Nanyang Polytechnic Sustainability Report FY2023

Content Index

About this Report

01

About this Report

Nanyang Polytechnic (NYP) is pleased to present our inaugural sustainability report, which reflects our commitment to sustainability. Our goal is to make a meaningful impact by adopting sustainable practices and inspiring our stakeholders to move towards a more responsible future. This is in line with Singapore's national agenda on sustainable development as we strive to create a greener Singapore for future generations.

Reporting Period - This sustainability report was prepared for the Financial Year 2023 (FY2023), i.e. from 1 April 2023 to 31 March 2024.

01

Reporting Scope

This report covers NYP and its subsidiary, Nanyang Polytechnic International Private Limited, aligning with the entities reported in our Annual Report which includes the Asian Culinary Institute Singapore (ACI) and Singapore Institute of Retail Studies (SIRS) based at the Lifelong Learning Institute (LLI). This report should be read alongside our FY2023 Annual Report and other sustainability-related disclosures on our website.

02

Reporting Standards and Guidelines

GRI Standards 2021

This report has been prepared with reference to the Global Reporting Initiative (GRI) Standards 2021. The GRI Standards are the most widely adopted global sustainability reporting standards. The GRI Content Index can be found on page 74-76.

United Nations Sustainable Development Goals (UN SDGs)

As we are committed to supporting Singapore's national agenda on sustainable development and building a sustainable Singapore for future generations, we have also aligned our sustainability plan with the United Nations Sustainable Development Goals (SDGs). Further information on the SDGs we align to can be found on page 18.

03

Assurance

NYP has not sought external assurance for the disclosures in this report.

Feedback

We welcome all suggestions or feedback on this sustainability report.

Please submit all feedback and queries to **contactNYP@nyp.edu.sg** or contact **6451 5115**.

Chairman and PCEO Statement

Chairman and PCEO Statement

on behalf of the Board

This year, NYP is honoured to share our first sustainability report and the significant strides we have made in our sustainability journey. Our unwavering commitment to fostering a sustainable future is deeply embedded in our institutional values, and our progress thus far has been both challenging and rewarding.

01

Innovation and Sustainability

Our sustainability journey started with our goal of transforming the campus into a Living Lab. This forward-thinking vision aims to transform our campus into a dynamic environment where sustainability and innovation thrive. By collaborating with industry leaders, we can leverage these partnerships towards making our campus a vibrant centre for sustainable practices and technological advancements. These partnerships converge to form real-world applications that benefit not only our students but also the wider community.

This year, we also established the Alliance for Sustainability Innovation (ASI) – a significant milestone in our sustainability journey. This alliance leverages partnerships with eight Founding Fellows – leaders and experts across various industries – as well as NYP's own extensive expertise in sustainability. The ASI is designed to engage small and medium enterprises (SMEs) in sustainability efforts, fostering a culture of sustainability across different sectors. NYP plays multiple roles: as a facilitator bringing leaders and SMEs together, as a consultant offering tailored sustainability solutions, and as an educator providing comprehensive training. This approach helps SMEs not only meet compliance requirements, but also recognise sustainability as a strategic advantage. By combining the knowledge of the Founding Fellows with NYP's practical experience and resources in areas such as green technology and sustainable business practices, we are creating a robust support system for SMEs embarking on their sustainability journeys.

Mr Tan Tong Hai
Chairman,
NYP Board of Governors

Mr Russell Chan
Principal & CEO,
Nanyang Polytechnic

Chairman and PCEO Statement

on behalf of the Board

Embedding Sustainability in Education through our NYP-PCM Model

A cornerstone of our sustainability efforts is our focus on education. Integrating sustainability into our education system has been strengthened through the Professional Competency Model (PCM), pioneered by NYP. Co-created with industry partners, the NYP-PCM ensures that our learners graduate with industry-relevant skills and certifications. This model represents a shift towards competency-based learning so that our learners are academically equipped to meet the evolving industry demands.

The NYP-PCM model will be implemented for our programmes in phases. This year, we have begun incorporating NYP-PCM in several of our pre-employment training (PET) diplomas, benefiting almost 1,000 learners. We aim to expand the integration of NYP-PCM to additional diplomas as well as our continuing education and training (CET) programmes in order to benefit even more learners across various disciplines.

Engaging with our Communities

Community engagement is another vital aspect of our sustainability journey. We have launched a series of initiatives designed to forge strong connections between our students and both the local and overseas communities. These efforts include engaging with our neighbours through hands-on sustainability projects and organising events to introduce waste reduction strategies to the community.

Our Signature NYP events also continue to impact local youths, seniors, and overseas communities. For example, during our annual 2-day Show YOUth Care event this year, our student volunteers collaborated with 12 community partners and impacted more than 900 youths. Through these efforts, we aim to extend the impact of our sustainability initiatives beyond our campus and into the surrounding community.

Governance

Governance has also played a crucial role in guiding our sustainability agenda. The formation of our sustainability governance structure has been instrumental in steering our management team and driving NYP's initiatives and progress.

The Sustainability Steering Committee (STSC) was established to set a strategic direction towards achieving our long-term environmental and social goals. We will also formalise a Sustainability Advisory Committee (STAC) in FY2024, to provide guidance and advice to the STSC as NYP progresses towards achieving our sustainability goals.

Going forward

Our sustainability journey at NYP reflects our unwavering commitment to achieving our aspirations. As we progress on this path, we look forward to delivering significant benefits to our students, staff, our partners, and the broader community. Together, we are building a sustainable future, one step at a time.

About NYP

03
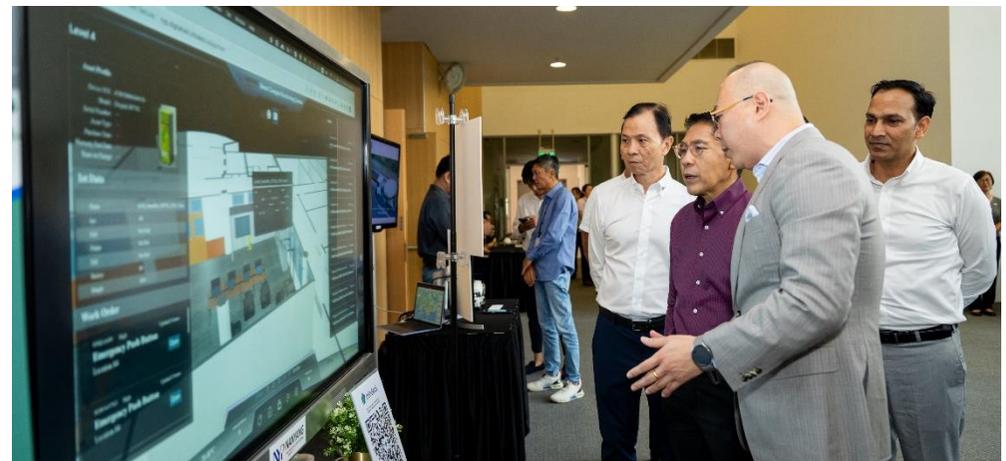
About NYP

Established in 1992, NYP offers a diverse range of diplomas and programmes across fields such as applied science, business, design and media, engineering, health and social sciences, and information technology. We are recognised for our strong partnerships with various industries, providing students with valuable internships and real-world experiences that enhance their skills and employability. With a commitment to lifelong learning, NYP continuously evolves our curriculum to meet the demands of the ever-changing job market, preparing graduates to excel in their careers.
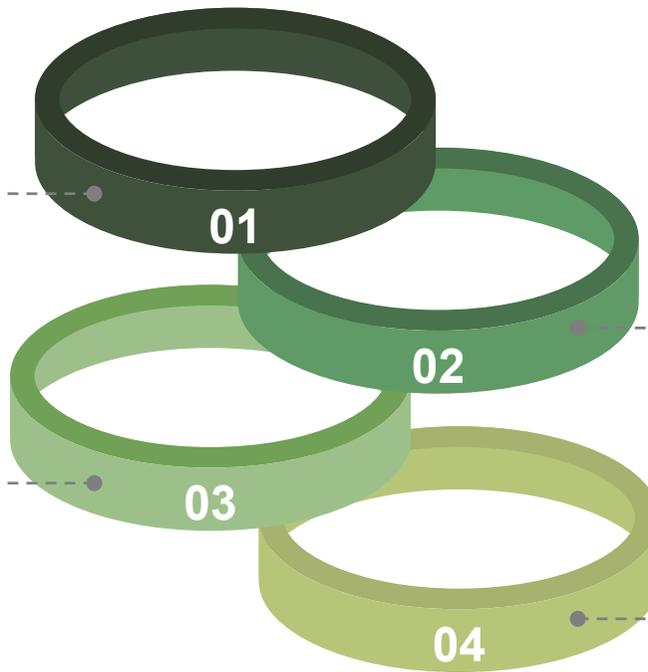
MISSION

- Empowering Learners for Work and Life
- Co-Creating with Industry for Growth and Sustainability

STRATEGIC GOALS

- Nurturing Future-Ready Learners
- Engaging and Empowering Our People
- Co-Creating Value with Industry
- Living Our Innovating and Enterprising Culture
- Committing to Sustainability

01

02

03

04

VISION

- The Innovative Polytechnic
- A Nexus of Future-Ready People, Learners and Industry

VALUES

- Nurturing and Caring
- Integrity
- Can-Do Spirit
- Innovating and Enterprising
- Teamwork

About NYP

Sustainability at NYP

In support of our strategic goals and our commitment to sustainability, NYP developed a comprehensive sustainability masterplan that outlines our initiatives and targets for creating a positive environment and social impact.

The NYP sustainability masterplan is built upon four main pillars – Education and Research, Industry and Community, Campus Operations and Leadership and Governance. These pillars represent different aspects of our sustainability efforts within our campus and all our stakeholders. NYP has always championed sustainability through supporting national-level initiatives for many years. In December 2021, we formed the Sustainability Coordinating Committee (SCC), which was elevated to the STSC from October 2023 onwards.

Through our NYP sustainability masterplan, we have committed not only to environmental sustainability, but holistically across environmental, social and governance and influencing our stakeholders towards a more sustainable future.
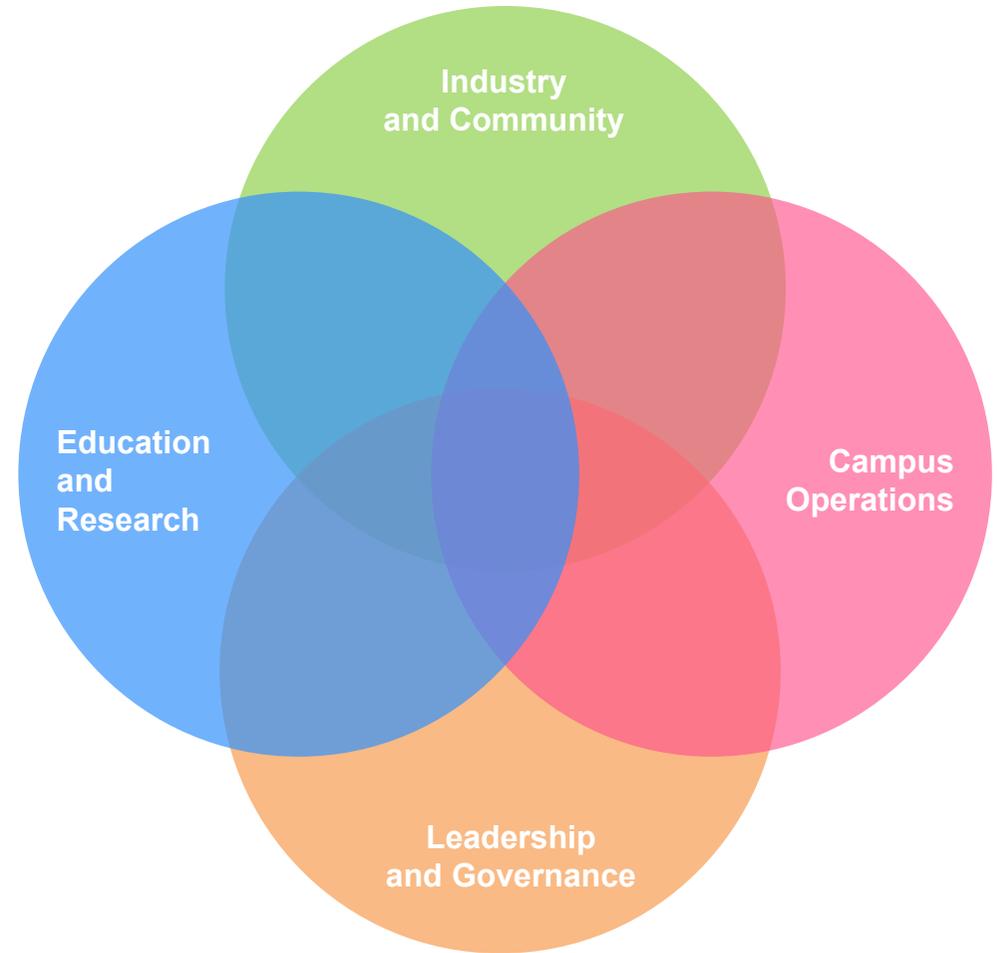
About NYP

Education and Research

We are dedicated to equipping our learners and staff with the knowledge and skills to drive sustainable change. This includes integrating sustainability into our curriculum, conducting research on sustainability-related topics, and providing training opportunities.
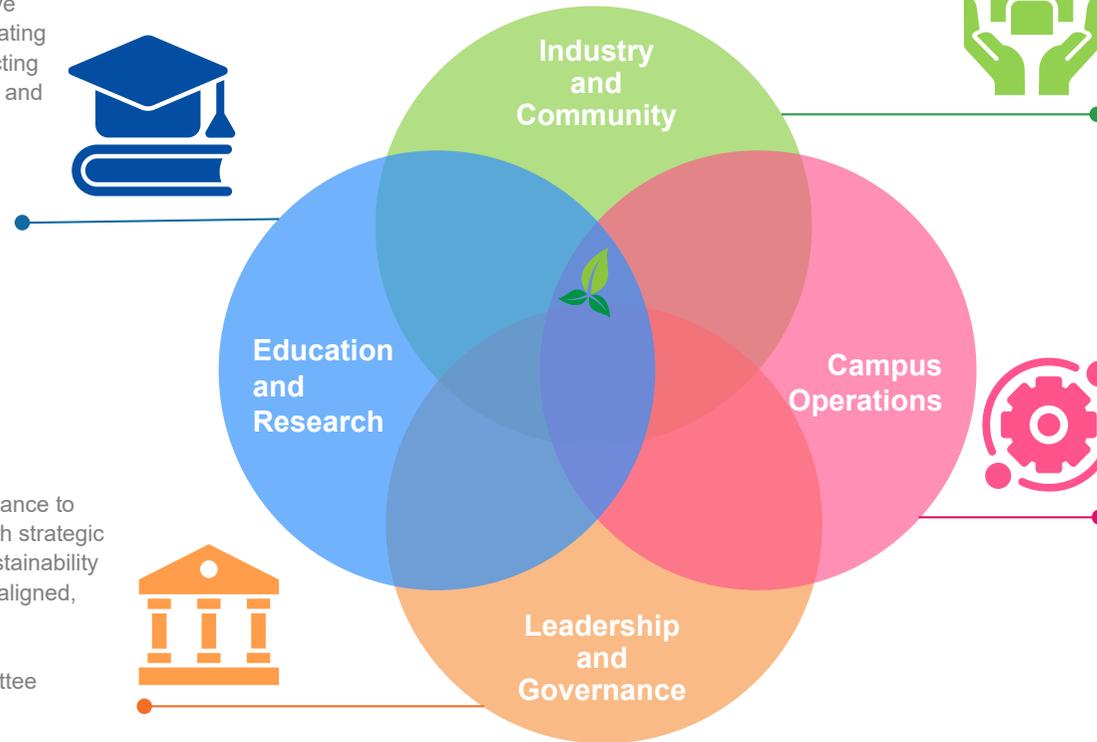
- Professional Competency Model
- PET and CET Programmes
- Applied Research
- Staff Capability Development

Leadership and Governance

We uphold strong leadership and governance to drive our sustainability initiatives. Through strategic planning, robust communication, and sustainability reporting, we ensure that our efforts are aligned, accountable, and transparent.

- Industry Sustainability Advisory Committee
- Sustainability Steering Committee
- Leadership and Talent Development
- Policies, Processes and Risk Management

The NYP Living Lab

Leverages our campus as a testbed for industry partners, staff and learns to experiment, co-create and co-develop new and innovative projects to advance the sustainability agenda.

Industry and Community

We leverage our strengths to enable our industry and community to become more sustainable. By building strong partnerships, supporting our community, and driving sustainable growth, we can create a positive impact.

- Alliance for Sustainability Innovation
- Community Outreach

Campus Operations

We are committed to making campus operations more sustainable through sustainable technology and mindset shifts, exercising prudence with our resources.

- Campus 2050
- Campus Rejuvenation
- Smart and Green Campus
- Care and Well-being
- Special Projects

Our Sustainability Journey

04

Our Sustainability Journey

FY2023 Performance Highlights

Education and Research

Training and Education

40

full-time diploma courses and common entry programmes offered to provide quality education

35

learners enrolled in full-qualification CET courses related to sustainability

937

learners enrolled in full-time diploma courses with sustainability content

Research and Innovation

S$1 million

awarded to 4 food sustainability and resilience projects from internal and external funding in FY2023

Industry and Community

Industry

276

companies joined ASI

Local Communities

96,192

hours achieved across 311 projects and over 3,000 volunteers (both NYP staff and learners) in FY2023

Our Sustainability Journey

FY2023 Performance Highlights

Campus Operations

Campus Rejuvenation

Awarded the

Green Mark Platinum certification

for existing non-residential buildings on 16 September 2022

Installed **Rainwater collection stations** at Blk A, F, D1, N1, P1 and T, to collect rainwater and use for irrigation

100% of canteens at NYP separate food waste into digestors, where an estimated 25% of food waste is digested

Smart and Green Campus

Completed

2 Smart Campus Projects

using cool paint for campus wide buildings and apartments | Upgrading of North Canteen with sustainable features

Energy

128.62

kWh/m² EUI achieved, a 2.71% reduction compared to baseline EUI

Upgraded our chiller plant by installing **3** chillers, **6** cooling towers and pumps, saving **2,672,358** kWh of electricity, or **8%** of our total electricity consumption for FY2023

Waste

0.11 kg/p/d WDI achieved in FY2023, a 37.5% increase compared to FY2022 baseline[1]

Emissions

13,621.97

tCO$_2$e Scope 1 and 2 emissions in FY2023

Water and Effluents

28.09

L/p/d WEI achieved, over 10% reduction compared to baseline WEI

100% of NYP's canteen kitchens on campus are equipped with grease traps to improve the quality of effluent discharge

100% of NYP's toilet fittings are rated 3-tick under the WELS

[1]The increase in WDI was due to the easing of COVID-19 restrictions which led to an increase in campus footfall and general waste compared to FY2022.

Our Sustainability Journey

FY2023 Performance Highlights

Leadership and Governance

Leadership and Governance

Formed the STSC in **FY2023**

Leadership and Talent Development

134

NYP staff completed a total of 983 hours of training in sustainability awareness

A total of **16** NYP staff were attached to 11 companies on sustainability-related Industry Attachment in FY23

Policies, Processes and Risk Management

Compliance

100%

staff received training on anti-corruption policies and procedures

0 reported incidents of corruption and identified breaches or complaints concerning student privacy breaches in FY2023

Health and Safety

100%

of staff briefed on workplace risk control measures and good practices

0 reported cases of major work-related injuries in FY2023

Care and Well-being

Celebrated the annual NYP Staff Awards Day to recognise our staff contributions

Diversity

685

male staff

and

671

female staff

Our Sustainability Journey

Climate-related Disclosure Statements

Environmental sustainability remains a central focus in our sustainability strategy. Over the past few years, we have introduced various measures to enhance our environmental sustainability. Further details are provided in the relevant sections.

While we have yet to formally identify any climate-related risks and opportunities, we recognise the increasing importance of these factors as an Institute of Higher Learning (IHL). Climate change poses significant risks, while also presenting opportunities for us to innovate.

As we continue to enhance our environmental efforts, we are committed to eventually aligning our practices with climate-related disclosure frameworks, ensuring greater transparency and accountability in how we address climate risks in the future.

Materiality Assessment and Material Topics

In FY2023, NYP conducted our first materiality assessment, taking guidelines from the GRI Standards. Conducting a materiality assessment is crucial for several reasons:

Stakeholder Engagement

It allows us to actively engage with our stakeholders to understand their concerns and expectations regarding our environmental and social performance. This engagement helps build trust and ensures that our sustainability efforts are aligned with stakeholder priorities.

Risk management

By identifying and prioritising material issues, we can better manage risks related to environmental, social, and governance factors. This proactive approach helps us mitigate potential negative impacts and capitalise on opportunities that arise from sustainable practices.

Strategic planning

A thorough materiality assessment informs our strategic planning processes by highlighting the key areas where we need to focus our efforts. This ensures that our sustainability initiatives are effective and contribute to our long-term business objectives.

Our materiality assessment comprises a three-step process to determine the material environmental, social and governance topics that are important to our stakeholders and aligned with our sustainability plan.

Our Sustainability Journey

Climate-related Disclosure Statements

01

Peer comparison

Identified material topics through in-depth background research of trends and comparison of what peers are reporting.

02

Prioritise the material topics

Ranked and prioritised the material topics to account for the influence of stakeholders and the level of impact of the material topics.

03

Finalise material topics validated by NYP's Senior Management

Validated the material topics with Senior Management and mapped each topic to a sustainability pillar within NYP's sustainability plan.

Our Sustainability Journey

Materiality Assessment and Material Topics

With the three-step approach, we have identified 11 material topics covered under our four sustainability pillars.
The material topics have been validated by NYP's Senior Management to ensure that they are relevant and significant to NYP.

Pillar 1 **Education and Research**	**Material Topics** 1. Training and Education 2. Research and Innovation
Pillar 2 **Industry and Community**	**Material Topics** 3. Industry 4. Local Communities
Pillar 3 **Campus Operations**	**Material Topics** 5. Energy 6. Water and Effluents 7. Emissions 8. Waste
Pillar 4 **Leadership and Governance**	**Material Topics** 9. Compliance 10. Diversity, Equity and Inclusion 11. Health and Safety

Education and Research

05

Education and Research

Training and Education

01

Learners

As an IHL, our mission is to empower students for both their professional careers and personal lives. To fulfil this goal, we offer high-quality education and training through 40 full-time diploma courses and common entry programmes, along with a broad selection of CET options. Our objective is for 100% of our NYP PET learners to acquire fundamental sustainability knowledge through three prescribed modules and the relevant learning units of their respective diploma programmes. To accomplish this, we have implemented a phased plan ensuring that all PET students will gain baseline sustainability knowledge. Starting in April 2023, all our PET learners are required to complete the three prescribed modules within their first two years of study.

Baseline Sustainability Module	Completion Rate among PET in FY2023	Sustainability Area	Sustainability Topic
Understanding Singapore 1	100% of year 1 cohort	Social Sustainability	1. Population and Demographics 2. Digital and Income Inequality 3. Diversity at the Workplace and Community 4. Stereotypes and Discrimination 5. Local versus Foreign Workers
Understanding Singapore 2	100% of year 2 cohort	Environmental Sustainability	1. Food and Resource Security 2. Tackling Climate Change 3. Sustainable Development
Respect in Relationships	100% of year 2 cohort	Social Sustainability	1. Gender Equality

Education and Research

Training and Education

02

Key Highlights of NYP-PCM

Moving forward, from April 2025, all NYP PET diplomas will incorporate sustainability content into at least one course competency and one learning unit.

In a leap towards shaping the leaders of tomorrow, we proudly introduce the NYP Professional Competency Model (NYP-PCM). This approach intertwines interdisciplinary and competency-based learning, mirroring real-world practices and fostering continuous growth. With NYP-PCM, learners can supercharge their skills for both professional success and personal enrichment. Aligning seamlessly with the dynamic education landscape of SkillsFuture, this model ensures our learners are not just ready for today's challenges but are also equipped to conquer the future with confidence and excellence.

NYP-PCM is competency-based, and learners benefit from a workplace practice-focused and interdisciplinary learning model that prepares them for work and life.

We partner with the industry to co-develop, co-deliver, co-assess, and co-certify curriculum, ensuring our students gain practical, industry-recognized skills that meet real-world standards.

Another powerful feature of the NYP-PCM is curriculum reuse. For example, the Competency Units (CmUs) on "Statistical Research Methods" can be used for various programmes and, therefore, enhance institutional productivity through a develop-once-and-use-many-times scheme.

Education and Research

Training and Education

Our schools will gradually implement NYP-PCM based courses according to a structured roll-out schedule, which includes incorporating CET programmes into NYP-PCM.

As of FY2023, the following NYP-PCM based PET diplomas had sustainability content:

	School of Applied Science	School of Design & Media
Courses with sustainability content	• Applied Chemistry • Biologics & Process Technology • Chemical & Pharmaceutical Technology • Food Science & Nutrition • Pharmaceutical Science	• Game Development & Technology • Animation, Games & Visual Effects • Communication & Motion Design • Experiential Product & Interior Design • Architecture
Numbers of learners enrolled	358	569

Two other PET diplomas had transited to NYP-PCM – Diploma in Applied AI & Analytics from the School of Information Technology (in FY2021) and Diploma in AI & Data Engineering from the School of Engineering (in FY2022), and sustainability content will be added to these courses in the next round of curriculum review.

03 Sustainability Content Creation

In Semester 1 of AY2023, our dynamic third-year Diploma in Hospitality & Tourism Management students enrolled in BM4711 (Sustainable Tourism Management) teamed up with the PARKROYAL COLLECTION Marina Bay Hotel for an exhilarating project. They crafted captivating educational videos showcasing the hotel's impressive sustainability initiatives, aiming to inspire and educate the entire staff. Some examples include their water-saving and energy-efficient features in the room and around the hotel, as well as garden-to-table menus and their display of artwork by local artists. This collaboration brought to life the thrilling efforts towards a greener future in the hospitality industry.

Education and Research

Training and Education

04

Embodied Carbon Investigation for Institutional Typology

In Semester 1 of AY2023, CPG Corporation partnered with the School of Design & Media to refine its B3 tool for calculating embodied carbon. This collaboration involved analysing buildings at Eunoia Junior College and NYP Block M, creating a localised framework for Southeast Asia. Our students applied Building Information Modelling (BIM) concepts and the Singapore Green Building Council's embodied carbon database, visualising their findings with Revit, DiRoot technology, and Power BI.

Our students then compared the carbon footprints of Block M and Eunoia Junior College, envisioning a "digital renovation" of Block M using low-carbon materials to reduce its carbon footprint. This initiative is a vital step towards helping policymakers make informed sustainability decisions.

By adopting a more sustainable material like Mass Engineered Timber, the reduction in embodied carbon values is almost three times the original value. While the data and figures will require further dissection and checking for accuracy, the preliminary and schematic outcomes are meant to provide an indication and baseline visibility of embodied carbon values for the entire building, using BIM. CPG Corporation also used this case study project to develop and test a methodology to streamline the computation of Embodied Carbon.

This showcases NYP's commitment to sustainability and provides our students with real-world experience in tackling environmental challenges, reinforcing the role of educational institutions in promoting sustainable development.

The project was also selected at the Innovation Pavilion to present and share with Dr Amy Khor during the Clean Enviro Summit 2024 from 19-21 June 2024.

Education and Research

Training and Education

05

L'Rez Sustainability Menu

In an exhilarating blend of culinary creativity and eco-consciousness, our Diploma in Food & Beverage Business students from the School of Business Management launched an awe-inspiring Sustainable Week awareness campaign in June 2023, in collaboration with Unilever Food Solutions (UFS). This campaign unveiled a revolutionary sustainability-themed menu, showcasing two mouthwatering plant-based creations from The Vegetarian Butcher, a celebrated UFS brand. This vibrant partnership catapulted our DFBB students into the realm of sustainable food systems, offering a deep dive into the latest trends, abundant opportunities, and formidable challenges within the F&B industry. To top it all off, UFS hosted engaging Masterclasses on Food Sustainability and Innovation, propelling our students' sustainability awareness to unprecedented heights.

Education and Research

Training and Education

06 Overseas Innovation and Sustainability Programme

A group of 23 NYP learners partnered with peers from Chulalongkorn School of Integrated Innovation (ScII) to address urban sustainability challenges. Together, they developed innovative solutions aimed at creating regenerative cities to elevate urban living with a strong focus on sustainability. One team's proposal for sustainable water management stood out, featuring rainwater harvesting, greywater recycling, and permeable pavements. This concept garnered significant interest from industry partners such as True Digital Park and Nebula, positioning it as a potential solution for implementation.

07 DBS-AR Sustainability Competition

The School of Business Management (SBM) teamed up with DBS to host an electrifying storytelling competition, drawing over 800 passionate participants eager to master Augmented Reality (AR) software. These creative minds crafted compelling stories of transformation, tackling key sustainability issues with innovation and flair.

Education and Research

Training and Education

08

Staff

At NYP, we aim to deepen our staff expertise through the baseline 101 sustainability training, formal courses, research projects and industry attachments. Our target is to achieve a 75% completion rate for all NYP staff to complete a foundational sustainability awareness module, and by 2025, all 100% of NYP staff to complete the baseline 101 sustainability training.

The one-day training session consists of two courses, which NYP staff can choose from. Each course aims to equip staff with essential knowledge of sustainability practices and NYP's sustainability initiatives.

Sustainability 101 for the Green Economy

This course aims to introduce and equip NYP staff with enough knowledge to identify areas for improvement within the campus and make informed decisions to transition towards a more sustainable operation model.

NYP staff would be introduced to common green economy concepts such as the Singapore Green Plan 2030, Circular Economy, Carbon Reporting, Sustainability Reporting, Energy Efficiency, Greenwashing, and Innovations in Sustainability.

Sustainability at Our Core – Equipping You to Drive Impact

This course aims to equip NYP staff with the vocabulary to effectively discuss sustainability topics with stakeholders both within and outside of the organisation.

NYP staff would develop the capacity to understand key sustainability challenges and make the connection between the environment, society, and the economy to help with decision-making.

Education and Research

Training and Education

In FY2023, 134 of our staff members completed a total of 983 hours of baseline 101 sustainability training.

At NYP, we have also unveiled a series of dynamic initiatives aimed at empowering our managers and enhancing their leadership capabilities. These transformative programmes are meticulously designed to equip our leaders with a wealth of knowledge and practical skills, enabling them to excel in performance management and inspire their teams to achieve extraordinary results. With comprehensive training on the NYP Staff Development and Appraisal framework, our managers will master the art of conducting effective staff performance appraisals, driving both individual and organisational success.

NYP Reporting Officers (RO) Series

In FY2023, 84 of our staff members participated in the NYP RO Series to enhance their skills in performance management, emotional intelligence and to fulfilling their roles as reporting officers in NYP.

01

Performance Management

Provide an understanding of the NYP Staff Development and Appraisal framework and objectives of performance management. Staff will also learn skills and techniques to conduct staff performance appraisals effectively.

02

Emotional Intelligence

Equip ROs with effective emotional intelligence management skills to improve their self-management and interactions with others.

03

The Role of NYP ROs

Provide an understanding of the roles and expectations of ROs and equip them with skills and knowledge for people management through case studies in recruitment and selection, employee relations and people development.

Education and Research

Training and Education

Career Fitness Programme for officers

A high-touch and customised career coaching programme to empower NYP's support staff to develop their careers. Through this programme, our staff can benefit from:

- Increased awareness of resources for career development
- Gaining clarity and confidence in their personal career development
- Insights to take actions in their career planning and development with their ROs
- Attending specific training to upskill and gain exposure to new areas of the job

In addition to our initiatives for developing our talent, we closely monitor performance through regular performance and career development reviews for all our employees.

In FY2023, 100% of our staff received regular performance and career development reviews.

Education and Research

Research and Innovation

Research and Development (R&D) and innovation form the bedrock of our ambitious vision to redefine polytechnic education. Our cutting-edge R&D strategy spans 11 verticals and 5 horizontal strategic focus areas. In FY2023, we spotlighted Food Sustainability and Resilience, underscoring this with a robust sustainability research portfolio.

In FY2023, S$1.018 million was awarded to 4 food sustainability and resilience projects from internal and external funding. Since 2023, NYP has prioritised thematic grant calls that focus on sustainability issues within Singapore and NYP. NYP awarded the first grant call in April 2024.

Our Ongoing Research Projects

Project Title	Focus Area (Horizontal)	Details
Animal-Free, Non-Recombinant Transferrin for Cellular Agriculture	-	Key challenges in transitioning cellular agriculture to the marketplace include the need for low-cost, scalable, and animal-free production systems. The dependence on fetal calf serum as a primary culture media supplement is problematic due to its cost, unsustainability, and conflict with cellular agriculture's ethos. Developing low-cost, serum-free media is essential for achieving price parity with conventional meat and addressing ethical concerns. Transferrin plays a critical role in serum-free cell culture by regulating iron uptake and transport. Reducing media costs by finding alternative transferrin sources from plants or algae will enhance the scalability and cost-competitiveness of cultivated meat products, advancing animal-free production.
Development of an Intelligent Aquatic Feed Dispenser (i@FAD) to Increase Productivity	Artificial Intelligence and Data Analytics	This project aims to create a self-adapting aquatic feeder that reduces feed wastage, labour costs, and water fouling. The Intelligent Aquatic Feed Dispenser (i@FAD) uses artificial intelligence (AI) to optimise feeding patterns based on the fish's environment and appetite levels. i@FAD automatically adjusts the feed amount at different intervals to maximise fish growth without requiring farmers' intervention. By utilising neural networks to assess the fish's hunger and employing machine learning to determine optimal feeding amounts and timings, i@FAD minimises food conversion ratios and enhances growth. Ultimately, this device promotes optimal feeding, reduces waste, and increases fish survivability and profitability.
System (KG-AICLM) for Urban Farming to Improve Crop Yield and Risk Management	Artificial Intelligence and Data Analytics	To address the challenges faced by the agri-food industry, such as the high cost of production in urban farming and the lack of systematic farming knowledge and experience in the local context, a Knowledge Graph-based AI Closed-Loop Management System (KG-AICLM) is proposed for urban farming. This system aims to enhance crop yield while reducing production costs and effectively managing risks. KG-AICLM will monitor the entire growing process, from seed selection to harvesting, fine-tuning conditions to boost yield and prevent disease outbreaks. Leveraging AI, it classifies seeds, tracks growth, and identifies diseases. By utilising cameras and IoT sensors, it gathers data and employs a deep-learning knowledge graph to analyse relationships among variables. This data-driven approach optimises the growing environment, enhances productivity, and minimises labour requirements while lowering disease risks.
Surface Coatings on Scalable Surfaces to Enhance Cell Culture for Food and Biotechnology Sustainability	-	There is increasing demand in biotechnology for enhanced capabilities to culture various cell types for applications such as cancer research and cultivated meat and leather industries. Cellivate's validation kit, featuring 24 unique oxide chemistries, has been well-received for cell proliferation. Based on customer feedback, there is a need to apply these oxide coatings to commonly used polystyrene Petri dishes. To meet this demand, Cellivate Technologies will collaborate with Nanyang Polytechnic to adapt the patented 24-well oxide chemistries from glass coverslips to plastic and glass Petri dishes. The team will synthesise and characterise oxide nanomaterials, utilising Nanyang Polytechnic's coating expertise to benchmark against existing products.

Industry and Community

06

Industry and Community

Industry

To advance our goal of collaborating with the industry for growth and sustainability, we launched the ASI in October 2023. This platform serves as a hub for businesses dedicated to sustainability, promoting knowledge exchange and cooperation. Members can join workshops, receive tailored training, and consult with experts to foster positive environmental and social impacts.

ASI was launched by the Second Minister for Education, Dr Mohamad Maliki Bin Osman, with eight Founding Fellows from Amazon Web Services, CPG Corporation, Global Green Connect, KPMG Singapore, Schneider Electric, Singapore Manufacturing Association, Singtel, and TÜV SÜD.

Launched in October 2023 with an impressive 276 members – well above the initial goal of 150 – the ASI has expanded further to 305 members at end of FY2023. This growth includes SMEs from diverse industries, including transportation, construction, manufacturing, and industrial processes.

To support a holistic approach to sustainability, ASI provides 4 services:

- Project consultancy to provide a strategic framework
- Learning journeys to offer practical insights
- CET to build sustainability expertise
- Seminars and workshops to facilitate knowledge sharing and collaboration

Project Consultancy

ASI collaborates closely with its members from diverse industry sectors to develop innovative sustainable products and solutions. Our state-of-the-art testing and measurement facilities guarantee that these solutions perform effectively in their intended environments while maintaining a minimal carbon footprint. By prioritising sustainability at every stage, we strive to create impactful solutions that benefit both businesses and the planet.

Learning Journeys

ASI's Overseas Learning Journey is designed to immerse members in the best practices of companies that have successfully navigated their sustainability journeys. This unique programme provides firsthand insights and experiences, allowing attendees to learn directly from industry leaders who have implemented effective strategies. By engaging with these trailblazers, we aim to accelerate the learning curve for our members, equipping them with the knowledge and tools needed to advance their own sustainability initiatives more rapidly and effectively.

Together, we can foster a culture of innovation and collaboration in our pursuit of a sustainable future.

Industry and Community

Industry

CET

ASI organises CET training sessions designed to educate the community on sustainable practices, innovations, and global sustainability goals. By equipping ASI's members with this knowledge, it empowers members to make informed decisions that drive positive change in both their personal and professional lives. This training not only enhances our members' understanding but also inspires actionable steps toward a more sustainable future.

Seminars and Workshops

As a dynamic platform for sharing resources, best practices, and success stories, ASI organises regular seminars and workshops that connect like-minded companies across various industry sectors. Whether focusing on implementing energy-efficient measures, minimising waste, or promoting sustainable procurement, we can learn from one another's experiences and harness our collective wisdom. The sharing sessions not only foster valuable partnerships but also empowers ASI to amplify its impact by pooling our resources, expertise, and influence.

Through this, we aim to drive meaningful change and advance our sustainability goals more effectively.

Collectively, these solutions create a holistic ecosystem that bolsters sustainability initiatives on various fronts, advancing the goal of a more sustainable and equitable society by minimising environmental impact, fostering community involvement, and promoting sustainable development practices.

Design and Development of a Smart Farm Monitoring Device

From July to December 2023, NYP partnered with BlueAcres (BA) Pte Ltd to design and develop a smart farm monitoring device. The project features key innovations like smart nutrient monitoring, which tracks pH, electrical conductivity, and temperature in nutrient solutions for precise hydroponic control. Additionally, Cloud-Based Data Management allows real-time data collection and remote management, while Automated Alerts and Interventions enable quick responses to critical events, reducing crop loss risk.

By integrating real-time crop monitoring systems, farmers can now keep a vigilant eye on the health and growth of their plants without being physically present. Precise nutrient management is made possible through advanced sensors that measure and adjust the nutrient levels in the water, ensuring that plants receive the optimal mix for robust growth. Remote data access allows farmers to monitor and control the hydroponic systems from anywhere, providing unparalleled convenience and efficiency. Alert notifications promptly inform farmers of any issues or anomalies, enabling swift intervention to prevent crop loss. This innovative approach not only enhances resource efficiency but also significantly boosts crop yields and quality, paving the way for a sustainable future in agriculture.

This initiative offers educational opportunities for hands-on research in smart farming, enhancing learning experiences. The partnership with BA positions NYP at the forefront of agritech innovations and showcases sustainable practices to inspire future initiatives.

Industry and Community
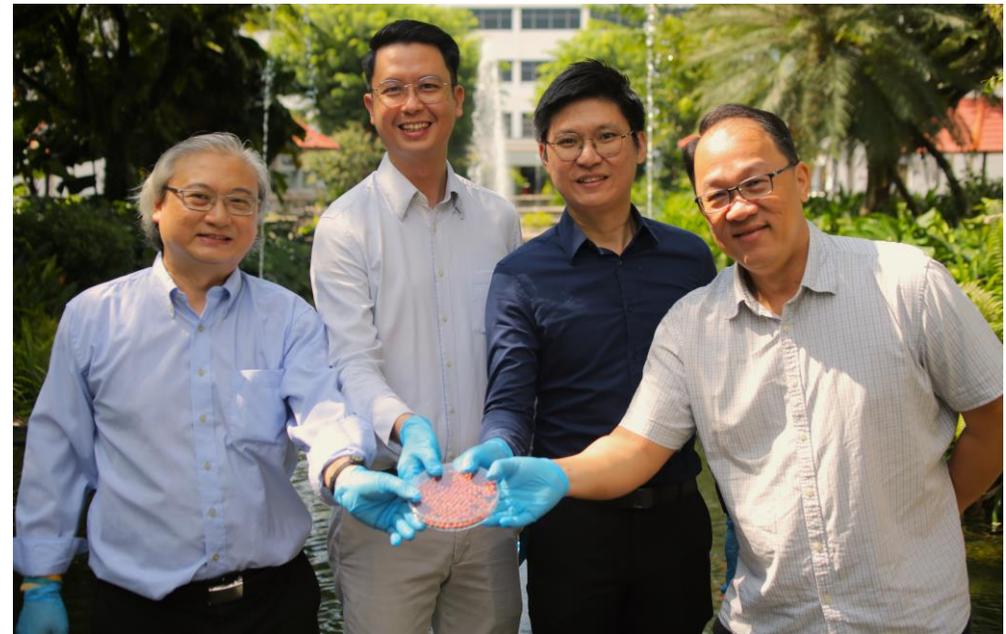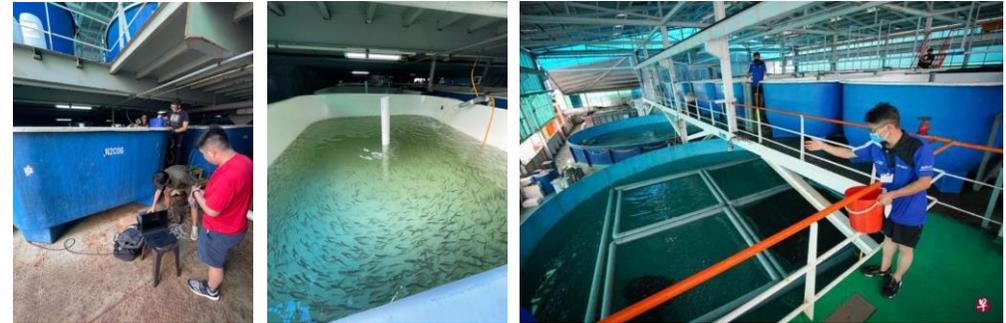
Industry

Sustainable Fish Feeding

This cross-school project, in collaboration with the Aquaculture Centre of Excellence, developed the i@FAD Intelligent Aquatic Feed Dispenser, an AI-powered self-adapting feeder that optimizes fish feeding patterns based on environmental conditions and appetite levels. By reducing feed wastage, labour, and water fouling, the dispenser helps transform the aquaculture industry, ultimately increasing harvest efficiency.

The i@FAD Intelligent Aquatic Feed Dispenser leverages machine learning algorithms to analyze data from various sensors placed in the aquatic environment. These sensors measure parameters such as water temperature, oxygen levels, and fish activity. Based on this data, the system adjusts the feeding schedules and quantities in real-time, ensuring that fish receive the right amount of food at the optimal times.

Furthermore, the device can detect changes in fish behaviour, indicating whether they are hungry or satiated. This adaptability not only promotes healthier fish growth but also minimises the environmental impact of aquaculture by preventing overfeeding and the resulting water pollution. The advanced technology behind the i@FAD Intelligent Aquatic Feed Dispenser also includes remote monitoring capabilities, allowing farmers to manage their operations from any location. This level of control and efficiency is unprecedented in the industry, offering a sustainable solution to meet the growing demand for fish protein globally.

The i@FAD Intelligent Aquatic Feed Dispenser represents a significant leap forward in aquaculture technology by embodying the principles of precision farming, where data-driven decisions enhance productivity while preserving natural resources. Once implemented, the expected project results are bigger harvests, higher survivability, and higher productivity for the fish farmers.

This innovation stands as a testament to the potential of combining artificial intelligence with traditional farming practices to achieve greater sustainability and food security.

The cross-school team with their fish feed (from left): Dr Jeffrey Seng Eng Khuan, Felix Yeo (Principal Investigator), Loh Chao Hong and Poh Boon Kiat

Industry and Community

Industry

Fish Vaccines

NYP has played a pivotal role in aiding both local and international fish farms in developing vaccines that are crucial for safeguarding fish stocks against devastating losses caused by bacterial and viral pathogens. These vaccines not only enhance the health and resilience of the fish populations but also contribute to the sustainability of the aquaculture industry by reducing the need for chemical treatments and antibiotics. By ensuring healthier fish, these vaccines help improve the overall productivity and efficiency of fish farming operations, paving the way for more reliable and secure food sources.

Built Sustainability

The School of Engineering (SEG) developed an environmentally efficient processing method to transform industrial polymer waste from an industry collaborator into sustainable building materials, such as mortar and drywall, supporting more eco-friendly construction practices.

Industry and Community

Industry

Utilising Food Waste

The School of Applied Science (SAS) transformed pulp from discarded fruits and vegetables into eco-friendly alternatives to plastics and wood, such as "green" wood boards for wrapping and food packaging. These materials not only reduce waste but also lower the dependency on traditional, non-renewable resources.

Additionally, soybean residue (okara) from soymilk production is repurposed into nutritious, protein- and fibre-rich biscuits. This innovative approach not only addresses the issue of food waste but also provides a valuable dietary supplement, particularly in regions where protein deficiency is prevalent. Okara biscuits are developed through a process that enhances their nutritional content while maintaining a pleasant taste and texture, making them an appealing and sustainable food option.

By integrating these solutions, industries can reduce their environmental footprint and contribute to a more sustainable future.

Licensing the Eco-Sesame Muffin for Sustainable Baking

As sustainability and health become increasingly important, the search for nutritious, eco-friendly food products is vital. In response, SAS developed the Eco-Sesame Muffin, which balances flavour, nutrition, and environmental responsibility. This product was a finalist for Best Bakery Product at the World Food Innovation Awards in March 2024 and secured a licensing agreement with AJ Delights in May 2024.

These muffins feature a distinctive earthy brown colour from upcycled sesame cake sourced from Oh Aik Guan Food Industrial, a long-established sesame oil manufacturer in Singapore. This collaboration reduces waste, brings NYP's innovation to life, and offers AJ Delights a sustainable and tasty product. Inspired by this success, our team developed Eco-Smart Corn Cheese Muffins, aiming to promote eco-friendly eating among children by using familiar ingredients like sweet corn and upcycled okara from Super Bean's soymilk production.

AJ Delights is now working with recent graduates from the Diploma in Food Science & Nutrition to refine the recipe for large-scale production. This initiative showcases how a vibrant innovation ecosystem empowers young minds to create sustainable solutions that benefit the environment and future generations

Industry and Community

Industry

Turning Trash into Treasure: Upcycling Durian Husk for Sustainable Solutions

Singapore, the world's third-largest durian importer, faces the challenge of disposing 14 million tons of durian husks each year. To address this, NYP partnered with Singnergy Corp Pte Ltd from May to June 2023 to transform these husks into valuable materials.

Using Super-Quick (SQ) drying technology, the collaboration created "Green Wood" panels – thin sheets made without chemical binders. This pulp board is lightweight and comparably strong to traditional wood-based boards. These panels have various applications, including doors and packaging. Despite its potential, non-wood resources account for less than 10% of paper production in food science.

By utilising 10-25% of local durian husk waste annually, this initiative aims to reduce waste and promote sustainability in Singapore, setting an example for other industries. This project underscores our commitment to supporting a circular economy, where waste is repurposed into valuable resources. The environmentally friendly production process of Green Wood highlights its potential for diverse applications and sustainable solutions. For Singnergy Corp Pte Ltd, this project led to a new business spin-off and exploration of 3D printing filament development.

Industry and Community

Local Communities

Local communities are the cornerstone of NYP's mission as a polytechnic, pivotal for building strong partnerships and fostering deep community engagement among our staff and learners. Our steadfast dedication to social sustainability is intricately woven into our proactive collaboration with the community. We are devoted to making an enduring positive impact by aligning with community leaders, launching vibrant engagement programmes, and delivering unwavering service to our local community.

This is fostered through two opportunities for collaborative growth and promoting community engagement. At NYP, we collaborate with community partners and public agencies with shared aspirations to work on joint sustainability initiatives to promote mutual benefits and growth opportunities. We also actively plan, curate and execute a series of sustainability-focused programmes with local communities to address environmental challenges and social disparities, fostering a culture of innovation and inclusivity in the pursuit of a more sustainable future.

Our target is to achieve 70,000 volunteer hours annually. In FY2023, NYP staff and learners combined to achieve 96,192 hours across 311 projects with over 3,000 volunteers.

NYP staff participated in various community engagements including community service work, CSR programmes organised by NYP, community service efforts in collaboration with NYP partners and ground-up initiatives led by NYP staff.

To amplify the positive impact of our volunteer efforts and engage our learners more effectively, we are providing a bunch of resources and teaming up with organisations to offer development programmes. These initiatives are designed to give our learners the skills and knowledge they need for successful community engagement.

Our learners are at the heart of it all, actively participating in NYP-organised and self-organised community service and environmental programmes. Whether it is part of their curriculum or through ground-up initiatives, they are making a difference. Some examples include mentoring through community service CCAs at NYP and joining training programmes like Mission X by Youth Corps Singapore and the Youth Expedition Project (YEP) Leaders Course.

Show YOUth Care

Show YOUth Care is our annual campus-wide event led by the Student Development and Alumni Relations (SDAR) Community Service pillar, where our community service clubs, academic clubs and community partners come together to advocate for various social sustainability domains. The event focuses on the following domains, aligned with issues relevant to Singapore and linked to relevant SDGs: **Environmental Sustainability, Social Mobility, Health and Wellness, and Disability and Special Needs.**

For Show YOUth Care 2023, we invited 12 community partners, including the Red Cross Singapore, PUB and SPCA to set up booths to advocate their causes. 175 student volunteers were involved in this year's event over the span of 2 days, reaching out to 912 participants.

Industry and Community

Local Communities

Relive. Rewind. Replay – Allkin Seniors Combined Event

To encourage social interaction and active ageing among seniors, we partnered with Allkin Singapore[2] to engage with the seniors. This year's theme was Relive. Rewind. Replay. Our NYP students engaged with over 600 seniors from Allkin's 9 active ageing centres in activities such as mass Zumba, carnival games, live food stations, as well as performances by NYP Arts Groups.

[2] Founded in 1978 as Singapore's first family service centre, Allkin Singapore is a community-driven social service agency that believes everyone has the potential to create positive change, regardless of age, race, or background.

YEP

Our dedication to social sustainability extends beyond Singapore's borders. The YEP, spearheaded by Youth Corps Singapore, is a Service-Learning initiative aimed at developing confident and resilient young individuals who aspire to contribute meaningfully both locally and internationally.

In FY2023, we mounted 7 YEP projects to China, Laos, Philippines, Thailand and Vietnam, involving a total of 144 students and 5 staff members. Our participants carried out activities which included enrichment lessons for local youths, cultural exchanges and improvement works within the community such as developing roads, installation of solar streetlamps, refurbishment of community playgrounds and home repairs.

About this Report

Chairman and PCEO Statement

About NYP

Our Sustainability Journey

Education and Research

Industry and Community

Campus Operations

Leadership and Governance

Technical Appendix

GRI Content Index

Industry and Community

Local Communities

Capstone Leadership Development Programme

The NYP Capstone Leadership Development Programme aims to maximise students' potential beyond academic excellence through systematic development programmes. It empowers students to lead, advocate and act on community issues through:

•Service-learning training

•Community action projects

•Dialogues with community leaders

•Learning journeys

•Other national-level leadership programmes

Some highlights of the programme include participating in Mission X by Youth Corps Singapore, Singapore Young Leaders Programme and initiating and executing their own community projects.

All NYP scholars will participate in the programme. In FY2023, 136 learners participated in the programme.

Campus Operations

07

Campus Operations

NYP's Campus 2050 is a visionary and forward-looking blueprint to transform the campus environment and infrastructure. The Campus 2050 will elevate and enhance our campus' functionality, sustainability, and aesthetic appeal, ensuring that we continue to meet the ever-evolving needs of our students and staff.

Key components of the Campus 2050 include the development of cutting-edge facilities, integration of green spaces, and incorporation of innovative technologies to support advanced learning. By prioritising accessibility and collaboration, we envision a vibrant and dynamic campus that fosters creativity and academic excellence, ultimately positioning NYP as a leader in modern education. We aim to transform into a smart and sustainable campus, leveraging tech and innovation.

NYP's Campus 2050 focuses on these key areas:

- Campus Rejuvenation
- Smart and Green Campus

Tech, Collaboration & Innovation for a Sustainable Campus

IT Infrastructure Plan

Smart Campus
- FM to T Monitoring System
- Integrated Digital Solution
- BIM, Digital Twin, Ops Centre

· Predictive Maintenance
· Energy Efficiency
· Water Conservation
· Collaborative opportunities

Campus Rejuvenation
MDT to include consultancy to develop a campus master plan with sustainability focus to achieve

Green Mark Platinum SLE by 2035

Net Zero Emissions by 2045

Special Projects

Care & Well-being
· Wellness Building Standard
· NYP Well-being Framework

Green Campus
· Sustainable F&B concepts &/or operations
· EV charging stations
· Water-leak detection systems in all toilets

Net Zero T-junction by 2030

Campus Operations

NYP's campus rejuvenation plans feature sustainable projects aimed at enhancing our existing Green Mark Platinum rating and expanding the variety of sustainable food and beverage options available on campus. On 16 September 2022, our NYP campus received the Green Mark Platinum certification for existing non-residential buildings.

Use of Food Digester

NYP has implemented food digesters in strategic locations such as Food Connect and South and North Canteens to manage food waste effectively. These digesters utilise micro-organisms and enzymes to break down organic matter, transforming food waste into wastewater, before being safely discharged. This innovative approach to waste management is estimated to process approximately 25% of daily canteen food waste, significantly reducing the burden on traditional waste disposal systems.

The food digesters not only contribute to a cleaner and more sustainable campus environment, but also serve as a practical example of circular economy principles in action. By reducing the volume of waste sent to landfills, we are minimising our environmental footprint and promoting a culture of sustainability among learners and staff.

By integrating food digesters into our campus operations, we are demonstrating a commitment to environmental stewardship and innovation. This case study highlights the practical benefits and long-term value of adopting sustainable waste management solutions.

Rainwater Harvesting System (Irrigation Tank)

NYP has taken a significant step towards environmental sustainability by installing rainwater harvesting tanks at multiple strategic locations, including Blk A, F, D1, N1, P1, and T. The innovative system efficiently captures and stores rainwater, which is then utilised for irrigation purposes by our landscape contractor. This initiative not only conserves water resources but also exemplifies our commitment to sustainable campus operations.
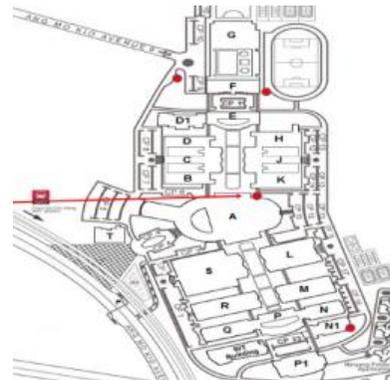
Campus Operations

Smart and Green Campus

The IT Infrastructure Plan at NYP is a strategic move to modernise and boost the institution's technological capabilities. This initiative aims to upgrade network systems, expand digital resources, and implement strong cybersecurity measures for a secure and efficient environment. The plan encompasses:

• FM IoT Monitoring Systems

• Integrated Digital Solutions

• BIM, Digital Twin, and Ops Centre

NYP has incorporated cutting-edge technologies like cloud computing and data analytics to enhance communication and collaboration across departments. Additionally, our IT Infrastructure Plan is designed to boost energy efficiency, conserve water, and foster collaborative opportunities. More information about these initiatives is available in their respective sections.

In FY2023, we completed two projects to support our Smart Campus initiative.

Campus-wide Painting Exercise Using Cool Paint

In the recent external façade painting work, NYP opted to utilise cool paint, which contains special additives designed to reflect the heat of the sun and reduce surface heat absorption.

The type of paint used reflects more sunlight and absorbs less heat than conventional paint, consequently reducing the amount of heat absorbed by the structures. Our aim is to achieve a minimum 10% decrease in surface temperature and at least a 2-degree Celsius reduction in indoor temperature.

This innovative approach not only helps maintain cooler indoor temperatures but also translates to a reduction in the electricity required for air-conditioning. Through utilising cool paint, NYP aims to further our commitment to energy efficiency and sustainability, contributing to a more environmentally friendly campus.

Campus Operations

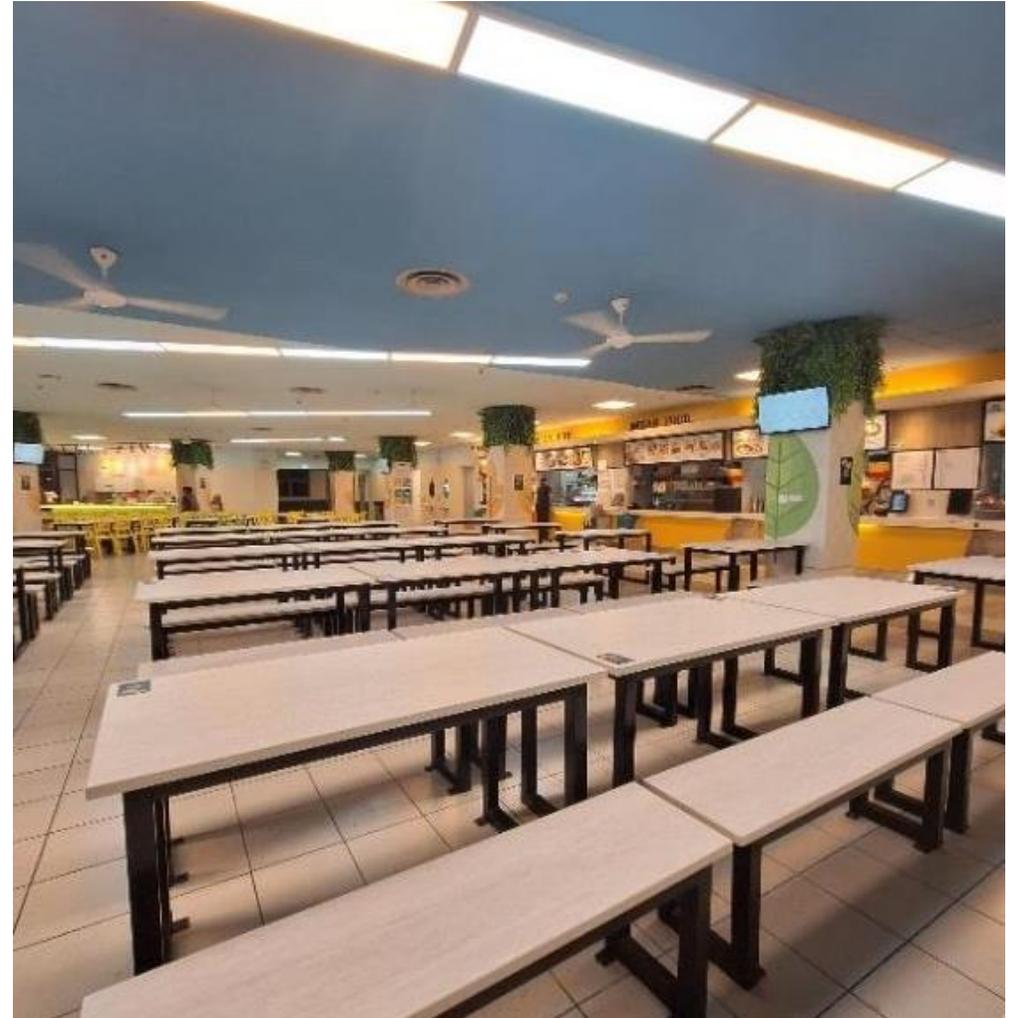## Smart and Green Campus

North Canteen Upgrading with the Incorporation of Sustainability Features

North Canteen has undergone a comprehensive renovation to create a more sustainable and vibrant dining environment. This project reflects our commitment to sustainability, aiming to reduce our carbon footprint while enhancing the overall dining experience for our stakeholders.

The North Canteen saw the following green feature upgrades:

170 units of energy efficient LED lighting

1 digester for food waste management

4 Washing basins for reusable utensils

11 diverse food stalls

This upgrade aims to cut energy consumption by 5%, reduce carbon footprint with LED lighting, and minimise food waste through efficient management. Patrons are also encouraged to use reusable utensils to lower plastic waste. We strive to enhance the dining experience and stakeholder satisfaction, positively impacting the environment and reinforcing our green campus reputation.

Campus Operations

Smart and Green Campus

Digital Twin for Environmental Sustainability

This funded student project combines the use of IoT technologies such as LoRaWAN, spatial modelling and cloud technologies to implement a working digital twin for the NYP campus. Our current sensors effectively monitors air quality, soil conditions and occupancy. There is potential to integrate technologies for monitoring water and electricity usage in the future.

Digital twin technologies play a crucial role in advancing environmental sustainability by enabling more efficient use of resources, reducing waste, and optimising energy consumption.

These technologies also allow organisations to model energy consumption across buildings, industrial facilities, and other infrastructure. This helps in identifying opportunities to reduce energy usage, switch to renewable sources, or optimise operational schedules to lower carbon footprints. By using smart metering for power and water, threshold parameters and algorithms can be set or adjusted accordingly to meet the buildings' sustainability requirements.
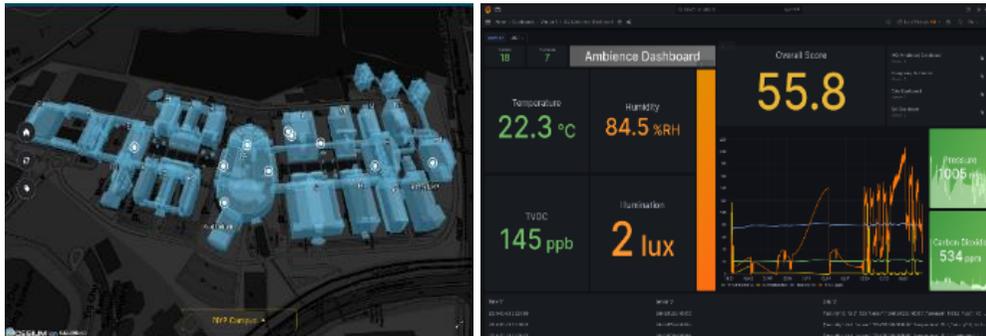
Energy-Efficient Linkway Lighting System

NYP automated our campus main linkway lighting brightness to an on-demand basis using LED panel lights at enclosed linkways. The lighting intensity is adjusted based on real-time occupancy and ambient light levels, ensuring that energy is used efficiently and only when necessary. By implementing this smart lighting solution, we achieved substantial energy savings of about 84 MWh per year. The reduction in energy consumption not only decreases operational costs but also significantly contributes to our environmental sustainability goals by minimising our carbon footprint.
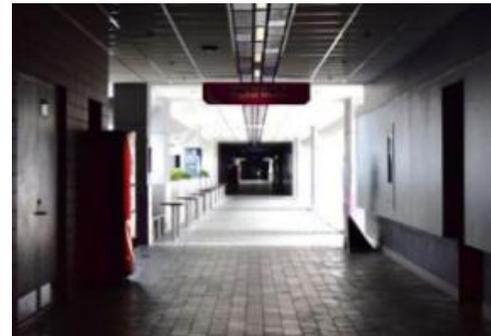
Before implementation of LED panel lights

After implementation of LED panel lights at 70% brightness setting

Campus Operations

Smart and Green Campus

Smart Toilet Sensors

The School of Engineering collaborated with facility management company Convergent Smart Technologies to develop smart toilets equipped with sensors to monitor bathroom usage, odour (generated due to ammonia and other gases) and inventory in real-time. These sensors track various parameters such as the number of users, smell level, and even the need for cleaning and restocking supplies. By integrating this technology, we can ensure that our facilities are maintained at optimal standards, enhancing user experience while minimising resource wastage.

The smart toilet system utilises data analytics to predict peak usage times and adjust maintenance schedules accordingly, thereby reducing downtime and improving overall efficiency.

This innovative approach not only improves operational efficiency but also aligns with our sustainability goals.
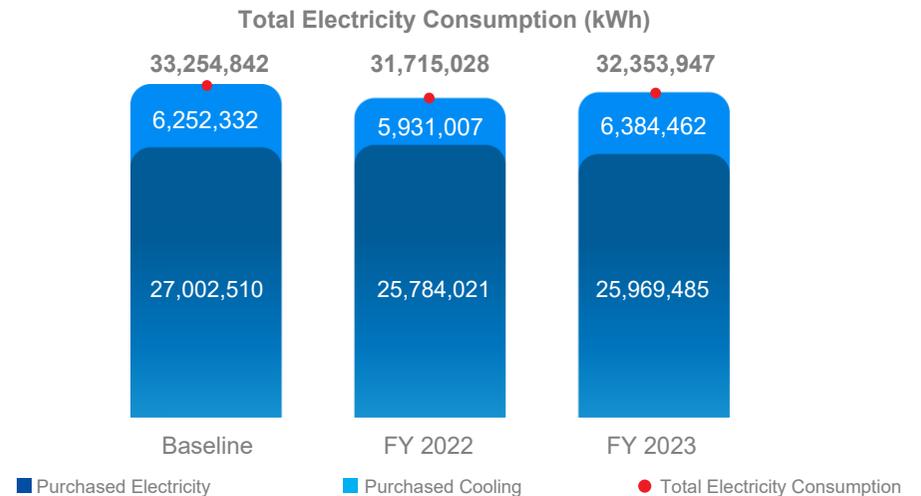
Energy

Achieving net-zero carbon emissions by 2045 requires a comprehensive approach to energy management. By optimising our energy consumption, we aim to significantly reduce operational costs and strengthen the sustainability of our organisation.

Our target is to reduce our Energy Utilisation Index (EUI) by 10% from our baseline by 2030, in line with GreenGov.SG's energy reduction target. In FY2023, our EUI was 128.62 kWh/m^2, a slight increase of 2% compared to FY2022's EUI of 126.08 kWh/m^2. This was still a 2.71% reduction from our baseline[3] EUI.

Our total electricity consumption for FY2023 was 32,353,947 kWh. Fuel consumption from non-renewable sources included 29,829 kWh from town gas (propane) and 2,200 litres of diesel. Total cooling consumption which refers to the energy consumed to lower the temperature of a space was 6,384,462 kWh.

Total Electricity Consumption (kWh)

	Baseline	FY 2022	FY 2023
Total Electricity Consumption	33,254,842	31,715,028	32,353,947
Purchased Cooling	6,252,332	5,931,007	6,384,462
Purchased Electricity	27,002,510	25,784,021	25,969,485

■ Purchased Electricity ■ Purchased Cooling ● Total Electricity Consumption

[3] Our baseline EUI is calculated based on the electricity consumption and GFA from FY2018 to FY2020. The detailed formula is included in the Technical Appendix.

Campus Operations

Smart and Green Campus

Centralised Chiller Plant Upgrade

NYP has upgraded our centralised chiller plant by replacing all non-energy efficient chillers and optimising the cooling towers, which has significantly improved our plant's energy efficiency from 0.92 kW/RT to 0.63 kW/RT. This enhancement has resulted in substantial energy savings, amounting to approximately 2.7 GWh annually. These upgrades demonstrate our ongoing commitment to improving energy efficiency and reducing the environmental impact of our campus operations.

In FY2023, NYP upgraded our chiller plant through the installation of 3 chillers, 6 cooling towers and pumps. This upgrade has saved us 2,672,357 kWh of electricity, or 8% of our total electricity consumption for FY2023.

Energy Utilisation Idex (EUI) (kWh/m^2)

Baseline	FY2022	FY2023
132.20	126.08	128.62

Water and Effluents

Water stewardship forms a key part of NYP's sustainability plan. Effective water management not only preserves an essential natural resource but also aids in cost optimisation and aligns with our environmental objectives.

NYP utilises two types of water: potable water and NEWater.

- Potable water is for human consumption at canteens, food and beverage outlets, and water dispensers throughout the campus. It is also used in laboratories, the swimming pool, restrooms, water features, and irrigation systems.
- NEWater primarily serves as condenser water in cooling towers and is also employed for toilets, water features, and irrigation.

Runoff water is directed straight into PUB's sewage network. To minimise the negative effects of discharged effluents, we have installed water treatment devices and collaborated with stakeholders to manage water as a shared resource.

All our canteen kitchens on campus are equipped with grease traps to improve the quality of our effluent discharge. Our food operators are also briefed on the proper use and discharge of water. Since FY2023, NYP's toilet fittings were all replaced with 3-tick WELS rating[4] fittings. Additionally, all our toilets are equipped with posters on water-saving techniques by PUB.

[4] Water Efficiency Labelling (WELS) is a mandatory grading system denoting the water efficiency level of a product launched by PUB.
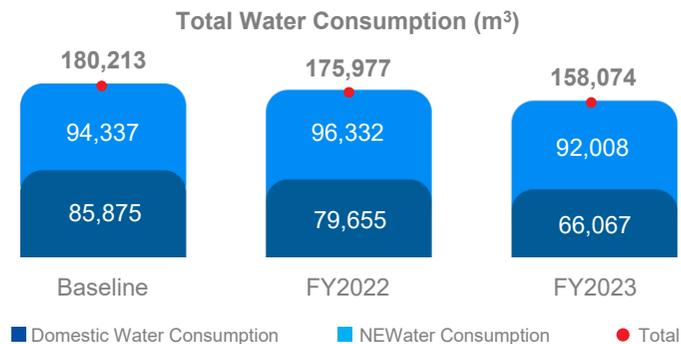
Campus Operations

Smart and Green Campus

To monitor water consumption and quality, water meters are present at high water consumption areas such as our cooling towers, the swimming pool and water features.

In FY2023, our total water consumption was 158,074.40 m^3, which includes 92,007.60 m^3 of NEWater Consumption and 66,066.80 m^3 of domestic water consumption.

Our target is to reduce our Water Efficiency Index (WEI) by 10% from our baseline[5] by 2030, in line with GreenGov.SG's targets. In FY2023, our WEI was 28.09 L/p/d, already achieving over 10% reduction compared to our baseline WEI.

Total Water Consumption (m^3)

	Baseline	FY2022	FY2023
Total	180,213	175,977	158,074
NEWater Consumption	94,337	96,332	92,008
Domestic Water Consumption	85,875	79,655	66,067

■ Domestic Water Consumption ■ NEWater Consumption ● Total

Water Efficiency Index (WEI) (L/p/d)

| Baseline	FY2022	FY2023
31.38	31.29	28.09

Emissions

Emissions management is a critical component of NYP's sustainability strategy, underscoring our commitment to environmental stewardship and responsibility to contribute to global climate goals.

By accurately monitoring and measuring our carbon footprint, we can gain insights into reducing our environmental impact. We pinpointed major emission sources and applied targeted reduction strategies, including upgrading chiller systems and other equipment, as well as incorporating green features in our buildings to significantly enhance overall system efficiency.

Aligned with the GreenGov.SG targets, we aim to achieve net zero emissions by 2045. In FY2023 our total emissions were 13,621.97 tCO$_2$e, which includes 446.68 tCO$_2$e of Scope 1 emissions and 13,175.29 tCO$_2$e of Scope 2 emissions. Our current emissions were mainly from Scope 2 emissions, primarily from the consumption of purchased electricity, and Scope 1 emissions from the use of town gas, diesel and refrigerant leakage.

Total Emissions in FY2023 (tCO$_2$e)

Scope 1 Emissions: **446.68**

Scope 2 Emissions: **13,175.29**
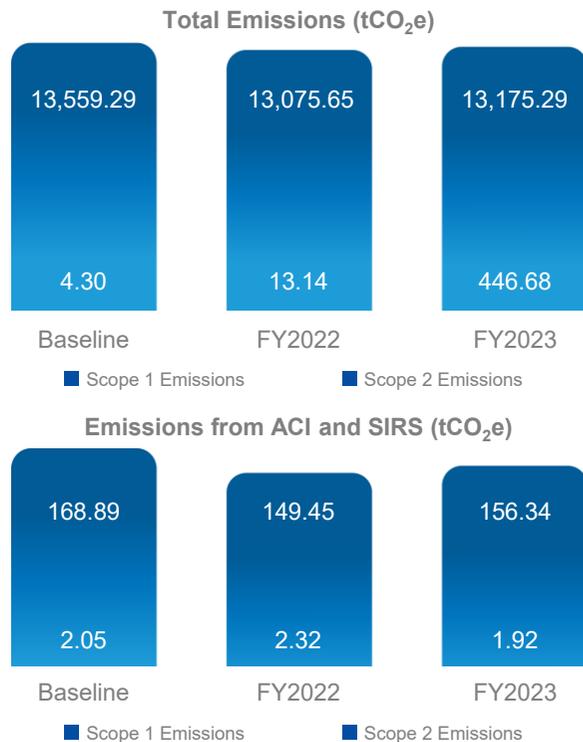
■ Scope 1 Emissions ■ Scope 2 Emissions
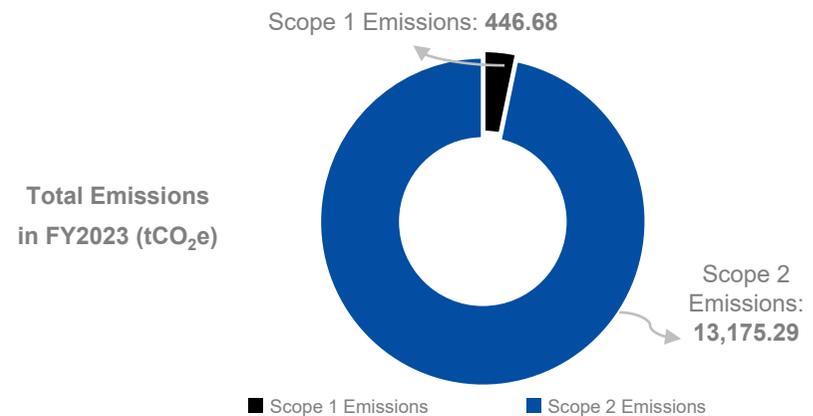
[5] Our baseline WEI is calculated based on the water consumption, number of operating days and campus populations from FY2018 to FY2020. The detailed formula is included in the Technical Appendix
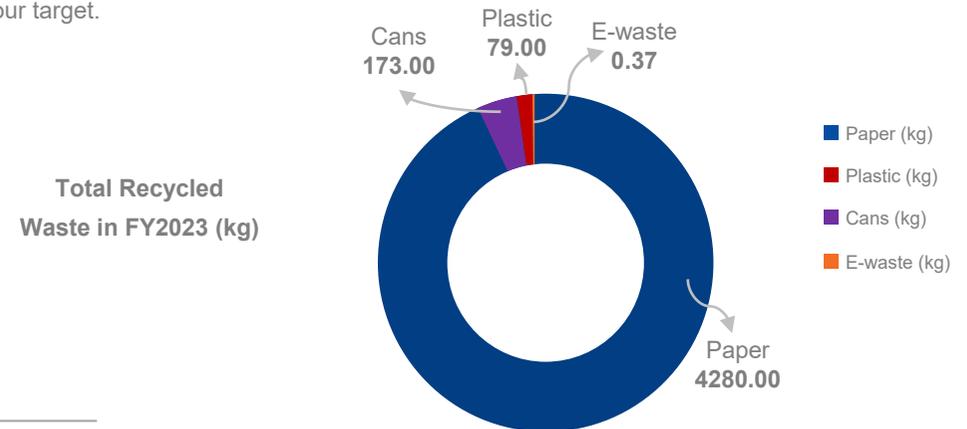
Campus Operations

Smart and Green Campus

NYP will continue to monitor emissions and implement initiatives to drive reductions, aligning with the GreenGov.SG targets. With the easing of COVID-19 restrictions, campus footfall has increased due to activities such as expanded food stalls, events, and CET/PET classes, leading to a rise in emissions[6] compared to FY2022. Under the adopted organisational boundary, following the operational control approach, the GHG emissions from our ACI and SIRS entities are excluded from our total emissions. However, as these entities are departments under NYP, GHG emissions of ACI and SIRS are also disclosed, presented in a separate chart.

Total Emissions (tCO$_2$e)

	Baseline	FY2022	FY2023
Scope 2 Emissions	13,559.29	13,075.65	13,175.29
Scope 1 Emissions	4.30	13.14	446.68

Emissions from ACI and SIRS (tCO$_2$e)

	Baseline	FY2022	FY2023
Scope 2 Emissions	168.89	149.45	156.34
Scope 1 Emissions	2.05	2.32	1.92

Waste

Effective waste management at NYP is of paramount importance for minimising environmental impact, reducing landfill dependency, and fostering sustainability within our campus. As a critical component of our sustainability strategy, we are committed to achieving GreenGov.SG's targets. Specifically, our objective for the Waste Disposal Index (WDI) is to attain a 30% reduction compared to our FY2022 baseline.

In FY2023, we disposed 600,449 kg of general waste[7] and 4,532 kg of waste recycled (paper, plastic, cans and e-waste). Our WDI was 0.11 kg/p/d in FY2023, a 37.5% increase compared to our baseline year in FY2022. With the easing of COVID-19 restrictions, campus footfall has increased due to expanded food stalls, events, and CET/PET classes, leading to a rise in general waste compared to FY2022. We will continue working towards meeting our target.

Total Recycled Waste in FY2023 (kg)

Cans **173.00**
Plastic **79.00**
E-waste **0.37**
Paper **4280.00**

- Paper (kg)
- Plastic (kg)
- Cans (kg)
- E-waste (kg)

---

[6] Some Scope 1 emissions data, specifically town gas and refrigerants, were unavailable for FY2022 and the baseline, leading to variability across different time horizons. Our baseline emissions are calculated by averaging emissions from FY2018 to FY2020.
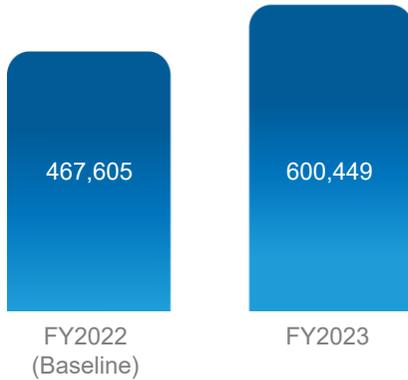
[7] General waste reported by NYP excludes waste generated at the ACI and SIRS as this is aggregated at the Lifelong Learning Institute (LLI).

Campus Operations

Smart and Green Campus

To boost recycling, NYP has a campus-wide strategy featuring informational signs, conveniently placed recycling bins, and campus maps to simplify waste disposal. Food digesters in canteens handle organic waste effectively. In support of upcycling, MakerSpaceNYP accepts materials like cloth, wood, and plastic for creative reuse. Landscaping providers also collect horticultural waste to turn it into compost for sustainable landscaping.

General Waste Disposal (kg)

FY2022 (Baseline)	FY2023
467,605	600,449

Waste Disposal Index (WDI) (kg/p/d)

FY2022 (Baseline)	FY2023
0.08	0.11
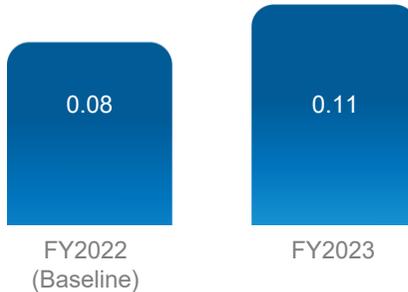
Leadership and Governance

08

Leadership and Governance

Leadership and Governance

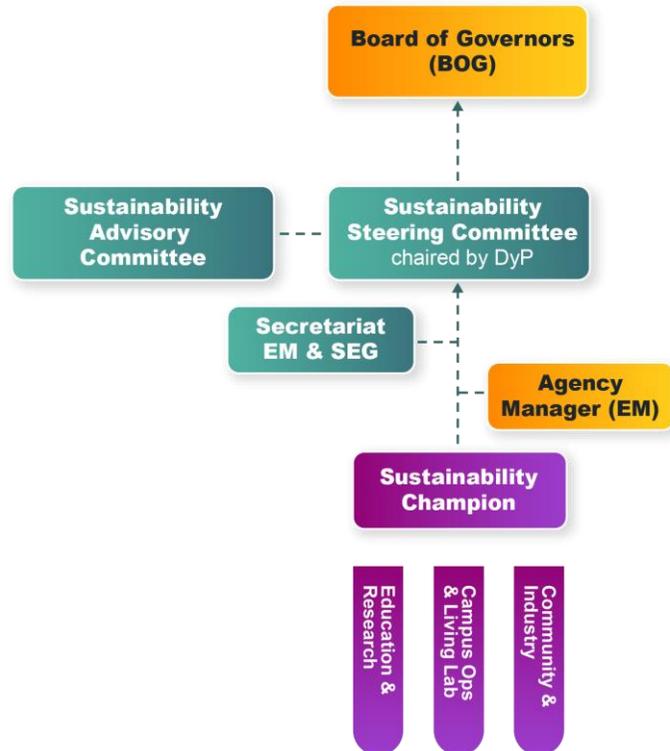Our governance structure reflects our commitment to integrating sustainability into all areas of NYP's business, aligning with our aspiration to be an enabler for sustainability. We aim to establish ourselves as a leader in promoting sustainability and to inspire our stakeholders toward a more sustainable future, aligning with Singapore's national agenda on sustainable development and creating a sustainable nation for generations to come.

Our sustainability governance structure comprises a Sustainability Advisory Committee (STAC) and a Sustainability Steering Committee (STSC). The STSC was formed in FY2023, and the STAC will commence in FY2024. STSC seeks guidance and advice from STAC.

The NYP Board of Governors (BOG) holds the overarching responsibility for the sustainability strategy and outcomes at NYP. The STSC, led by our Deputy Principal, reports directly to the BOG. We provide regular updates to BOG on the progress of NYP's sustainability efforts and achievements and inform them on ongoing initiatives, activities, and programmes.

Within the STSC, a core team has been established, comprising senior management staff and supported by assigned secretariats to oversee the following pillars:

Board of Governors (BOG)

Sustainability Advisory Committee

Sustainability Steering Committee chaired by DyP

Secretariat EM & SEG

Agency Manager (EM)

Sustainability Champion

Education & Research — Campus Ops & Living Lab — Community & Industry

Education and Research

Industry and Community

Campus Operations

Leadership and Governance

Leadership and Governance

Leadership and Talent Development

At NYP, we are steadfast in our commitment to advancing our staff's expertise in driving impactful change. Our foundational "101" sustainability training provides our staff with a comprehensive understanding of the UN SDGs, regulatory standards, and sustainability awareness.

We have set an ambitious target to achieve a 75% completion rate for all NYP staff to complete the foundational sustainability module by 2024. Beyond foundational training, NYP offers formal certification courses focusing on compliance and identified growth areas through sector road mapping. These courses present our staff with valuable opportunities for industry attachments with leading sustainability experts.

Demonstrating our dedication to excellence, a total of 16 staff took part in Industrial Attachments (IA) relating to sustainability, for 11 companies in FY2023. As an example, four NYP staff members were attached to KPMG Singapore ESG from November 2023 to March 2024. This attachment enabled them to acquire specialised sustainability knowledge, crucial for developing new sustainability-related modules. Additionally, our staff received advanced training in diagnostic tools for climate change analysis, empowering us to deliver enhanced value-added services to corporate clients and industry partners.

Leadership and Governance

Stakeholder Engagement

Engaging with stakeholders plays a pivotal role in advancing our sustainability strategy at NYP. By fostering open and ongoing dialogue with a diverse array of stakeholders, we can accurately identify and understand their needs and expectations. This inclusive approach not only helps us tailor our initiatives to meet these demands but also ensures that our actions are aligned with broader societal and environmental goals. There are 4 key objectives:

Understand Stakeholder Needs and Expectations

Gain insights into stakeholders' sustainability-related needs, expectations, and concerns to shape policies and initiatives.

Build Trust and Transparency

Regular and transparent communication about sustainability efforts to foster trust and strengthen relationships.

Collaborate on Sustainability Initiatives

Engage with stakeholders to collaborate on projects, leveraging their expertise and resources for innovative solutions.

Drive Continuous Improvement in Sustainability

Use stakeholder feedback for continuous improvement in sustainability performance, enhancing practices and making a positive impact.

We actively engage with our stakeholders through various channels.

Stakeholder	Topics and/or Concerns	Mode of Engagement
Board Members: Identified through our governance structure and board membership records.	• NYP Strategic Goals • Financial and Asset Management • Sustainability Performance and Strategy	• Quarterly Board Meetings
NYP Staff: Identified through our human resources database and organisational structure.	• Staff Welfare • Diversity, Equity and Inclusion • Training and Career Development	• Focus Group Discussions and Town Hall Meetings • Employee Engagement Surveys • Dialogue Sessions with PCEO • Training and Capacity-building Sessions
Learners: Identified through training management systems.	• Quality Education • Life Skills Development • Career Guidance • Mental Health	• Personal Mentor Sessions • Co-Curricular Activities • Student Forums • Student Surveys
Alumni: Identified through our alumni network and database.	• Continuing Education and Lifelong Learning Opportunities • Opportunities to Give Back	• Alumni Engagement Activities • Alumni Communications (e-newsletters, website, social media)
Agencies: Identified through our partnerships with government bodies and regulatory agencies.	• Alignment with National Agenda and GreenGov.SG Initiatives	• Partnerships • Meetings
Industry Partners: Identified through our customer relationship management system.	• Collaboration Opportunities • Sustainability Insights and Challenges	• Collaborative Forums, Workshops and Roundtable discussion • Sustainability-linked Continuing Education and Training

Leadership and Governance

Policies, Processes and Risk Management

Enterprise Risk Management

Our Enterprise Risk Management (ERM) framework was developed in 2010 as part of NYP's organisational excellence journey to systematically evaluate and mitigate risk. This framework supports our corporate governance by providing consistent processes to identify, mitigate, monitor and report on key risks, while considering environmental changes, strategic focus and direction, and the effectiveness of mitigation controls.

The ERM Committee (ERMC) was set up to monitor and facilitate the implementation of the ERM Policy and Framework with support from the Risk Coordinators and Risk Owners. The ERM Steering Committee provides direction and ensures the overall effectiveness of risk management and reports directly to the Board, which maintains oversight of NYP's risk management and internal controls, policies and system.

Compliance

NYP maintains the highest levels of integrity, transparency, and ethical conduct supported by our policies, procedures, and practices. At NYP, we recognise the critical importance of integrity and ethical behaviour across our institution, as these values nurture trust among our stakeholders. We firmly adhere to anti-corruption measures as a core tenet of our principles and reaffirm our strong commitment to fostering integrity in all our activities. This dedication is upheld through thorough oversight, continuous education, and the implementation of effective anti-corruption policies and practices.

As NYP is a statutory board, our policies are aligned with the guidelines of the Public Service Division and comply with laws and regulations such as those documented in IM8 and the Personal Data Protection Act (PDPA). NYP has existing policies related to compliance in place, including our whistleblowing policies and grievance mechanisms and security controls such as Data Loss Prevention on all endpoints, as well as Database Activity Monitoring installed on all Sensitive High Databases. NYP also has a managed Security Operations Center (SOC) to detect any malicious activities in the environment.

All staff are required to adhere to the Code of Conduct and have undergone training on anti-corruption measures. In FY2023, NYP reported no instances of corruption or breaches related to student privacy.

NYP's ERM Framework

Risk Policy and Strategy
establish objectives and commitment to risk management

Risk Management Process
build risk management into the way we conduct our business

Culture & People
develop the behaviors and skills to identify and respond to risks

Technology & Tools
use aids to facilitate risk management processes

Organisation Structure
communicate, report, and reach informed and approved decisions

Leadership and Governance

Policies, Processes and Risk Management

Diversity, Equity and Inclusion

As an institution of higher learning, we recognise the invaluable contribution of our personnel in driving excellence in education. We are steadfast in our commitment to fostering a vibrant and inclusive environment that celebrates diversity, equity, and inclusion. With a focus on the well-being and growth of our community, we aim to inspire and empower every individual to reach their fullest potential.

Breakdown of staff

	Total	Male	Female
Adjunct Employees	429	199	230
Full-Time Employees[8]	1,350	684	666
Part-Time Employees	5	0	5
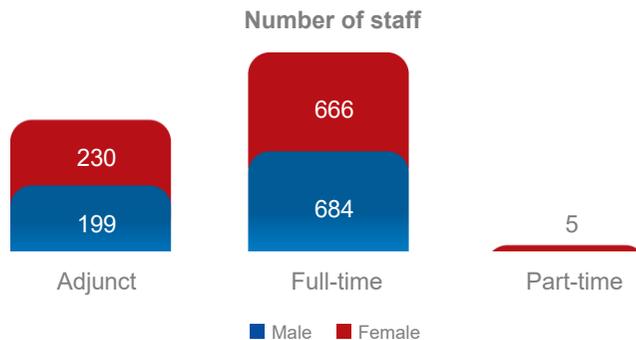
	Number	Percentage
Male	684	50.5%
Female	671	49.5%
Total	1,355	100%

	Number	Percentage
< 30 Years Old	26	2.0%
30 - 50 Years Old	739	54.5%
> 50 Years Old	590	43.5%
Total	1,355	100%

Number of staff

Adjunct	Full-time	Part-time
230 / 199	666 / 684	5

■ Male ■ Female

Number of staff by gender

671 (49.5%)
684 (50.5%)

Number

■ Male ■ Female

Number of staff by age group

590 (43.5%)
739 (54.5%)
26 (2.0%)

Number

■ <30 years old ■ 30-50 years old ■ >50 years old
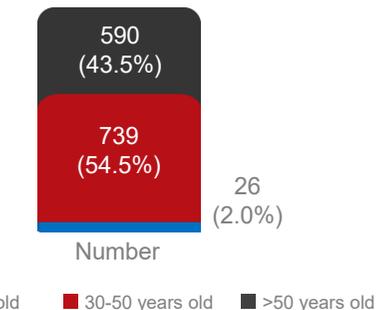
[8] Our full-time employees comprise both fixed-term and permanent employees. Temporary adjunct employees are not considered full-time employees and will not be included in the breakdown of our employee numbers

Leadership and Governance

Policies, Processes and Risk Management

Academic and Non-Academic Staff

By Gender

Academic Staff	Number	Percentage
Male	483	59.5%
Female	328	40.5%
Total	811	100%

Non-Academic Staff	Number	Percentage
Male	201	37.1%
Female	343	62.9%
Total	544	100%

By Age Group

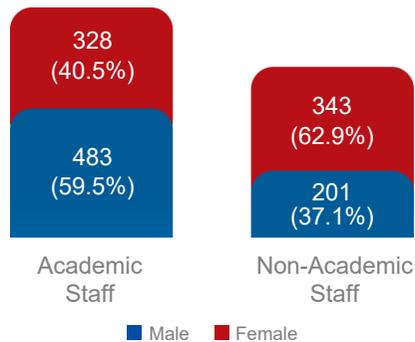| Academic Staff	Number	Percentage
< 30 Years Old	2	0.2%
30 - 50 Years Old	443	54.7%
> 50 Years Old	366	45.1%
Total	811	100%

Non-Academic Staff	Number	Percentage
< 30 Years Old	24	4.6%
30 - 50 Years Old	296	54.3%
> 50 Years Old	224	41.1%
Total	544	100%

Number of Staff by Employee Category and Gender

Academic Staff: Female 328 (40.5%), Male 483 (59.5%)
Non-Academic Staff: Female 343 (62.9%), Male 201 (37.1%)

Legend: Male, Female

Number of Staff by Employee Category and Age Group

Academic Staff: >50 years old 366 (45.1%), 30-50 years old 443 (54.7%), <30 years old 2 (0.2%)
Non-Academic Staff: >50 years old 224 (41.1%), 30-50 years old 296 (54.3%), <30 years old 24 (4.6%)

Legend: <30 years old, 30-50 years old, >50 years old
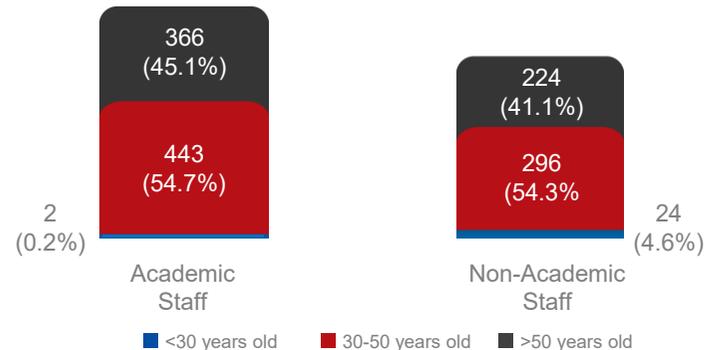
Leadership and Governance

Policies, Processes and Risk Management

Senior Managers and Below (Non-Senior Management)

Academic Staff	Number	Percentage
Male	651	50.5%
Female	640	49.5%
Total	1,291	100%

Non-Academic Staff	Number	Percentage
< 30 Years Old	26	2.0%
30 - 50 Years Old	723	56.0%
> 50 Years Old	542	42.0%
Total	1,291	100%

Assistant Directors and Above (Senior Management)

Academic Staff	Number	Percentage
Male	33	51.6%
Female	31	48.4%
Total	64	100%

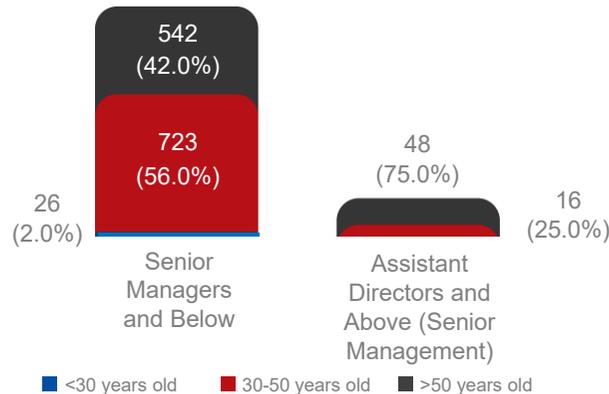| Non-Academic Staff	Number	Percentage
< 30 Years Old	0	0.0%
30 - 50 Years Old	16	25.0%
> 50 Years Old	48	75.0%
Total	64	100%

Number of Staff by Employee Category and Age Group

Senior Managers and Below: 542 (42.0%), 723 (56.0%), 26 (2.0%)
Assistant Directors and Above (Senior Management): 48 (75.0%), 16 (25.0%)

■ <30 years old   ■ 30-50 years old   ■ >50 years old

Number of Staff by Employee Category and Gender

Senior Managers and Below: 640 (49.5%), 651 (50.5%)
Assistant Directors and Above (Senior Management): 31 (48.4%), 33 (51.6%)

■ Male   ■ Female
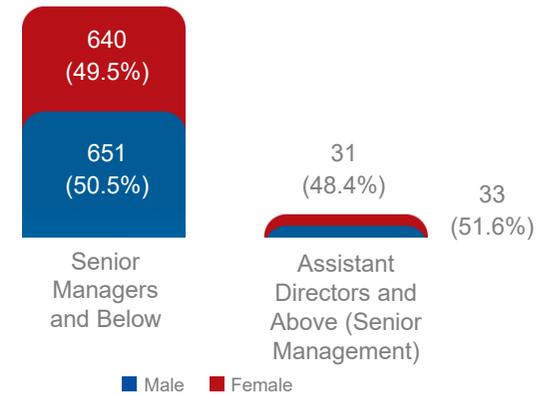
Leadership and Governance

Policies, Processes and Risk Management

New Employee Hires and Turnovers

In FY2023, we welcomed 141 new staff, which resulted in a 10.4% new hire rate[9] while 157 staff left the organisation, a turnover rate[10] of 11.6%

Employee Hires

Academic Staff	Number	Percentage
Male	67	47.5%
Female	74	52.5%
Total	141	100%

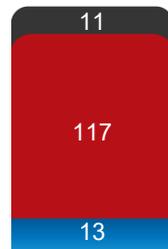| Non-Academic Staff	Number	Percentage
< 30 Years Old	13	9.2%
30 - 50 Years Old	117	83.0%
> 50 Years Old	11	7.8%
Total	141	100%

Employee Turnovers

Academic Staff	Number	Percentage
Male	77	49.0%
Female	80	51.0%
Total	157	100%

Non-Academic Staff	Number	Percentage
< 30 Years Old	8	5.1%
30 - 50 Years Old	70	44.6%
> 50 Years Old	79	50.3%
Total	157	100%

Number of new employee hires by gender

	Number
Female	74
Male	67

Number of new employee hires by age group

	Number
>50 years old	11
30-50 years old	117
<30 years old	13

■ Male ■ Female ■ <30 years old ■ 30-50 years old ■ >50 years old

Number of turnovers by gender

	Number
Female	80 (49.0%)
Male	77 (51.0%)
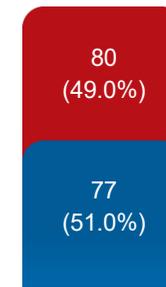
Number of turnovers by age group

	Number
>50 years old	79 (50.3%)
30-50 years old	70 (44.6%)
<30 years old	8 (5.1%)
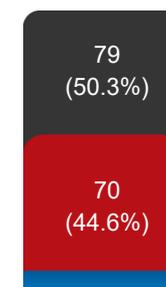
■ Male ■ Female ■ <30 years old ■ 30-50 years old ■ >50 years old

[9] The new hire rate is calculated as the number of new hires over the total number of full-time and part-time employees.
[10] The turnover rate is calculated as the number of staff who left the organisation over the total number of full-time and part-time employees.

Leadership and Governance

Leadership and Talent Development

As a statutory board, NYP takes guidance and provides benefits that are aligned with the Public Service Division (PSD). All our employees are also entitled to maternity and paternity leave.

	Male	Female
Number of employees that took parental leave	14	10
Number of employees that returned to work in the reporting period after parental leave ended	14	10
Number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work	14	9

Care and Well-Being

Employee well-being at NYP is built on five interconnected components, grounded in a mutual purpose and a collective acknowledgement that well-being is a joint responsibility of both management and staff. The framework fosters supportive relationships between employees and management through multiple channels, offering a range of benefits and programmes tailored to meet the needs of our diverse workforce.

Through the NYP Employee Well-Being Framework, we support our employees in 5 key areas:

- **Physical**
- **Psychological**
- **Developmental**
- **Social**
- **Community**

Leadership and Governance

Policies, Processes and Risk Management

Well-Being Programmes and Initiatives

	Programmes and Activities	Facilities and Services	Schemes and Benefits	Staff Awards and Appreciation
Physical: Sustaining Healthy Lifestyles	• Annual Health Screenings • Sports for Life Activities • Workplace Health Promotion (WHP) Programmes	• Gym Facilities (Staff Centre and Satellite Gym)	• Medical and Dental Benefits • Health-Lifestyle Hour • Flexi-Work Arrangements • Flexi-Benefits Allowance	
Psychological: Supporting Healthy Minds	• WHP Mindfulness Programmes • NYP Mental Wellness Talks	• Caring Action in Response to Emergency (CARE) Officers • Counselling Services	• Medical Benefits (Psychological / Psychiatric Visits) • Flexi-Work Arrangements • Flexi-Benefits Allowance	
Developmental: Encouraging Lifelong Learning	• Talks, Workshops, and Learning Journeys • Annual NYP Learning Month • SOLID Sessions • Digital Learning Platform (LEARN)	• Library Resources	• Staff Training Fund • Study Leave	• NYP Staff Awards Day
Social: Building Healthy Relationships	• Eat with your Family Day • Festive Gatherings • NYP Milestone Anniversary Dinners • Dialogue Sessions • Team Bonding Activities • NYPSA Programmes • Union-Management Programmes	• Staff Centre • Corporate Passes • Staff Interaction Space (in progress)	• Staff Welfare Fund • Family-Centered Leave	• Long Service Award • NYP CAREs Award • I-Appreciate
Community: Building Community Ties	• Blood Donation Drives • NYP-in-Action for the Community Programmes		• CSR Leave	

Leadership and Governance

Policies, Processes and Risk Management

NYP Staff Awards Day

The NYP Staff Awards Day is an annual event where we show our appreciation and recognise our staff for their various contributions. We celebrate our staff through 4 different segments.

This year, we proudly celebrated the achievement of over 500 awards earned by our dedicated staff, recognising their hard work, talent and commitment to excellence.

1

Teaching and Learning

The NYP Educator Achievement Award recognises our academic staff who have demonstrated exemplary teaching and learning practices in NYP.

2

Innovation and Enterprise

- The ExCEL series of awards recognises the innovative efforts of our Innovation and Quality Teams and the winning suggestions from Staff Suggestion Scheme participants for trying out new ideas and making changes for improvement.
- The IP Translational Award recognises staff who have successfully created and translated their IPs for commercial adoption.
- The Industry Project Excellence Award recognises project teams that have successfully designed, developed and deployed innovative and impactful products, processes or services that benefit organisations.

3

Service Excellence

The NYP CAREs Award recognises staff who have consistently demonstrated the NYP CAREs Service Principles in the course of their work and interactions with internal and external stakeholders. Our NYP CAREs Service Principles consist of 4 principles to encourage our staff to Collaborate, Anticipate, Reach Out and Empathise.

4

Long Service Award

Long Service Award recognises NYP staff for their years of contribution to the Public Service.

Leadership and Governance

Policies, Processes and Risk Management

Care and Well-Being Initiatives

We introduced the Well-being@Gov programme to all NYP staff – a comprehensive well-being programme that goes beyond the whole of government counselling hotline, building upon existing initiatives that include wellness webinars and workshops.

The Well-being@Gov tool provides our staff with access to self-guided content, 1-to-1 coaching and counselling sessions and a 24/7 distress helpline. We encourage our staff members to empower themselves by taking better care of their health and well-being.

Additionally, we also provide flexi-work arrangements across two options to help our staff manage their work and other responsibilities. NYP staff can choose between a part-time work arrangement or staggered working hours.

Annual Health Screening

Each year, we conduct health screenings for our NYP staff, incorporating eco-friendly practices such as going paperless, providing locally sourced organic food, reducing single-use plastics, and holding the event on-site to eliminate transportation needs. Through various segments, including health assessments and surveys, we encourage healthier lifestyles while promoting environmental responsibility. We celebrate our healthcare team and community's commitment to a sustainable future.

The Annual In-House Health Screening Day highlights our commitment to wellness and sustainability.

We also conduct an annual Mammogram Screening annually to promote awareness and encourage our staff to participate in regular breast cancer screenings. The event highlights the importance of early detection and celebrates the commitment of healthcare providers and volunteers who work tirelessly to make screening accessible to all. This event empowers individuals with knowledge about breast health and screening options.

This year, we proudly honoured the dedication of our healthcare professionals and volunteers whose efforts have strengthened community wellness and enhanced health outcomes.

Leadership and Governance

Policies, Processes and Risk Management

Health and Safety

NYP recognises that workplace safety, health and security (WSHC) is an integral part of its business. We strive to provide a safe, healthy, and secure working environment, the prevention of occupational injuries and illnesses, and mitigate potential terror threats to our employees, students, contractors, and visitors on the main campus and off-site campus.

NYP has a risk management manual, which includes risk management procedures and workplace safety, health and security policy. The risk management manual covers employees, students, contractors and visitors to the main campus and includes common safe work procedures in the offices and campus. NYP complies with the Workplace Safety and Health (Risk Management) Regulations and all workplace safety good practices are shared with staff and contractors.

Our workplace safety, health and security system covers all our staff, schools, departments and service providers. Staff are also briefed on risk control measures and relevant workplace safety good practices.

NYP WSHS Policy

Through our workplace safety, health and security policy, we will

- Comply with all applicable legal and other requirements related to workplace, safety and health and potential security relating to terror threats;
- Promote awareness of workplace health, safety, and security amongst staff, students, contractors, and other personnel working for and on behalf of NYP through education, training, and promotional programmes;
- Establish programmes to encourage continuous improvement in workplace health and safety performance; and
- Work with the relevant agencies to establish standard operating procedures to identify and mitigate potential workplace security threats.

Risk Management Process

We have an established Risk Management process at NYP that includes a risk identification process and a well-defined Hierarchy of Control system. The process and all relevant documents and forms are readily available for staff in the WSHS staff portal:

An assessment is conducted by the Risk Management team to assess and identify any potential workplace hazards.

When work-related incidents occur, the Risk Assessment team will review the original Risk Assessment to have new control measures in place to eliminate the risk or reduce the risk rating according to the hierarchy of risk controls, based on elimination, substitution, engineering controls, administrative controls and/or personal protective equipment.

In FY2023, our Risk Management and Risk Assessment teams attended the bizSAFE Level 2 training. 30% of the team members are also Occupational First Aider trained.

WSHS Committee

Workplace safety and health is mandatory for all businesses and NYP aligns with the Ministry of Manpower's (MOM) Workplace Safety and Health Act. This also covers Hazardous substances.

NYP is accredited bizSAFE Level 3 and audited by an external party every 3 years during the bizSAFE Level 3 recertification process. To prevent or mitigate significant negative occupational health and safety impacts we also aim to have a WSHS Committee that is bizSAFE Level 3 certified.

NYP's WSHC Committee is responsible for ensuring a safe and healthy environment for students and staff. The WSHS Committee and the respective schools and departments' Risk Assessment Team contribute to the identification and elimination of hazards, as well as the minimisation of risks.

On top of the risk management manual, NYP has established various protocols to ensure the health and safety of its learners, employees and contractors:

- Safe Work Procedure for Common Activities
- Emergency Response Plan (ERP)

Leadership and Governance

Policies, Processes and Risk Management

Additionally, NYP's Workplace Health Promotion (WHP) Committee facilitates the promotion of staff health and welfare through activities such as annual health screenings, annual sport-for-life events and lunchtime talks on health-related topics. The NYP Staff Association (NYPSA) also organises exercise activities such as yoga and Zumba classes for staff.

Workplace-Related Injuries

This year we reported 7 minor work-related injuries. These injuries were mainly falls and cuts.

	Number
Number of fatalities as a result of work-related injury	0
Number of high-consequence work-related injuries (excluding fatalities)	0
Number of recordable work-related injuries	7
Number of cases of occupational disease	0
Main types of work-related injury	Falls and cuts

At all our schools, students are briefed on Workplace Safety and Health matters on the proper use of lab equipment before the commencement of the lab activity for the semester. For equipment of higher risk, students are not allowed to operate it without staff supervision. Lab equipment is regularly checked and serviced. Additionally, students are expected to report faulty equipment and safety issues through existing feedback channels.

NYP acknowledges that safety needs can change over time, and we are committed to regularly reviewing and updating our safety protocols as new risks arise, ensuring that our measures remain effective and up to date.

Student Wellness Initiatives

Our students' well-being is important at NYP and we aim to foster an environment that is supportive and nurturing. We provide resources that promote mental health and wellness and encourage our students to seek support through these various initiatives.

We have peer supporters (PS) with training and activities conducted by the PS club. Additionally, we also have workshops on mental wellness and well-being, covering topics like emotional wellness and taking better care of your mental well-being.

Leadership and Governance

Policies, Processes and Risk Management

Counselling and Me Workshops

Overview of the services

The objectives of these workshops are to create awareness of the socio-emotional (SE) counselling support available within NYP and the various channels through which students can access these support services.

Mode of delivery

- Online

Key issues addressed

- Create awareness on the SE counselling services available
- Provide a platform for the students to learn about counselling and to educate them on the counselling services/ mental well-being resources available in the NYP Student Portal
- Promote self-help behaviours and early intervention for students with mental health issues

Frequency and reach

- Twice per semester and offered through Student Life Academy (SLA) to all students

HiChat

Overview of the services

WhatsApp service for students to chat with SE Counsellors when they reach out for support within NYP.

Mode of delivery

- WhatsApp messaging platform manned by SE Counsellors on weekdays, 11 am to 4 pm

Key issues addressed

- Questions about the counselling process; how to make a counselling appointment; and on confidentiality concerns

Frequency and reach

- All students can access HiChat from the student portal at any time and expect a reply from the SE Counselling team the next working day, between 11 am to 4 pm
- On average, 5 queries a month
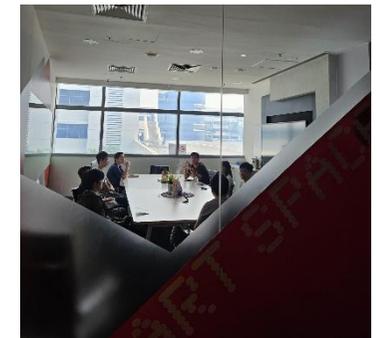
Leadership and Governance

Policies, Processes and Risk Management

Dear Counsellor Letter

Overview of the services

Dear Counsellor was a new initiative since November 2023 for students to reach out to the SE Counsellors via email.

Mode of delivery

- Students access Dear Counsellor via the NYP Student Portal, or through the mass email sent usually at the start of a new semester
- SE Counsellors will respond via email within 5 working days

Key issues addressed

- Students who feel more comfortable to talk about their issues with writing can receive the needed support. Most issues were friendship and academic related

Frequency and reach

- Total of 21 Dear Counsellor letters from students have been received from 23 November to 24 September 2024
- 3 students have requested for subsequent counselling sessions
- Dear Counsellor is available to all students

Socio-emotional and Mental Health Resources in NYP Student Portal

Overview of the services

Information on mental health resources and self-help tools are made available to students in the NYP Student Portal.

Mode of delivery

- Online Student Portal accessible 24/7

Key issues addressed

- Mental health and socio-emotional issues related to students as they juggled the academic, social, family and developmental concerns and problems

Frequency and reach

- Online 24/7 availability on the NYP Student Portal website
- Accessible by all enrolled students in NYP

Sweet Dreams Mental Wellness Workshop

In February 2024, 30 NYP students participated in the Sweet Dreams Mental wellness workshop organised by the PS Club. This workshop aimed to educate participants on mental wellness, specifically focusing on stress management in light of upcoming exams. Participants acquired valuable skills, including an understanding of effective stress management techniques, interactions with counsellors, and practical strategies for handling stress and preparing for exams. They engaged in a variety of interactive activities designed to relieve stress and deepen their understanding of stress management. Additionally, participants had the opportunity to learn from an NYP counsellor who shared insights on stress management and mental wellness.

Our participants had positive feedback for the workshop, citing that it provided them with valuable insights and practical tools for managing stress, especially as they approached the exam period. The tips on mental wellness and stress management were relatable and practical.

Technical Appendix

09

Technical Appendix

GHG Emissions

Organisational Boundary

- It is based on the operational control approach, with reference to the GHG Protocol's Corporate Accounting and Reporting Standard.

- It covers NYP's campus but excludes entities outside NYP's operational control, which refer to Singapore Institute of Technology (SIT@NYP), tenants, ACI and SIRS.

Emission Factors for Scope 2

- The emission factors for Scope 2, 0.412 $kgCO_2e$/kWh, was obtained from the Energy Market Authority's Grid Emission Factor for 2023.

Emission Factors for Scope 1

- The emission factors applied to estimate Scope 1 emissions were obtained from the 2023 edition of conversion factors published by the UK Department for Energy Security and Net Zero (DESNZ) (formerly under Department for Environment, Food and Rural Affairs (DEFRA)) and the Ministry of Sustainability and the Environment (MSE) GreenGov.SG report. The emission sources that are included in NYP's Scope 1 computation are:

Emission Source	Emission Factors	Unit of Measurement
Town gas	15.20	tC/TJ
	5	kgCH4/TJ
	0.1	kgN2O/TJ
Diesel (100% mineral diesel)	2.66	$kgCO_2e$/litre
Refrigerant (R410A)	1,924.00	$kgCO_2e$/kg

Technical Appendix

Energy

Definition of Energy Utilisation Index(EUI)

- Our definition of EUI and baseline EUI is aligned with the GreenGov.sg initiative

- Our Gross Floor Area (GFA) for FY2023 is 251,552 m^2.

EUI
$$\frac{\text{NYP's Total Building Energy Consumption Amount in Year}_n \text{ (kWh)}}{\text{Total Campus Gross Floor Area in Year}_n \text{ (m}^2)}$$

Baseline EUI
$$\frac{\sum \text{NYP's Total Building Energy Consumption Amount between FY2018 and FY2020 (kWh)}}{\sum \text{Total Campus Gross Floor Area between FY2018 and FY2020 (m}^2)}$$

Technical Appendix

Water

Definition of Water Efficiency Index (WEI)

- Our definition of WEI and Baseline WEI is aligned with the GreenGov.sg initiative

- NYP operates 302 days a year.

WEI
$\dfrac{\text{NYP's Total Water Consumption Amount in Year}_n \text{ (L)}}{\text{Operating Days in Year}_n}$ $\times$ (Average Number of Staff per Day + 0.25 (Average Number of Visitors per Day) in Year$_n$)

Baseline WEI =
$\dfrac{\sum \text{NYP's Total Water Consumption Amount between FY2018 and FY2020 (L)}}{\text{Average Operating Days}}$ $\times$ $\sum$(Average Number of Staff per Day + 0.25 (Average Number of Visitors per Day) between FY2018 and FY2020)

Technical Appendix

Waste

Definition of Waste Disposal Index (WDI)

- Our definition of WDI is aligned with the GreenGov.sg initiative

- NYP operates 302 days a year.

WDI
$$\frac{\text{NYP's Total Waste Disposal Amount in Year}_n \text{ (kg)}}{\text{Operating Days in Year}_n}$$ $$\times$$ $$(\text{Average Number of Staff per Day} + 0.25 (\text{Average Number of Visitors per Day}) \text{ in Year}_n)$$

GRI Content Index

10

GRI Content Index

Statement of use: Nanyang Polytechnic (NYP) has reported with reference to the GRI Standards for the period 1 April 2023 to 31 March 2024.
GRI 1 used: GRI 1: Foundation 2021

Disclosure No.	Disclosure Topic	Page Reference
General Disclosures		
GRI 2 (2021): General Disclosures		
2-1	Organisational details	Annual Report
2-2	Entities included in the organisation's sustainability reporting	Annual Report
2-3	Reporting period, frequency and contact point	4
2-5	External assurance	4
2-6	Activities, value chain and other business relationships	9 – 11
2-7	Employees	57
2-9	Governance structure and composition	Annual Report
2-10	Nomination and selection of the highest governance body	As a NYP is a statutory board, the Board of Governors is appointed by the Government.
2-11	Chair of the highest governance body	The Chairman is not a senior executive in the organisation.
2-12	Role of the highest governance body in overseeing the management of impacts	52, 55
2-13	Delegation of responsibility for managing impacts	52, 55
2-14	Role of the highest governance body in sustainability reporting	52, 55
2-15	Conflicts of interest	55
2-16	Communication of critical concerns	55
2-17	Collective knowledge of the highest governance body	52

Disclosure No.	Disclosure Topic	Page Reference
General Disclosures (Contd.)		
GRI 2 (2021): General Disclosures (Contd.)		
2-18	Evaluation of the performance of the highest governance body	As NYP is a statutory board, this includes sensitive information and will not be disclosed due to confidentiality reasons.
2-19	Remuneration policies	As NYP is a statutory board, compensation policies are aligned with the guidelines of the Public Service Division.
2-20	Process to determine remuneration	As NYP is a statutory board, compensation policies are aligned with the guidelines of the Public Service Division.
2-21	Annual total compensation ratio	As NYP is a statutory board, this includes sensitive information and will not be disclosed due to confidentiality reasons.
2-22	Statement on sustainable development strategy	6
2-23	Policy commitments	11, 52, 64
2-24	Embedding policy commitments	11, 52, 64
2-25	Processes to remediate negative impacts	54 – 55
2-26	Mechanisms for seeking advice and raising concerns	54 – 55

GRI Content Index

Disclosure No.	Disclosure Topic	Page Reference
General Disclosures (Contd.)		
GRI 2 (2021): General Disclosures (Contd.)		
2-27	Compliance with laws and regulations	55
2-29	Approach to stakeholder engagement	54
GRI 3 (2021): Material Topics		
3-1	Process to determine material topics	16 – 17
3-2	List of material topics	18
Education and Research		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	26
GRI 404 (2016): Training and Education		
404-2	Programmes for upgrading employee skills and transition assistance programmes	27 – 28
404-3	Percentage of employees receiving regular performance and career development reviews	28
Local Communities		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	37
GRI 413 (2016): Local Communities		
413-1	Operations with local community engagement, impact assessments, and development programs	37 – 39
Energy		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	46

Disclosure No.	Disclosure Topic	Page Reference
Energy (Contd.)		
GRI 302 (2016): Energy		
302-1	Energy consumption within the organisation	46 – 47
302-3	Energy intensity	46 – 47
5	Reductions in energy consumption compared to baseline year	46 – 47
Water and Effluents		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	47
GRI 303 (2018): Water and Effluents		
303-1	Interactions with water as a shared resource	47
303-2	Management of water discharge-related	47 – 48
303-5	Water consumption	48
Emissions		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	48 – 49
GRI 305 (2016): Emissions		
305-1	Direct (Scope 1) GHG emissions	48 – 49
305-2	Energy indirect (Scope 2) GHG emissions	48 – 49
Waste		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	49
GRI 306 (2020): Waste		
306-1	Waste generation and significant waste-related impacts	49
306-2	Management of significant waste-related impacts	50
306-3	Waste generated	49 – 50

GRI Content Index

Disclosure No.	Disclosure Topic	Page Reference
Waste (Cont'd)		
GRI 306 (2020): Waste (Cont'd)		
306-4	Waste directed to disposal	49 – 50
306-5	Waste directed from disposal	49 – 50
Policies, Processes and Risk Management		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	55
GRI 205 (2016): Anti-corruption		
205-1	Operations assessed for risks related to corruption	55
205-2	Communication and training about anti-corruption policies and procedures	55
205-3	Confirmed incidents of corruption and actions taken	55
GRI 418 (2016): Customer Privacy		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	55
Diversity, Equity and Inclusion		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	56
GRI 401 (2016): Employment		
401-1	New employee hires and employee turnover	59
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	60
401-3	Parental leave	60
GI 405 (2016): Diversity and Equal Opportunity		
405-1	Diversity of governance bodies and employees	56 – 58

Disclosure No.	Disclosure Topic	Page Reference
Health and Safety		
GRI 3 (2021): Material Topics		
3-3	Management of material topics	65
GRI 403 (2018): Occupational Health and Safety		
403-1	Occupational health and management system	64
403-2	Hazard identification, risk assessment, and incident investigation	64
403-3	Occupational health services	64
403-4	Worker participation, consultation, and communication on occupational health and safety	64
403-5	Worker training on occupational health and safety	64
403-6	Promotion of worker health	63 – 67
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	63 – 67
403-8	Workers covered by an occupational health and safety management system	64
403-9	Work-related injuries	65