impact on sustainability during each stage of the product life cycle (Figure 1), and regularly report to the Board of Directors. We cooperates with external stakeholders to develop solutions that minimize potential impacts of raw materials and avoid using raw materials from globally and nationally important biodiversity sites. In addition to complying with domestic and international regulations and directives on restricted substances, we also created the Hazardous Substance Free Policy and Responsible Mineral Procurement Policy. We aim to obtain more third-party certification, increase the use of reclaimed materials, and improve our capabilities in green product development and management.

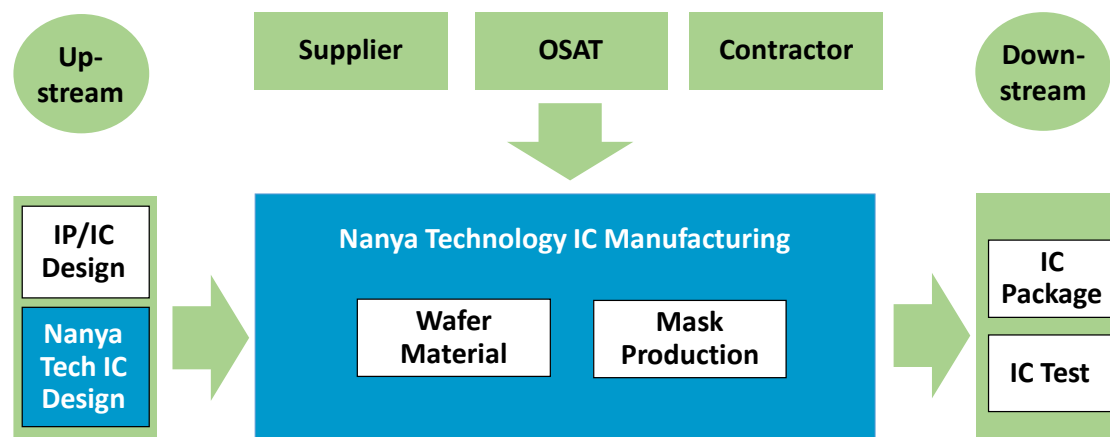


Figure 1 Schematic diagram of Nanya's industry chain

Nanya implements sustainable raw material plans as follows based on our policies aforementioned :

- (I) Evaluate the impact of raw materials on sustainability and prioritize the procurement of raw materials with lower impacts.
- (II) Establish raw materials traceability and leverage the best available techniques (BAT) to reduce social and environmental impacts during the production process of the materials.
- (III) Set goals for the use of sustainable raw and reclaimed materials, and disclose sustainable raw material procurement goals.
- (IV) Purchase advanced equipment, establish clean production processes, reduce pollutants and wastes generated during production, decrease the use of hazardous substances and manage the wastes properly.

- (V) Reduce water and energy usage and lower the emissions of GHG emissions while continuing to develop high energy efficiency products.
- (VI) Assess the environmental impact of production activities based on product environmental footprint, and collaborate with suppliers and customers to reduce negative environmental impacts.
- (VII) Implement biodiversity policy and prevent supply chain operations from being located in important ecological sensitive or biodiversity hotspots.

II. Sustainable Raw Materials Programs

Nanya manufactures DRAM products, and the main raw materials¹ come from virgin and reclaimed wafers, targets, and passive components, which contain metal and chemical materials including silicon, cobalt, tantalum, tungsten, titanium, niobium, copper, aluminum, and light rare earth elements. From product design, raw material procurement, manufacturing to transportation, each of the stage revolves around four major approaches: (1) Green product development, (2) sustainable supply chain management, (3) green manufacturing technologies, and (4) awareness-raising training.

| Green Product Development | Supply Chain Management | Green Manufacturing | Awareness Training |
|--|---|--|--|
| <ul style="list-style-type: none"> • Prioritize low-impact materials • Establish raw material traceability • Assess product environmental footprint and reduce negative impacts | <ul style="list-style-type: none"> • Reduce the environmental and social impacts of raw material production with BAT • Responsible mineral management | <ul style="list-style-type: none"> • Establish clean production processes • Respond to climate change risks and opportunities • Implement biodiversity policies | <ul style="list-style-type: none"> • Internal training • Cross-departmental communication meetings |

Figure 2 Nanya's Sustainable Raw Materials Management Practices

(I) Design: Green Product Development

We integrate life cycle and green design thinking into our advanced and eco-friendly solutions, which powers products of higher energy efficiency at our customers' end. We extend the efforts to our suppliers by practicing hazard management and responsible minerals procurement. Supervised by Nanya's Green Product Promotion Committee (GPPC), our product development takes into account the environmental impacts from procurement, manufacturing, transportation, product use, disposal, and recycling.

¹ Refer to the definition of sustainable raw materials, including animals, plants, plastics, and metals, in the CSA Methodology Updates for 2024 CSA cycle announced by S&P Global. Based on industry characteristics, our raw materials are mainly metals, and we referenced the EU's critical raw materials list and 2.8.3 Metal Raw Materials when compiling the list of raw materials.

Nanya uses wafer manufacturing as the boundary (Cradle to Gate) and conducts life cycle assessment (LCA) on all products to calculate the 28 impacts of the Environmental Footprint². The life cycle emissions inventorying in 2023 and improvement plans cover the main hotspots as indicated in Table 1.

Table 1 Life cycle emissions inventory 2023 and improvement plans

| Hot spot item | Product carbon footprint share (%) | Improvement plans | Results in 2023 | Future direction |
|-------------------------------|------------------------------------|---|---|---|
| Electricity | 70.73% | <ul style="list-style-type: none"> ● Improve energy conservation | <ul style="list-style-type: none"> ● Completed 36 energy conservation projects under ISO 50001, saved 5,337 kWh ● Purchased 24.49 million kWh of renewable energy | <ul style="list-style-type: none"> ● Continue energy conservation projects ● Increase the use of renewable energy |
| H ₂ O ₂ | 5.52% | <ul style="list-style-type: none"> ● Require H₂O₂ suppliers to reduce energy consumption and emissions | <ul style="list-style-type: none"> ● Suppliers joined SBTi and plan to reduce 25% of emissions (Scope 1+2) by 2030. | <ul style="list-style-type: none"> ● Require suppliers to continue to reduce energy consumption and emissions |
| NF ₃ | 3.61% | <ul style="list-style-type: none"> ● Require NF₃ suppliers to implement energy conservation and carbon reduction management plans | <ul style="list-style-type: none"> ● Suppliers joined SBTi and plan to reduce 25% of emissions (Scope 1+2) by 2030. | <ul style="list-style-type: none"> ● Require suppliers to continue to reduce energy consumption and emissions |

(II) Procurement: Sustainable Supply Chain Management

1. Sustainability risk assessment and management

Nanya's Sustainable Development Committee reports supply chain management results to the Board of Directors every year. Our supplier management process consists of 5 steps: (1) Sustainability requirements, (2) operational risk assessment and survey, (3) sustainability risk survey, (4) sustainability audits/improvement measures, and (5) supplier capability building. Details elaborated as follows:

² According to The Environmental Footprint (EF) 3.0 and EU Commission (2010) data. Environmental footprint assessment items include greenhouse effect (fossil fuels, biology, land use, and changes in land use), ozone layer destruction, acid rain, water body eutrophication, ionizing radiation, eutrophication (land, water body, ocean), photochemical effects, freshwater ecotoxicity (organic matter, inorganic matter, metallic materials), particulate matter, human toxicity non-cancerous effects (organic matter, inorganic matter, metallic materials), human toxicity cancerous effects (organic matter, inorganic matter, metallic materials), land conversion, water resource depletion, and resource use (mineral and metal materials, fossil fuels).

- (1) **Sustainability requirements:** The "Nanya Technology Supplier Code of Conduct" covers environmental and social impact, including labor, health and safety, environment, ethics, and governance.
- (2) **Operational risk assessment and survey:** We annually review the region, procurement amount, and supplied products of all suppliers for preliminary risk assessment.
- (3) **Sustainability risk survey:** All tier 1 suppliers are required to complete the Sustainability Risk Assessment Questionnaire, which is based on Nanya's Supplier Code of Conduct and examines the potential economic/social/environmental impacts). Top 5% high-risk suppliers are subject to audit and improvement requirements.
- (4) **Sustainability audits/improvement measures:** High-risk suppliers are subject to audits and required to propose improvement plans according to the correction action request. The improvement measures should be completed in two years. Suppliers that are unable to meet the requirements will be reviewed by the Material Review Board for further actions, including reducing order quantity, redirecting orders, or terminating supply contracts.
- (5) **Supplier capability building:** Nanya continues to help suppliers increase awareness and improve performance in sustainability by hosting seminars and providing assistance in ESG projects.

Table 2 2023 Supplier Education Training and Seminar Topics

| Item | Topic |
|------|--|
| 1 | Greenhouse gas reduction |
| 2 | Green product management |
| 3 | Responsible Mineral Sourcing |
| 4 | Water resources management practices and case sharing |
| 5 | ISO 50001 Energy management system |
| 6 | Net Zero ESG Development Trends |
| 7 | Why Nature and Biodiversity Matters - TNFD Trend Analysis |
| 8 | Digital Carbon Management and Carbon Reduction Hotspot Analysis Technology |

2. Supply Chain Sustainability Projects

| Project name | Content of project | Project benefits |
|---------------------------------|---|---|
| Three-zero human rights program | <ul style="list-style-type: none"> ● We promote the human rights program that advocates zero crimes against humanity, zero forced labor, and zero discrimination to significant suppliers. | <ul style="list-style-type: none"> ● Initiatives and implementation in 2022-2023: 1. Continue to communicate with and provide guidance to suppliers that support |

| | | |
|------------------------------------|--|---|
| | <ul style="list-style-type: none"> ● Project start and end date: 2022-2030 ● Expected benefits: Strengthen human rights protection, reduce the exploitation of human rights, create a friendly workplace, and avoid becoming a sweatshop | <p>the Three-Zero Human Rights Program in coordination with the audit schedule and investigate the company's current system to evaluate its inclusion as a key supplier.</p> <p>2. Continue to communicate with suppliers that have not responded to the Three-Zero Human Rights Program each month.</p> |
| Product carbon footprint inventory | <ul style="list-style-type: none"> ● Encourage raw materials suppliers and packaging and testing plants to compile their carbon footprint inventory ● Project start and end date: 2023-2025 ● Expected benefits: 1. Aligned with climate change issues; 2. Reduces the Company's product carbon footprint; 3. Achieving the SBTi in 2030 will be beneficial | <ul style="list-style-type: none"> ● Results in 2023: 1. The Industrial Technology Research Institute and National Taiwan University of Science and Technology provide guidance for suppliers' carbon footprint inventory and carbon reduction projects over a two-year period. 2. Create and share the supplier product carbon footprint inventory on the platform. |
| Low carbon transportation project | <ul style="list-style-type: none"> ● Nanya established an upstream and downstream joint carbon reduction model and implements carbon reduction plans to strengthen the development of green suppliers. Nanya is worked with wafer suppliers through projects in 2023 to use shipping instead of air transport for wafer transportation. The quality assessment process has been completed and the goal of 100% low-carbon | <ul style="list-style-type: none"> ● Results in 2023: GHG emissions was reduced by approximately 100 tons in 2023 (shipping reduces carbon emissions by 96% compared to air transport), which is the equivalent of planting 1,300 trees for the Earth every month. |

| | | |
|--|--|--|
| | <p>transportation mode is expected to be achieved in 2024.</p> <ul style="list-style-type: none"> ● Project start and end date:2022-2030 ● Expected benefits: <ul style="list-style-type: none"> 1.Nanya established a demonstration project and will expand it to other suppliers in the future, increasing the selection of green suppliers 2.Optimizing the transportation process, reducing the number of forklift operations, and saving manpower. | |
|--|--|--|

3. Responsible Mineral Procurement Management

Nanya is committed to its Responsible Mineral Procurement Policy (URL: <https://www.nanya.com/ESG/storage/file/42978bb1-4d9d-4932-88f3-9e95cc0b0ea9?v=1715232284>) and conducts supply chain survey at least once a year. We leverage the Conflict Minerals Reporting Template (CMRT) to survey the 3TG suppliers or miners; and cobalt and mica suppliers or miners are surveyed with the Extended Minerals Reporting Template (EMRT). Such efforts help us avoid procuring from illegal armed groups and forced labor. Our suppliers are required to sign Nanya's Responsible Mineral Sourcing Policy and Conflict-free Minerals Commitment to ensure that the partnering smelters comply with RBA's requirements of Responsible Sourcing of Minerals.

In 2023, all of the 203 smelters identified in the supply chain survey are accredited by the Responsible Minerals Initiative (RMI), and completely comply with the conflict-free minerals and responsible minerals policy.

(III) Production: Green Manufacturing

All of Nanya's plants are green factories certified by the government. We adopt standards that are higher than legal regulations to manage the potential impacts generated throughout the production process, including energy and resource consumption, emissions and waste management. We develop advanced solutions to enable end products that are more energy efficient with lower carbon emissions.

Nanya adopted the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations in 2020 to identify climate change risks and opportunities of the value chain with practical targets and metrics. In 2023, Nanya took a further step

forward to implement the Task Force on Nature-related Financial Disclosures (TNFD). We leveraged the LEAP methodology to assess nature and climate-related dependencies, risks, and opportunities of our operation sites, upstream supply chain, and downstream customers. With the assessment results, we developed corresponding strategies and actions to mitigate impacts and annually review the performance.

Nanya used 9 types of highly bio-sensitive maps disclosed by Taiwan's government to assess the area covers 2 km radius around Nanya's direct operation sites, significant supplier's locations and shipment locations. The mapping results indicated that no highly bio-sensitive area was found within 2 km radius around Nanya's fabs (Figure 3).

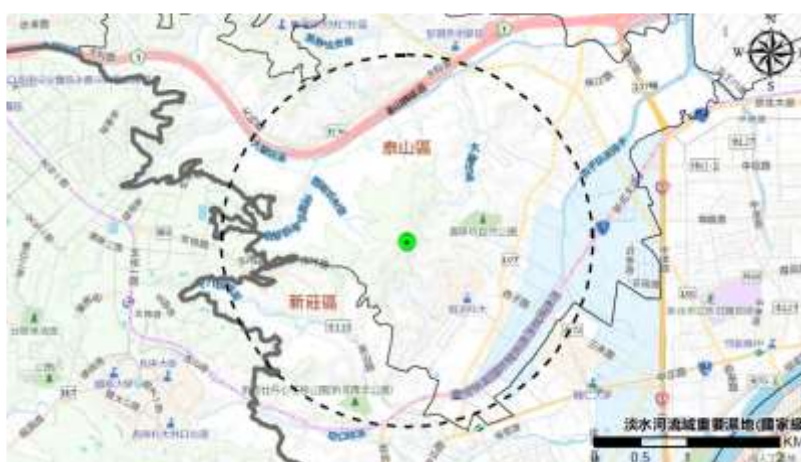
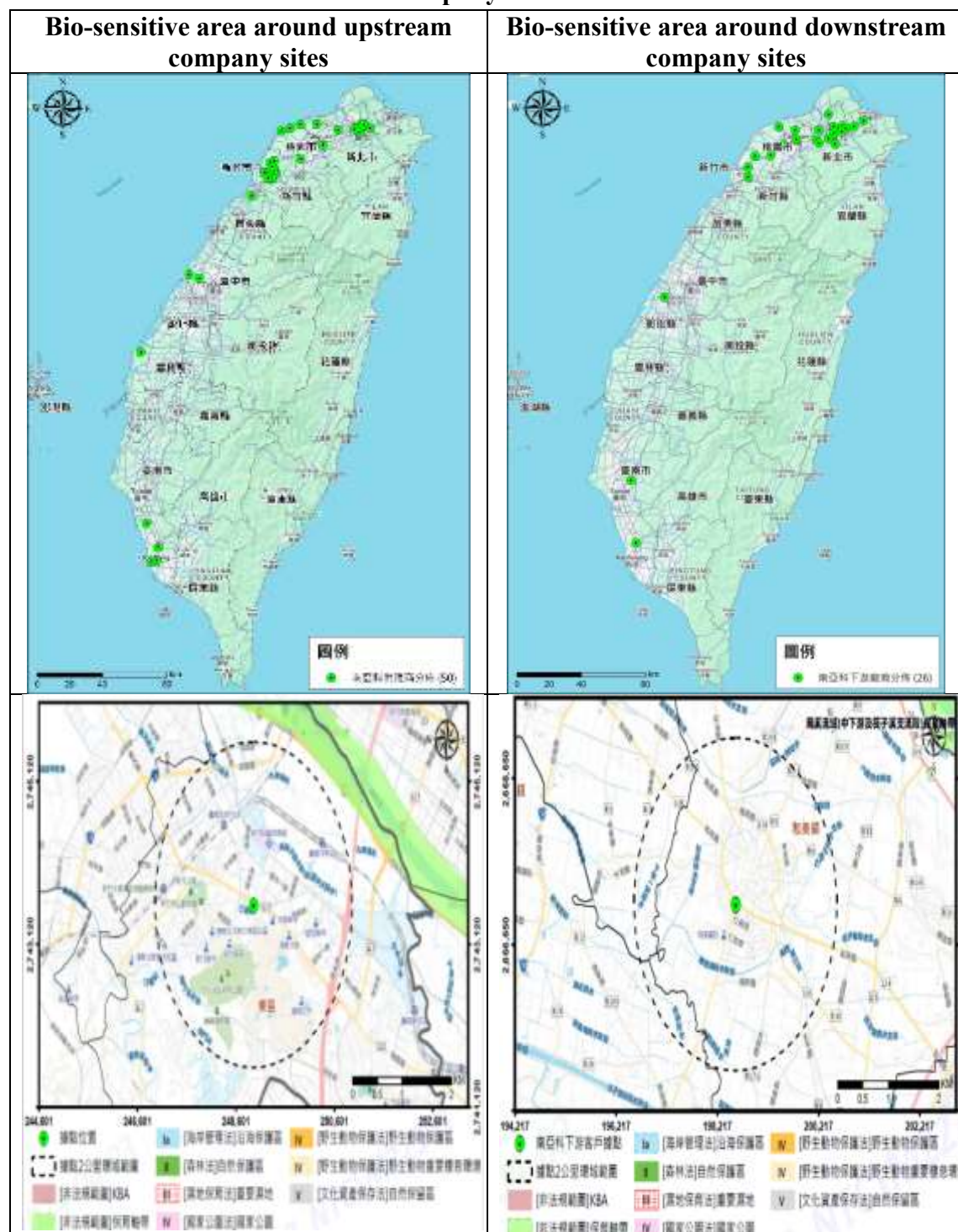


Figure 3 Map of bio-sensitive area identified by Nanya

Among the significant suppliers, the majority of high-risk ones are in Taoyuan City, and some of these high-risk suppliers located in the Dayuan Industrial Park of Taoyuan, which is close to a legally protected wetland. Within 2km radius around these suppliers we found no direct operation activities taking place within the legally protected area.

Among the 26 downstream customers surveyed, 10 may have legally protected areas within 2 km radius area (only 3 if based on the International Union for Conservation of Nature standards). Further analysis shows that these 10 companies do not actually operate in any bio-sensitive area, as shown in Table 3.

Table 3 Bio-sensitive area identified around upstream and downstream company sites



(IV) Awareness-raising Training

Training are provided to employees every year to ensure up-to-date knowledge of sustainable raw materials management. The list of training in 2023 is shown in Table 4; the total number of participants was 23,695 and total hours was 118,475 hours. In addition, cross-departmental communication meetings are convened by the

Sustainable Development Steering Center to discuss matters related to sustainable raw materials management in a timely manner.

Table4 List of training courses in 2023

| Item No. | ESG aspects | Course title |
|----------|---------------|--|
| 1 | Governance | Information Security Regulations |
| 2 | Governance | Prevention of insider trading and handling of material insider information |
| 3 | Governance | Anti-corruption 101 |
| 4 | Governance | Introduction to risk management |
| 5 | Environmental | Introduction to ISO 50001 Energy Management Systems |
| 6 | Environmental | Green product training |
| 7 | Social | Labor and ethics policies |

III. Sustainable Raw Materials Management: Goals and Results

The sustainable raw materials used in the products manufactured by Nanya (including processing, refining, assembly, transportation, and distribution) include silicon, cobalt, tantalum, tungsten, titanium, niobium, copper, aluminum, and light rare earth elements. The amount of metal raw materials purchased in 2023 (Table 5) accounts for 18.9% of the total purchase amount in 2023. We proactively assess the risk of raw material suppliers, four of which are key suppliers. In our 2023 assessment, none of the raw materials suppliers were found to be high-risk.

Table 5 Metal raw material procurement volume in 2023

| Raw materials | Material amount of usage (Ton/Year) | Recycled material amount of usage (Ton/Year) |
|---------------------------|-------------------------------------|--|
| Copper (Cu) | 0.855 | 0 |
| Aluminum (Al) | 0.474 | 0 |
| Titanium (Ti) | 0.392 | 0 |
| Cobalt (Co) | 0.66 | 0 |
| Copper (Cu) | 0.9 | 0 |
| Silicon (Si) | 92.2 | 33.9 |
| Silicon (Si) | 33.9 | 0 |
| Tantalum (Ta) | 1.26 | 0 |
| Tungsten (W) | 41.35 | 0 |
| Light Rare Earth Elements | 16 | 0 |
| Niobium (Nb) | 0.005 | 0 |

Nanya is a wafer manufacturing company. Due to the technical limitations of the current process, silicon raw material can only be reclaimed silicon and used as monitor wafer to monitor process conditions. The used monitor wafers can be reproduced and used repeatedly; each monitor wafer can be repeatedly used for 8-11 times based on the applied process. The approach could reduce the cost of purchasing new dummy wafers and waste. Nanya have been using the utilization rate of reclaim wafers as a management indicator since 2017 and strived to increase the rate each year. In 2023, the utilization rate of reclaim wafers increased to 83% (Figure 4).

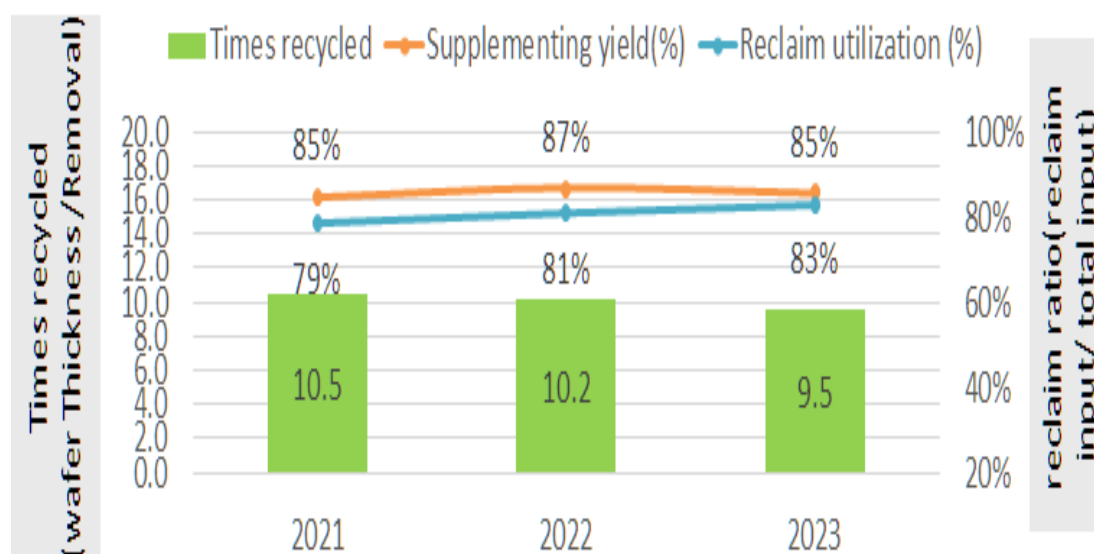


Figure 4 Reclaimed Wafer Indicators

Nanya's Sustainable Raw Materials Projects in 2023 and goals for 2024 are elaborated in the table below:

(I) Green Product Development

| Strategy | Management Indicator | 2023 | | | 2024 Goals |
|-----------------------|---|--|---|----------------------------------|----------------------------------|
| | | Goals | Results | Target achievement status | |
| R&D and Innovation | 10nm DRAM technology development | (1) 8Gb DDR4 by the 2 nd generation of 10nm-class technology: Ready for shipment | (1) To be qualified for shipment in Q2'24 | Target not achieved ³ | (1) To be qualified for shipment |
| | | (2) 16Gb DDR5 by the 2 nd generation of 10nm-class technology: Complete design and pilot production | (2) Design and pilot production completed | Target achieved | (2) To be qualified for shipment |
| Eco-friendly products | 20nm advanced process / total capacity | ≥96% | 97.4% | Target achieved | ≥96% |
| | Percentage of products that conform to hazardous substance free regulations | 100% | 100% | Target achieved | 100% |
| | Products that completed life cycle inventory | 100% | 100% | Target achieved | 100% |
| | PFOA-free raw materials | 100% | 100% | Target achieved | 100% |

Sustainable Supply Chain

| Strategy | Management Indicator | 2023 | | | 2024 Goals |
|---------------------------------|--|-------|--------|---------------------------|------------|
| | | Goals | Result | Target achievement status | |
| Sustainable Supplier Management | Non-conflict minerals adoption in product lines | 100% | 100% | Target achieved | 100% |
| | Significant suppliers that completed the self-evaluation questionnaire | 100% | 100% | Target achieved | 100% |
| | Post-audit improvement completion rate by high-risk suppliers | 100% | 100% | Target achieved | 100% |
| | Suppliers that signed | 100% | 100% | Target | 100% |

³ The second-generation 10nm DRAM process 8Gb DDR4 products are scheduled to be qualified for shipment by the end of 2023. As the design is currently under improvement for functions, yields and system compatibility, the products are expected to meet shipment requirements in Q2 2024.

| Strategy | Management Indicator | 2023 | | | 2024 Goals |
|----------|---|-------|--------|---------------------------|------------|
| | | Goals | Result | Target achievement status | |
| | Nanya's Supplier Code of Conduct | | | achieved | |
| | Significant supplier audits (triennial) | 100% | 100% | Target achieved | 100% |

(II) Green Technology Production

| Strategy | Management Indicator | 2023 | | | 2024 Goals |
|-------------------|--|-----------------|-----------------|----------------------------------|----------------|
| | | Goals | Result | Target achievement status | |
| Climate Change | SBT targets: By 2030, reduce 25% emissions of Scope 1+2 by 25% and 27% of Scope 3 (Base year: 2020). | Decrease 7.5% | Decreased 8.2% | Target achieved | Decrease 10.0% |
| | | Decrease 8.1% | Decreased 20.4% | Target achieved | Decrease 10.8% |
| | Reduction rate of PFCs emissions from production | ≥ 93% and above | 93% | Target achieved | ≥ 93% |
| Energy Management | Total energy saved from conservation measures (since 2017) | ≥ 67,500 MWh | 68,565 MWh | Target achieved | 72,500 MWh |
| | Renewable energy used in the year | ≥ 25,000 MWh | 24,490 MWh | Target not achieved ⁴ | ≥ 25,000 MWh |
| Water Management | Water consumption per product since 2018 (Base year: 2017) | >39% | 37.5% | Target not achieved ⁵ | 38.5% |

⁴ The power generation of the outsourced solar photovoltaic project site was lower than expected during the winter, and renewable energy use fell short of the target by 2%.

⁵ Product production capacity in 2023 was approximately 8% lower than in 2022, resulting in water consumption per product not reaching the target.