FY2023 SUSTAINABILITY REPORT

A LIVING LAB TO CREATE TOMORROW'S SOLUTIONS

The Tanjong Tree, located at TP's main entrance symbolises a waypoint for each TP learner's education journey and represents TP's commitment to educate, guide, and nurture the next generation.

Temasek POLYTECHNIC
CREATING TOMORROW

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

CONTENT INDEX

1

Introduction
& Board
Messages

ABOUT THIS REPORT

Temasek Polytechnic (TP) is pleased to publish this inaugural sustainability report as our commitment towards sustainable development in the organisation.

SCOPE OF THE REPORT

This report covers all Environmental, Social, and Governance (ESG) initiatives and performance at TP for the financial year 1 April 2023 to 31 March 2024. Our sustainability indicators and processes are not subject to internal and external assurance. This report is to be read in conjunction with our FY2023 Annual Report and other sustainability-related disclosures on our website.

REPORTING FRAMEWORK AND STANDARDS

This Sustainability Report is prepared with reference to the following:

- Global Reporting Initiative (GRI) Standards 2021
- Sustainability Accounting Standards Board (SASB) standards in the Education sector (SV-ED)

GUIDING PRINCIPLES

As a Singapore government Statutory Board, our targets and sustainability strategy are guided by Singapore's public sector (GreenGov.SG framework) and national ambitions.

We also take guidance from the Sustainability Tracking Assessment & Rating System (STARS)[1], the United Nations Sustainable Development Goals (UN SDGs) and International Financial Reporting Standards (IFRS) S2[2].

[1] STARS, a programme of the Association for the Advancement of Sustainability in Higher Education, is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance.
[2] We referenced IFRS S2 as the standard for our disclosures on strategy and management of climate-related risks and opportunities.

FEEDBACK

Please send all feedback to sustainability@tp.edu.sg.

CHAIRMAN'S MESSAGE
on behalf of the Board

Climate change remains a pressing global crisis, with global warming accelerating at an alarming rate. The Conference of Parties 28 also highlighted the urgent need to enhance climate action. Back home, Singapore's third National Climate Change Study forecasts higher temperatures, heavier rainfall, and more frequent dry spells by 2100.

Singapore launched the SG Green Plan 2030 and GreenGov.SG initiatives to advance sustainable development by setting ambitious emission reduction targets. At TP, we find ourselves at a critical juncture where the need for climate action has never been more apparent. As leaders in an institute of higher learning, we aim to set an example by proactively aligning with national sustainability goals.

The Board is collectively responsible for TP's long-term success and provides strategic sustainability direction by ensuring sustainability-related issues are integrated into TP's overall business strategy. This year, we formalised our sustainability governance structure to drive, monitor and execute our sustainability strategy across TP.

In 2023, the Board reviewed and validated the relevance of the 16 material ESG topics and will continue to oversee TP's sustainability reporting and management of our sustainability performance.

On behalf of the Board, we express our sincere gratitude to our stakeholders for your unwavering support as we lead initiatives towards a more sustainable and resilient future. By harnessing our collective expertise and resources, we are well-positioned to catalyse impactful change and achieve our sustainability ambitions.

> " We believe that our role as stewards of the higher learning sector goes beyond academic excellence; it extends to nurturing a culture of sustainability and environmental responsibility among our staff and students. "

Mr Loke Wai San
Chairman
Temasek Polytechnic

PCEO'S MESSAGE

> ❝ **Our sustainability plan which rests on five key pillars, and ambitious targets of achieving net–zero emissions by 2045 underpin our commitment to the sustainability agenda.** ❞

Mr Peter Lam
Principal & CEO
Temasek Polytechnic

As a leading institute of higher learning in Singapore with the capacity to mould the world's future workforce, TP recognises our role in nurturing environmental stewardship among our staff, students, and the community.

We developed a comprehensive sustainability plan which rests on five key pillars and implemented institutional measures to drive progress in these areas.

1 Academics & Curriculum
We equip students and working adults with knowledge and skills in sustainability through our curricula.

2 Research & Innovation
We advocate research and innovation to tackle sustainability challenges by collaborating with industry partners.

3 Facilities & Operations
We embrace a low-carbon economy by enhancing resource efficiency and reducing carbon emissions through the use of Internet of Things (IoT) sensors and process optimisation.

4 Engagement & Well-being
We prioritise the wellness and safety of our students and staff while engaging in positive social impact initiatives within the community.

5 Strategy & Compliance
We uphold the highest corporate governance standards through robust internal policies and procedures, underscoring our dedication to accountability and transparency.

OUR JOURNEY AHEAD
Advancing our sustainability ambitions is a collective journey and each of us plays a crucial role in this endeavour. I invite you to read TP's inaugural sustainability report to gain deeper insights into our progress towards a sustainable future. We are committed to making sustainability a priority and working closely with stakeholders for sustainable development.

2

Sustainability Highlights

SUSTAINABILITY HIGHLIGHTS

TP's sustainability journey is guided by five key pillars. These pillars represent different aspects of TP's sustainability efforts within the campus, student body, and broader communities. Sustainability concepts are extensively incorporated specifically into the curriculum. This is to empower **all TP students with comprehensive green skills** so that they can be advocates for sustainability in any sector they join. Additionally, TP actively **supports companies in their sustainability journey,** providing assistance in areas like carbon accounting, baselining, and implementing solutions to reduce their carbon footprint.

Pillar 1 — Academics & Curriculum

40
Sustainability-related Pre-Employment Training (PET)[3] core and elective subjects

Sustainability & Climate Action subject delivered to PET students as a foundational subject
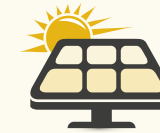
75
Sustainability-related Continuing Education & Training (CET)[3] subjects/courses

9 industry partners worked with TP to develop sustainability-related CET courses

Pillar 2 — Research & Innovation

Secured over **70** sustainability-related projects of which **9** were environmental and food innovation projects

Attained over **S$800k** sustainability-related research grants

Achieved over **S$100k** sustainability-related licensing revenue

Achieved over **S$200k** sustainability-related industry projects

[3] PET refers to subjects in the full-time diploma programmes, while CET refers to courses in the part-time or specialist diploma programmes, short courses or micro-learning courses.

SUSTAINABILITY HIGHLIGHTS

Pillar 3 — Facilities & Operations

24.4%
reduction in Energy Utilisation Index[4]

29.1%
reduction in Water Efficiency Index[4]

3.9%
reduction in Scope 2 emissions from FY2022

18.4%
increase in Waste Disposal Index from FY2022

Pillar 4 — Engagement & Well-being

Awarded the **People's Association Community Spirit (Excellence) Award**

86%
Overall Organisation Employee Engagement Survey Score

97.9%
Student Satisfaction Rate *(Student Experience Survey 2023)*

1st Runner-up
Best Career Development Programme (Organisation) Award 2023

Zero
reported cases of major injuries and fatalities

Pillar 5 — Strategy & Compliance

Zero
reported cases of corruption, bribery and information security breach

Embarked on TP's **first climate-related disclosures**
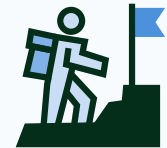
Implemented **green procurement criteria** for tender processes

Upgraded
TP's data loss protection practice

[4] Compared to the baseline year being the average of FY2018–2020 levels

3

Sustainability Approach

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

> **We place sustainability at the heart of everything we do and seek to nurture stewards of the environment.**

CSO'S MESSAGE

In 2023, Temasek Polytechnic (TP) marked a significant milestone with the release of our inaugural Sustainability Report, underscoring our commitment to a sustainable future. This report reflects our collective efforts in fostering a culture of sustainability within our campus, among our students, and within the broader communities we engage with.

Central to this commitment is our unique **Living Lab philosophy**—a dynamic learning environment where students and staff actively participate and innovate to address pressing sustainability challenges. For instance, our student–led energy audit identified areas of inefficient energy usage on campus, and TP followed up with installing LED bulbs where needed. Such projects not only advanced our sustainability goals but also enriched the students' learning journey.

TP plays a crucial role in advancing sustainability within the ecosystem in two key areas. Firstly, **we equip and empower all students at TP to become leaders and advocates for sustainability** by incorporating it extensively into our curriculum. Our students are trained with fundamental, cross–functional, and industry–specific green skills, ensuring they can drive sustainability initiatives in any sector they enter. Secondly, we continually develop capabilities to **assist companies on their sustainability journey.** This includes helping them with carbon accounting, baselining work, and providing applied solutions to reduce their carbon footprint. We also integrate human behavioural sciences to effect fundamental changes in lifestyle and work practices.

While we celebrate our sustainability progress, we acknowledge challenges ahead, particularly in waste management. With increasing waste generation, it is critical to shift behaviours and mindsets. Our Centre for Applied Behavioural Sciences (CABS) will be instrumental in promoting sustainable behaviours through a deeper understanding of human behavior.

On our sustainability journey, we have also formed a collaborative community with sustainability teams from other polytechnics. We share best practices and align our efforts with sustainability reporting standards, allowing us to learn from each other and continuously adapt our strategies. Together, we are making strides towards a greener tomorrow, embracing the challenges as opportunities for learning and growth.

Mr Wallace Lim
Chief Sustainability Officer
Temasek Polytechnic

TP'S SUSTAINABILITY JOURNEY

Integrating sustainability principles into TP's building design is an architectural approach we are founded on. TP's unique location next to Bedok Reservoir not only allows our architecture to leverage natural cooling and ventilation features for sustainability initiatives, it exemplifies how we can coexist with nature while promoting sustainable practices.

1995
Introduced Diploma in Intelligent Building Technology (first sustainability diploma)

2001
Certified ISO14001 – Environment Management System

2007
Set up Clean Energy Research Centre

2009
Set up first Environmental Student Interest Group – Green Interest Group

2012
First Green Mark certification

First solar panel installation

2018
Set up Eco-Campus Committee

2019
Set up Centre for Urban Sustainability

2021
Major upgrade of chiller plants

2023
Delivered the subject, *Sustainability & Climate Action,* for all PET students

Set up Sustainability Committee

2045
NET ZERO

Achieve net zero in Scope 1 and 2 emissions

One of the steps we have taken to demonstrate our commitment to sustainability and achieve our target of net zero emissions by 2045, is the establishment of five dedicated pillars to facilitate the implementation of sustainability initiatives and policies in TP.

SUSTAINABILITY GOVERNANCE

TP's governance framework signals our commitment to managing sustainability-related matters, ensuring an alignment with TP's corporate values and objectives.

This framework aims to integrate sustainability principles into decision-making processes, promote continuous improvement, and uphold our commitment to our stakeholders and the environment.

Board

- Provides strategic oversight of TP's sustainability strategy
- Assumes overall responsibility for TP's sustainability performance
- Reviews and approves Environmental, Social & Governance (ESG) material topics

Principal and Chief Executive Officer (PCEO)

- Sets the direction and tone of TP's sustainability strategy, initiative and policies
- Ensures sustainability is within TP's operations and aligned with the interests of stakeholders

Chief Sustainability Officer (CSO)

- Leads the Sustainability Committee
- Strategises and oversees TP's sustainability initiatives

Sustainability Committee

Academics & Curriculum	Research & Innovation	Facilities & Operations	Engagement & Well-being	Strategy & Compliance

- Comprises representatives from different departments and schools
- Facilitates the reporting of sustainability data
- Provides guidance on sustainability-related matters
- Drives sustainability initiatives
- Monitors the progress of ESG performance against targets

STAKEHOLDER ENGAGEMENT

There is a diverse and large group of stakeholders who is significantly involved in or influenced by our operations. We actively engage with stakeholders through established channels illustrated below.

Stakeholder	Mode of Engagement	Key Topics and Concerns
Staff	■ New Hire Orientation ■ Employee engagement surveys ■ Internal Career Opportunity Fair, training workshops and events ■ Staff Communication Sessions	■ Career development ■ Diversity, equity and inclusion ■ Occupational health and well-being ■ Remuneration and benefits ■ Work-life balance
Students	■ Care Person forums ■ Festivals and themed events ■ Student forums ■ Meetings with Student Union and Interest Groups	■ Education and career guidance ■ Quality education and resources access ■ Mental health and well-being support
Parents	■ TP Open House ■ Surveys ■ Online feedback channels	■ Quality of education ■ Students' safety and well-being
Communities	■ Publications (e.g. annual reports) ■ Community engagement programmes ■ Activities and communications ■ Corporate website	■ Communication of TP's sustainability progress ■ Environmental stewardship
Suppliers	■ Due diligence visits ■ Meetings and calls ■ Tender processes	■ Regulatory compliance ■ Procurement practices
Partners (e.g., Corporations, Academic Institutions)	■ External meetings and conferences ■ Student internship ■ Staff industry attachment	■ Collaboration opportunities ■ Sustainable performance and practices
Alumni	■ Alumni sharing ■ Networking events and activities	■ Continuing education and lifelong learning opportunities ■ Networking and career development support

MATERIALITY ASSESSMENT

1 UNDERSTAND Our Value Chain

Conducted an internal review of TP's value chain and our associated sustainability context through:

- Site visits
- Physical interviews
- Interactions with key representatives from schools, Centres of Excellence and departments

2 IDENTIFY Relevant ESG Factors

Conducted online surveys with stakeholders to gather insights on their sustainability-related concerns.

Organised a materiality assessment workshop with Senior Management to identify sustainability-related impacts.

3 ASSESS Significance of Impacts

Assessed the severity of negative impacts and the scale and scope of positive impacts.

Further evaluated potential impacts based on their likelihood of occurrence.

4 PRIORITISE Significant Impacts

Prioritised impacts based on its significance and associated it to a relevant material topic.

Ensured the relevancy and completeness of material topics through:

- Peer benchmarking exercises
- Engaging external consultants

5 CONCLUDE Material Topics

Validated and endorsed the finalised material topics by TP's Board.

Grouped material topics under TP's five sustainability pillars.

In FY2023, TP conducted our first materiality assessment with reference to the GRI 3: Material Topics 2021 standards. This assessment ensured that our sustainability efforts focus on the most significant impacts that could affect TP or that TP could influence from a sustainability standpoint.

Our approach comprises five distinct steps that guide our strategic approach to identifying, prioritising, and addressing key material topics.

The materiality assessment, conducted over a five-month period, involved over 1,200 survey responses to ensure comprehensive and insightful results.

In total, **16 topics were assessed to be material** and are listed in the next page.

Material topics are reviewed by the Board and Senior Management.

FIVE SUSTAINABILITY PILLARS AND MATERIAL TOPICS[5,6]

Pillar 1 — Academics & Curriculum

Sustainability Curriculum Integration

Infuse sustainability into the curriculum through TP's Pre-Employment Training (PET) and Continuing Education & Training (CET) subjects/offerings

SDGs: 4 Quality Education, 8 Decent Work and Economic Growth, 13 Climate Action
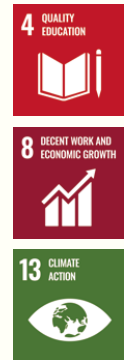
Pillar 2 — Research & Innovation

Research and Industry Linkages

Facilitate the transfer of knowledge, expertise, and innovation between the academic and industrial sectors

SDGs: 2 Zero Hunger, 7 Affordable and Clean Energy, 11 Sustainable Cities and Communities, 4 Quality Education, 8 Decent Work and Economic Growth, 12 Responsible Consumption and Production, 6 Clean Water and Sanitation, 9 Industry, Innovation and Infrastructure, 14 Life Below Water
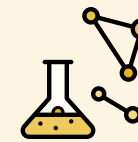
Pillar 3 — Facilities & Operations

Energy Management

Optimise energy usage through the use of smart technologies and process optimisation

Water Management

Responsible use and stewardship of water resources

GHG Inventory and Management

Contribute to global efforts to combat climate change through TP's climate action strategy

Waste Management

Promote a circular economy and sustainable waste management practices

SDGs: 6 Clean Water and Sanitation, 7 Affordable and Clean Energy, 12 Responsible Consumption and Production

[5] Although topics of "Global Citizenship" and "Employability of Graduates" were deemed material as part of the materiality assessment, they are not disclosed in this report. Disclosures associated with these topics have already been provided in TP's Annual Report and under the Polytechnic Graduate Employment Survey (GES).
[6] We reference relevant UN SDGs associated with the respective material topics.

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

FIVE SUSTAINABILITY PILLARS AND MATERIAL TOPICS[5,6]

Pillar 4
Engagement & Well-being

Human Capital Management

Foster an inclusive culture and prioritise staff well-being as well as career development

Student Well-being

Invest in a range of support services and resources to guide students through their educational journey

Community Engagement and Impact

Foster positive and meaningful social impact for our community and stakeholders

Occupational Health and Safety

Cultivate a safe, healthy, and sustainable working environment

SDGs: 4 Quality Education, 13 Climate Action, 5 Gender Equality, 16 Peace, Justice and Strong Institutions, 8 Decent Work and Economic Growth, 10 Reduced Inequalities

Pillar 5
Strategy & Compliance

Anti-Corruption

Operate with utmost integrity through policies, training and oversight mechanisms

Climate-related Risk Management

Integrate climate considerations into our decision-making processes

Green Procurement Policies

Drive positive environmental change through responsible resource management

Information Security Including Privacy

Safeguard sensitive information and privacy rights of TP's stakeholders

SDGs: 12 Responsible Consumption and Production, 16 Peace, Justice and Strong Institutions, 17 Partnerships for the Goals, 13 Climate Action

---

[5] Although topics of "Global Citizenship" and "Employability of Graduates" were deemed material as part of the materiality assessment, they are not disclosed in this report. Disclosures associated with these topics have already been provided in TP's Annual Report under the Polytechnic Graduate Employment Survey (GES).

[6] We reference relevant UN SDGs associated with the respective material topics.

SUSTAINABILITY STRATEGY

A living lab to create tomorrow's solutions

This tree is inspired by the iconic Tanjong tree situated at TP's main entrance. Tanjong, meaning "promontory" or "cape" symbolises a waypoint for each TP learner's educational journey. The evergreen nature of the tree represents our conviction that education is a cycle of perpetual learning, discovery, and growth.

We are committed to creating a future where education and innovation come together in a practical real-world setting (the Living Lab philosophy) to foster sustainable practices.

Human Capital Management

Employability of Graduates

Information Security Including Privacy

Community Engagement and Impact

Waste Management

Anti-Corruption

GHG Inventory and Management

Alumni

Occupational Health and Safety

Partners

Staff

Communities

Water Management

Sustainability Curriculum Integration

Students

Parents

Climate-related Risks Management

Student Well-being

Suppliers

Research and Industry Linkages

Green Procurement Policies

Energy Management

Global Citizenship

The Tanjong tree's trunk and branches represent our stakeholders and their collective effort in enhancing sustainability within and beyond TP.

The roots of the tree symbolise our commitment to building a strong foundation in sustainability through the five pillars which are related to the relevant UN SDGs.

Pillar 1 — Academics & Curriculum

Pillar 2 — Research & Innovation

Pillar 3 — Facilities & Operations

Pillar 4 — Engagement & Well-being

Pillar 5 — Strategy & Compliance

4

Pillar 1
Academics
& Curriculum

*Inspiring sustainability
through education*

Our Material Topic
Sustainability Curriculum Integration   20

TP offers a strong sustainability-infused education for students and working adults. Our programmes impart the necessary knowledge and skills so that learners can engage effectively in sustainable practices.

Sustainability Curriculum Integration

Our Material Topic

Infuse sustainability into our curriculum through TP's PET and CET subjects/offerings

Our Targets

- Develop a roadmap for launching sustainability-related curriculum in PET and CET from FY2022 to FY2025
- Identify six or more core domain areas for relevant staff in TP to specialise in and deepen their sustainability-related skills
- Pilot six or more CET programmes focused on supporting companies, especially SMEs, in their green transformation through strong partnerships

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

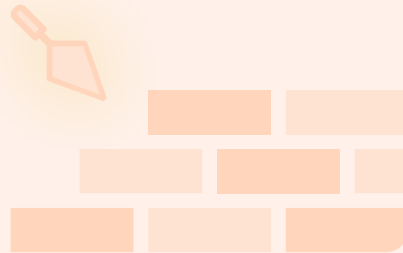Pillar 5 Strategy & Compliance

Appendix

OUR REPORT FOR FY2023

40
Sustainability-related PET core and elective subjects

Sustainability & Climate Action subject
delivered to PET students as a foundational subject

75
Sustainability-related CET subjects/courses

9 **industry partners**
worked with TP to develop sustainability-related CET courses

MATERIAL TOPIC

SUSTAINABILITY CURRICULUM INTEGRATION

OUR COMMITMENT AND APPROACH

As an Institute of Higher Learning (IHL), we play a pivotal role in advancing environmental education and equipping our students and professionals with cutting-edge sustainability skills. We pledge to deliver a sustainability-infused curriculum that empowers our community to influence, lead and create a sustainable future. To achieve this, we offer a diverse range of sustainability-related courses across disciplines and provide opportunities beyond the classroom for students and professionals to apply their knowledge.

EMBEDDING SUSTAINABILITY INTO OUR CURRICULUM

Sustainability topics and life skills have been integrated into our curriculum. Local and overseas competitions, learning journeys, and internships further expand students' horizons about sustainability. Our graduates are industry-ready, equipped with skills, knowledge, and the attributes of lifelong learners, future-oriented creators, and values-centred leaders.

School of Engineering students learning sustainable building design

Cultivate essential skills such as effective communication, leadership, innovation, creativity, critical thinking, and wellness.

TP Fundamentals

OUR DIPLOMA ACADEMIC STRUCTURE

LEARNER. CREATOR. LEADER

Diploma Core Subjects

Provide students with technical knowledge and skills training for basic proficiency in key areas of their field.
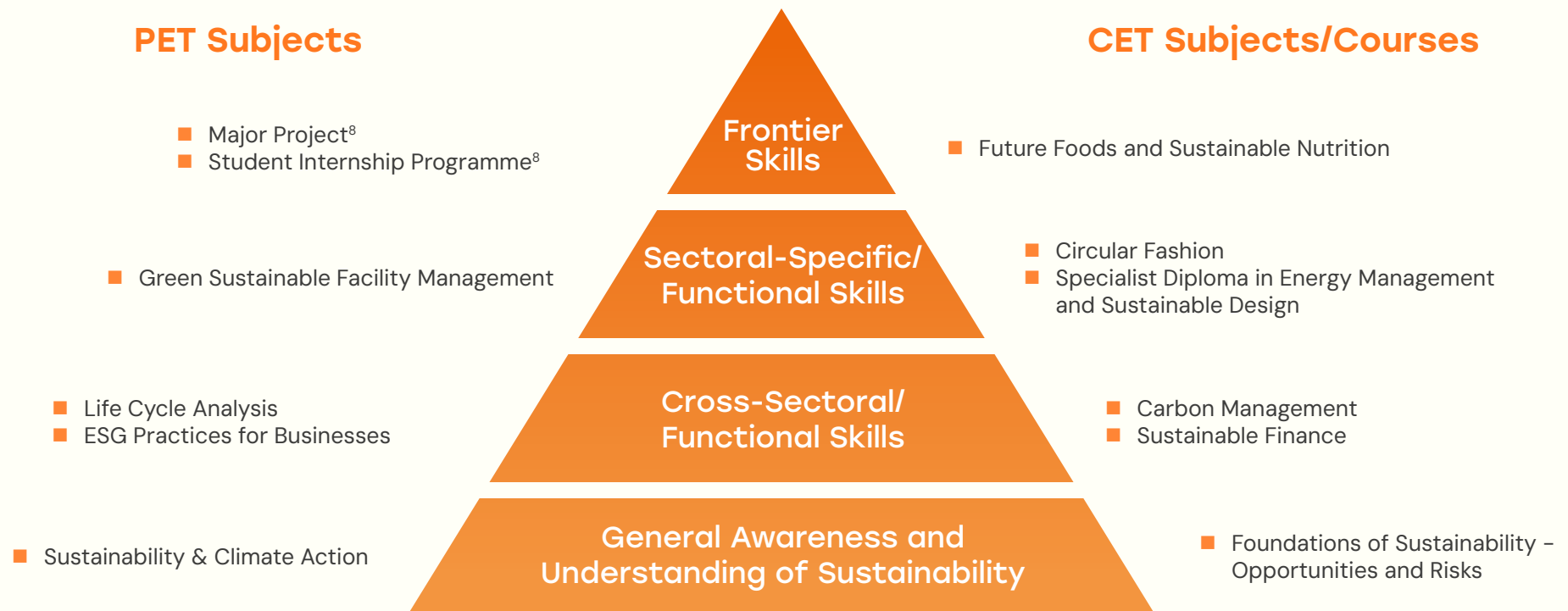
Diploma Electives

Enable students to gain insights, acquire skills, or diversify their knowledge based on their interests, career goals, or specialisation requirements.

TP's PET Diploma Academic Structure

SUSTAINABILITY CURRICULUM INTEGRATION

TP'S SUSTAINABILITY CURRICULUM FRAMEWORK

Our four-tiered sustainability curriculum framework provides a comprehensive understanding of sustainability principles and practices across disciplines and diplomas. Students are first equipped with a general awareness of sustainability as a foundation. Subsequently, this knowledge is deepened with cross-sectoral and sectoral-specific sustainability skills. While our focus has been on the first three tiers, "Frontier Skills" was introduced as a fourth tier to share emerging skill needs in line with SkillsFuture Singapore[7]. This illustration is a non-exhaustive list of subjects and/or courses:

PET Subjects

- Major Project[8]
- Student Internship Programme[8]

- Green Sustainable Facility Management

- Life Cycle Analysis
- ESG Practices for Businesses

- Sustainability & Climate Action

CET Subjects/Courses

Frontier Skills

- Future Foods and Sustainable Nutrition

Sectoral-Specific/ Functional Skills

- Circular Fashion
- Specialist Diploma in Energy Management and Sustainable Design

Cross-Sectoral/ Functional Skills

- Carbon Management
- Sustainable Finance

General Awareness and Understanding of Sustainability

- Foundations of Sustainability – Opportunities and Risks

Sample subjects/courses under TP's Sustainability Curriculum Framework

[7] SkillsFuture Singapore leads the national SkillsFuture movement, fostering a culture of lifelong learning, skills mastery, and enhancing Singapore's education and training ecosystem.
[8] Students have the opportunity to intern at startups and research institutes to work on cutting-edge sustainability projects. Major Project is a semester-long subject where final year students get to apply their diploma skillsets in a project of their choice.

SUSTAINABILITY CURRICULUM INTEGRATION

PRE-EMPLOYMENT TRAINING – DIPLOMA CORE & ELECTIVE SUBJECTS

TP provides sustainability–related subjects to meet industry demand for sustainable practices.

15

PET diplomas that have developed at least one sustainability–related subject

40

PET sustainability–related diploma core and elective subjects offered

1-2

Sustainability-related subjects delivered to each student on average

In alignment with our commitment to the UN SDGs and with reference to the STARS reporting framework, we have mapped each subject to the relevant 17 UN SDGs.
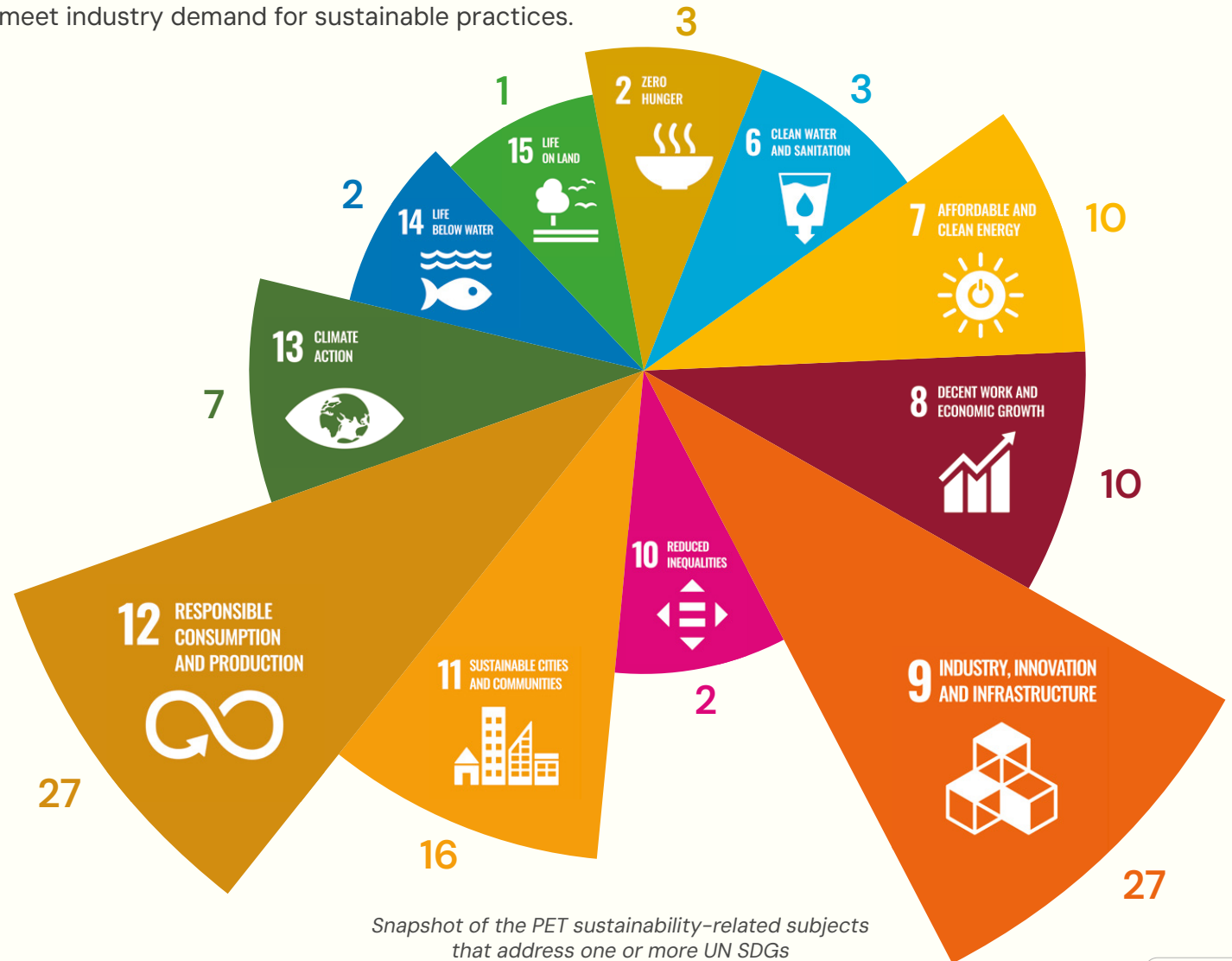
Snapshot of the PET sustainability–related subjects that address one or more UN SDGs

SUSTAINABILITY CURRICULUM INTEGRATION

Sustainability & Climate Action (SCA) Subject

Since April 2023, TP introduced a first-year fundamental subject, SCA, to:

- educate students on the impact of climate change
- empower students to think innovatively and apply sustainability principles to tackle contemporary issues
- foster global perspectives and community responsibility

Showcase of students' projects at ECO HIVE @ TP Library
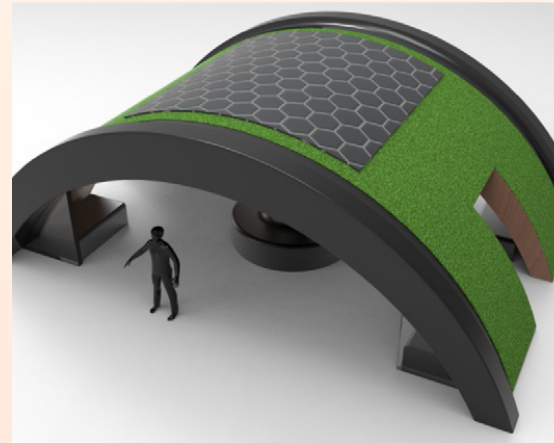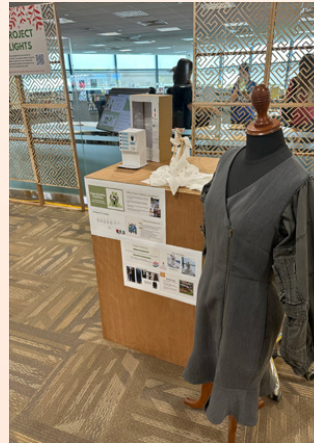
Ecolink – a proposed redesign of bus stops to utilise green technology

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

SUSTAINABILITY CURRICULUM INTEGRATION

PRE-EMPLOYMENT TRAINING – HOLISTIC PEDAGOGY

Sustainability education requires an interdisciplinary approach. It is crucial for our students to see the bigger picture and connect ideas and concepts across different disciplines.

Harmonising Sustainability and Innovation: The Diploma in Architectural Technology & Building Services (ABS) and Diploma in Integrated Facility Management (IFM)

The ABS and IFM courses foster interdisciplinary learning in sustainable-built environment, focusing on energy management, sustainable design, high performance building operation and green project management. This approach enables students to understand the interconnectedness of their disciplines and drive sustainable change.
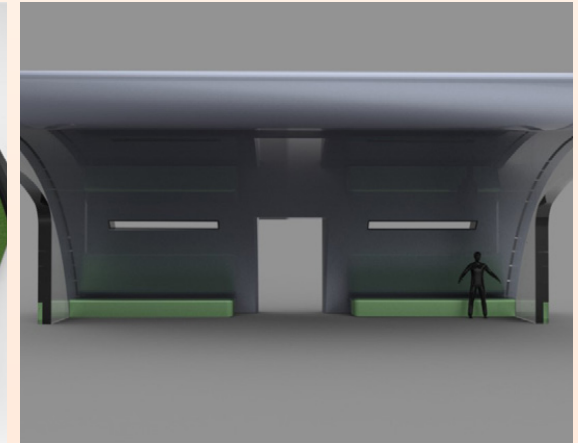
Students are also offered the opportunity to attain industry–recognised certifications such as the Fire Safety Manager Certification from the Singapore Civil Defence Force (SCDF) and the Digital Delivery Management Certification – Tier 4 (Provisional).

ABS students studying TP's Block 26B green roof layout

Collaboration between the Diploma in Culinary & Catering Management (CCM) and Diploma in Food, Nutrition & Culinary Science (FNC)

Students from CCM and FNC collaborated to create a 100% plant–based burger. This collaboration provided a platform for mutual learning and knowledge exchange. FNC students gained insights into consumer behaviour, cost requirements, and marketing strategies from their CCM peers. Conversely, CCM students learned about recipe formulation from FNC students, using ingredients like firm tofu, oats, and mushrooms to replicate the taste and texture of meat. The end product was a 100% plant–based burger, lauded by consumers for its delicious taste and texture reminiscent of meat.

Students creating their 100% plant–based burger in the School of Applied Science kitchen

SUSTAINABILITY CURRICULUM INTEGRATION

PRE-EMPLOYMENT TRAINING - BEYOND THE CLASSROOM

We emphasise industry-relevant and real-world applications to empower learners to critically engage with complex issues and develop the competencies needed for sustainable solutions.

APPLIED RESEARCH / INTERNSHIP	STUDENT PROJECT	COMPETITION	INDUSTRY COLLABORATION

The Green Wave Environmental Care Competition team consisting of TP interns under TP's Centre of Urban Sustainability.

Snapshot of "My Little Forest", a Final Year Project that teaches sustainability values to children.

The Horizon Hydrogen Grand Prix team.

Presentation of the Building Services Management System.

Advanced Mechanical Recycling of Mixed Plastic Waste from Municipal Waste Streams

A process was developed to replace the manual sorting of plastic waste and efficiently predict the composition of mixed plastics.

Awards:
Green Wave Environmental Care Competition 2023 – Silver Award

"My Little Forest"

A reimagined play concept that imparts sustainable values to children through storytelling & hands-on experiences with clay made from natural pigments & ingredients.

Awards:
International Design Awards 2023 Gold in EcoDesign (Sustainable Educational Products category) and Silver in Toys, Gaming & Leisure (Kids Toy category)

Horizon Hydrogen Grand Prix

An international educational initiative centred on racing radio-controlled cars powered by hydrogen fuel-cell technology.

Awards:
5th place in the 2023 global race

Revolutionising Facility Management with AIoT for Sustainable Operations

TP, in partnership with Republic Power and LS2 Holdings, is test-bedding an Artificial Intelligence of Things (AIoT) Building Services Management System to operate buildings with less carbon emissions.

SUSTAINABILITY CURRICULUM INTEGRATION

CONTINUING EDUCATION & TRAINING - LIFELONG LEARNING

TP provides 75 subjects/courses dedicated to sustainability, to help working adults contextualise sustainability for their workplaces.

Through close interactions with employers, we shape our courses to incorporate the latest competencies for the green economy.

4
CET sustainability-related specialist diplomas

45
CET sustainability-related subjects (offered as part of various diplomas/specialist diplomas)

30
Sustainability-related short and micro-learning courses

>12,000
Sustainability-related programmes training hours

Click here to explore TP's CET course offerings

SUSTAINABILITY CURRICULUM INTEGRATION

CONTINUING EDUCATION & TRAINING - LIFELONG LEARNING

Specialist Diploma in Environment & Water Technology (SDEWT)

The SDEWT course is designed to equip learners with the skills needed to support Singapore's environmental initiatives in managing air, water, and solid waste.

In FY2023, the curriculum of the SDEWT course was updated to align with the upcoming Specialist Diploma in Environmental Technology & Energy Sustainability. This update introduced a shared Post-Diploma Certificate in Sustainable Utilities System, emphasising pollution control and energy management.

Furthermore, new modules were developed in collaboration with the National Environment Agency (NEA). These modules are designed to help learners to achieve the Associate Singapore Certified Energy Manager (ASCEM) accreditation upon completion of the course.

Learner engaged in an on-site inspection

"TP taught me sustainability skills and knowledge in environmental technologies, and research skills in environmental sustainability research.

TP has a wide range of CET programmes tailored to evolving industry needs. After completing my full-time Diploma in Chemical Engineering back in 2017, I went on to enrol in the Specialist Diploma in Environment & Water Technology in 2019. I am starting my Specialist Diploma in Sustainable Fashion this April 2024."
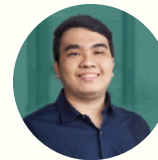
Tan Shi Zhou
Former president of TP Sustainability Interest Group. Graduated in 2017. Currently the Sustainability and Impact Lead at Flint (a deep-tech climate startup).
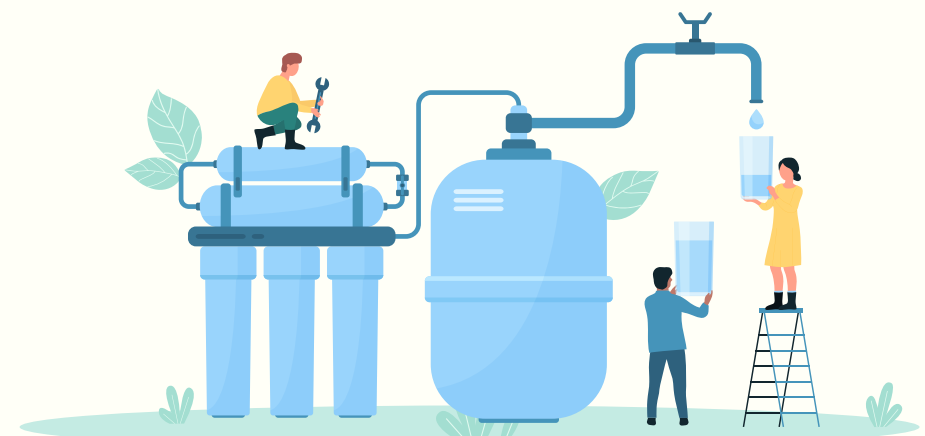
SUSTAINABILITY CURRICULUM INTEGRATION

FUTURE PLANS

In line with our commitment to sustainability, we are dedicated to continually enhancing our curriculum to address emerging challenges and opportunities. Here are some of our upcoming courses and collaborations:

TP has plans for the following PET and CET courses and certifications

PET
- Diploma in Mechatronics & Diploma in Electronics with National EV Specialist Safety (NESS) certification
- Analytics for Environment Sustainability subject

CET
- Diploma in Business Practice (Sustainability Management)
- Specialist Diploma in Sustainability Reporting, Specialist Diploma in Environmental Technology & Energy Sustainability
- Food Waste Composting & Soil Health for Carbon Reduction short course

TP will be collaborating with:

- BlueSG to introduce a micro-learning course on Electric Vehicles to promote safety and car sharing
- Institute of Engineers (IES) to coordinate a micro-credential workshop package to support the registration of Chartered Engineer (Sustainability)
- National Environment Agency (NEA), Environmental Management Association of Singapore (EMAS) and SkillsFuture Singapore (SSG) to develop a Singapore Career Transition Train & Place (SCTP) programme for the Environmental Management & Services sector

5

Pillar 2
Research & Innovation

Creating Sustainable Solutions Through Innovation

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

We establish strong partnerships with industry leaders to foster innovation and enhance research capabilities. This allows us to conduct applied research aimed at addressing both industry-specific and broader societal challenges.

Research and Industry Linkages

Our Material Topic

Facilitate the transfer of knowledge, expertise, and innovation between the academic and industrial sectors

Our Targets

Environmental and food sustainability-related innovation project targets:

- **FY 2024**
  28 projects

- **FY 2025**
  32 projects
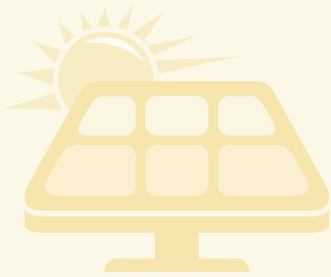
Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

OUR REPORT FOR FY2023

Secured over 70 sustainability related projects of which **9** were environmental and food sustainability-related innovation projects

Attained over S$800k sustainability-related research grants
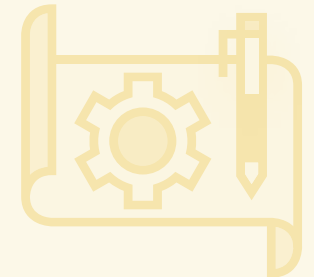
Achieved over S$100k sustainability-related licensing revenue

Achieved over S$200k sustainability-related industry projects

OUR COMMITMENT AND APPROACH

Research and industry linkages are crucial for driving innovation, enhancing practical applications, and ensuring that academic advancements align with industry needs. We are committed to advancing knowledge and developing cutting-edge solutions that address sustainability challenges. We achieve this by investing in key research areas and recognising the importance of incorporating behavioural science, a non-STEM[9] discipline, as an enabler to facilitate the adoption of sustainable practices.

MATERIAL TOPIC

RESEARCH AND INDUSTRY LINKAGES

RESEARCH

TP believes that Research, Innovation & Enterprise (RIE) activities are pivotal in preparing students to be industry-ready and maintaining staff relevancy. **We embrace the living lab philosophy, where students and staff from multiple disciplines use the TP campus as a testbed to innovate and create solutions.** To encourage staff to explore research collaborations in sustainability, we launched the Temasek Polytechnic Research Fund (TPRF) thematic grant call in sustainability and have awarded at least 4 projects where each project has the potential to make a meaningful impact.

TP TECHNOLOGY CLUSTERS

Food Sustainability	Environment Sustainability	Healthcare & Nutrition	Intelligent Systems
Agri-Food Tech	Sustainable Materials	Applied Nutrition	Advanced Manufacturing
Future Foods	Energy Systems	Healthcare Engineering	Robotics & Automation

Enabling Technologies

Analytical Science, Artificial Intelligence, Behavioural Science, Cyber Security, Immersive Media, Internet of Things

[9] Non-STEM refers to academic programmes other than science, technology, engineering, or mathematics.

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

RESEARCH AND INDUSTRY LINKAGES

Sustainable Materials

Located within the School of Applied Science, the Centre for Urban Sustainability (CUS) specialises in two key research areas: managing and recycling solid waste for strategic building materials and waste valorisation. CUS works closely with industry partners to innovate in resource management and production, generating intellectual properties in the process.

Mixed plastic aggregate concrete footpath at TP's Tembusu Garden

Mixed plastic modified asphalt pavement at Samwoh Smart Hub

Mixed Plastics Technology
Sustainable Concrete Pavement

With funding from the National Environment Agency's Closing The Waste Loop Initiative, CUS has developed a proprietary mixed plastic library using spectroscopy. This library can predict the composition of recycled mixed plastics in real-time with over 97% accuracy, enabling their use as aggregates to replace sand in concrete mixes, enhancing sustainability and reducing environmental impact.

The team has also successfully carried out two full-scale pilot trials. The first trial involved a mixed plastic modified asphalt pavement at Kranji Way and Samwoh Smart Hub. The second trial was a mixed plastic aggregate concrete footpath at TP Tembusu Garden. In addition to these trials, a 15-month environmental baseline study was conducted to ensure that the materials used were safe, stable and did not leach into the environment.

Click here to explore more projects undertaken by CUS

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

RESEARCH AND INDUSTRY LINKAGES

Sustainable Materials

Design and Fabrication of Sustainable Outdoor Benches Incorporating Recycled Plastic

CUS proposed an eco-friendly initiative of constructing park benches using recycled plastic waste and cement-based materials. Each bench would repurpose approximately 1 kg of plastic waste. The Tampines Town Council, in an effort to involve the community, has encouraged Tampines residents and local schools to contribute their plastic waste for the creation of more benches. The goal is to install these benches in parks over the next five years.

Poster about Eco-Park Benches

Eco-Park Bench

Students sitting on the Eco-Park Bench

Click here to explore more projects undertaken by CUS

RESEARCH AND INDUSTRY LINKAGES

Agri-Food Tech

To support the growth of a sustainable aquaculture industry in the region, TP hosts the national Aquaculture Innovation Centre (AIC) and operates the TP Centre for Aquaculture & Veterinary Science (CAVS) for teaching and training sustainable practices. TP's focus areas in aquaculture include:

1	2	3	4	5
Genetics, Breeding & Seed Production	**Nutrition, Feeds, Additives & Feeding**	**Health & Disease Management**	**Integrated Aquaculture Systems**	**Water & Waste Management**
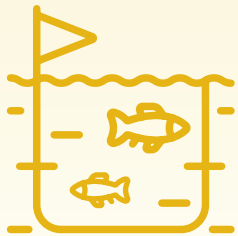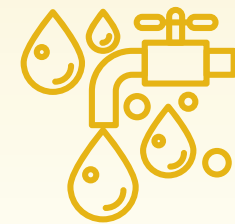
These areas work together to develop high-density Self-Monitoring And Reporting Technologies (SMART) aquaculture systems.

⟐ **Click here to explore more projects undertaken by AIC**

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

RESEARCH AND INDUSTRY LINKAGES

Agri - Food Tech

Food and Agriculture Organisation of United Nations (FAO) & AIC Mud Crab Expert Workshop

This workshop, jointly organised by FAO and AIC on the topic of mud crab farming saw 20 regional experts share their insights on the challenges and innovative solutions in this field. Many experts shared about their exploration of strategic directions, practices, and suggestions with the aim of promoting a sustainable mud crab farming industry.

Presentation by an industry expert on fostering a sustainable mud crab aquaculture

Participants at a mud crab farm

Single Cell Protein (SCP) cultivated from soybean wastewater for fish meal replacement in fish feeds

Published in Springer Nature, January 2024

AIC has created a revolutionary feed for Asian seabass and vannamei shrimps, using Single Cell Protein (SCP), created by the Nanyang Technological University (NTU), that is produced from wastewater of a local soybean milk manufacturing plant. The tests show that these feeds, which replace half the fish meal with SCP, support the growth of the fish.
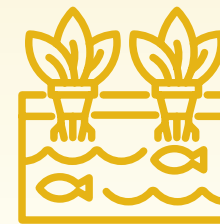
Pellet Formulation with Recycled Fish Guts and Fruit Waste as Alternative Commercial Fish Feed

Presented at World Aquaculture Society Conference 2023; Young Scientist Symposium 2023 (Merit Award)

The current cost of commercial fish feed is high and with the growing demand for seafood in Singapore, the overhead costs for fish farming are increasing too. To address this, a new fish feed solution has been developed by Centre for Aquaculture & Veterinary Science (CAVS) that repurposes discarded fish guts and fruit waste. This solution creates fish pellets that are enriched with omega-3, -6, and -9 fatty acids as well as essential amino acids.

Click here to explore more projects undertaken by AIC

Click here to explore more projects undertaken by CAVS

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

RESEARCH AND INDUSTRY LINKAGES

Energy Systems

Our focus is to work on energy storage and conversion systems (such as fuel cells) by increasing energy efficiency and reducing carbon footprint.

Battery Recycling
Redox-Based Lithium Battery Material Recycling

Unlike conventional recycling processes that require high temperatures, TP's Clean Energy and Research Centre (CERC) developed a battery recycling process that operates at ambient conditions. This technology uses no additional chemicals and produces no secondary waste. It reduces expenses by 30-40% compared to traditional methods and has the added benefit of producing hydrogen as a valuable by-product.
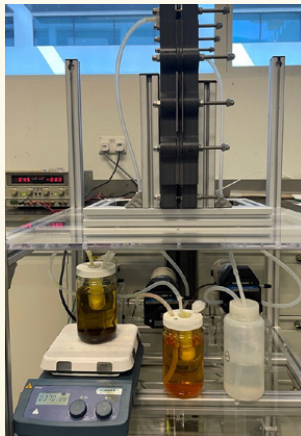
Lithium battery material recycling prototype with novel filtration system

Robotics and Automation

We have developed platforms and improved workflows to enhance efficiency, productivity, and quality.

Pneumatic Transmission System

TP's Advanced Manufacturing Centre's (AMC) Smart Factory teamed up with SMC Corporation to create a system that combines a pneumatic transmission system with an AI-powered Smart Air Management System. This system can identify problems and provide live updates using real-time data. TP AMC is planning to introduce this eco-friendly solution to more factories.
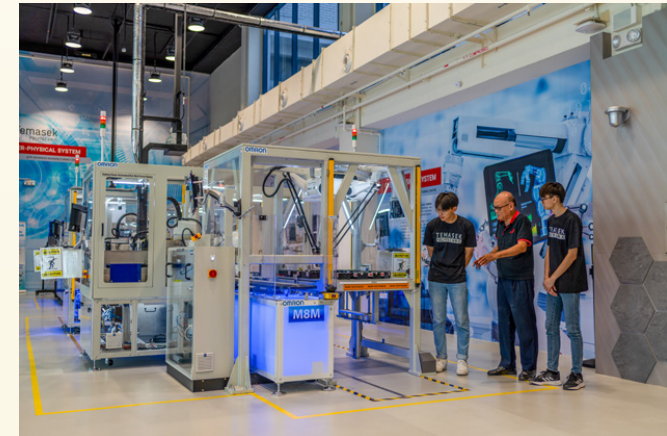
SMC Corporation's AI-equipped Smart Air Management System

Click here to explore more projects undertaken by CERC

Click here to explore more projects undertaken by AMC

RESEARCH AND INDUSTRY LINKAGES

Digitalisation and Business Transformation

The Digital Business Transformation Centre (DBTC) supports companies in their digital transformation journeys. DBTC develops strategies across diverse industries such as retail, digital marketing, ecommerce, social media, block chain and analytics to deliver positive outcomes.

The TP eCommerce Centre (TPEC), managed by DBTC, offers students a platform to enhance their digital retail marketing skills through practical learning in an eCommerce and retail environment.

Digitalisation and Transformation of the Retail Sector

Since 2019, DBTC has partnered the Singapore Retailers Association to enhance their social media marketing by curating engaging content, integrating it with virtual and physical events, and gaining recognition for their Global Ready Talent Programme. DBTC served as the marketing partner for the National Excellent Service Award (EXSA), which drew 5,193 award recipients from 139 participating companies in 2023.

Finalists of EXSA Superstar Award

1st Avenue Unmanned Retail Outlet

TPEC's first unmanned retail outlet, 1st Avenue, received The Eco Shop Elite certification from the Singapore Environment Council for 2023–2025. It is the first retail outlet of a local tertiary institution to attain an Eco Shop status.

1st Avenue retail outlet (24 hours)

> " Engaging with these projects provided invaluable insights into the ever-evolving landscape of social media marketing, enabling me to remain at the forefront of industry trends. I have to constantly upskill my technical competencies in digital content development and also to nurture my staff.
>
> Moreover, I seized the opportunity to mentor and enhance the skills of student interns, staff, graduates, and industry partners through collaborative digital business and social media initiatives. "

Joan Ho
Senior Consultant at DBTC
Senior Lecturer at School of Business

Click here to explore more projects undertaken by DBTC

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1
Academics & Curriculum

Pillar 2
Research & Innovation

Pillar 3
Facilities & Operations

Pillar 4
Engagement & Well-being

Pillar 5
Strategy & Compliance

Appendix

RESEARCH AND INDUSTRY LINKAGES

Behavioural Science

The Centre for Applied Behavioral Sciences (CABS) has collaborated with public service agencies and industry partners on projects and workshops aimed at promoting sustainable behaviours. Through a deeper understanding of human behaviour, CABS enhances technological innovations and the design of interventions to encourage sustainable practices.

Using Behavioural Insights to Nudge Hotel Guests towards Sustainable Behaviours

Students from the Diploma in Psychology Studies in collaboration with Citadines Connect Rochester Singapore, a property under The Ascott Limited, conducted a study on increasing the use of Alternative Water Sources and Water Carrying Devices among hotel guests. Close to 500 participants were involved in this study to understand the benefits and impacts of the potential nudges for promoting pro-environmental behaviours.

Collaboration project with Citadines Connect – Ascott CARES

Click here for more "Behaviourial Science" case studies and projects during the year

RESEARCH AND INDUSTRY LINKAGES

FUTURE PLANS

The School of Engineering plans to work with industry partners and associations to organise a regional workshop for discussing projects and advancements in hydrogen technology.

BeyonDesign Centre is leading design projects to reduce material waste, including assisting Pepperwall[10] in material reduction and recovery for renovations and designing reusable retail booths for Clarins[11].

[10] Pepperwall is a furniture and home furnishings manufacturer.
[11] Clarins is a French multinational cosmetics company.

6

Pillar 3
Facilities & Operations

Building resilience and resource efficiency

Our Material Topics

We strive to enhance resource efficiency and reduce carbon emissions through the use of smart technologies and process optimisation.

	Energy Management	Water Management	GHG Inventory and Management	Waste Management
Our Material Topics	Optimise energy usage through technologies and behavioural interventions	Responsible use and stewardship of water resources	Contribute to global efforts to combat climate change through TP's climate action strategy	Promote a circular eonomy and sustainable waste management practices
Our Targets	■ 49% reduction in Energy Utilisation Index (EUI) by FY2030[12] ■ Achieve Green Mark Super Low Energy (SLE) Platinum for 6 buildings by FY2026	■ 34% reduction in Water Efficiency Index (WEI) by FY2030[12]	■ 35% reduction in Greenhouse Gas (GHG) emissions by FY2030, compared to baseline year of FY2023 ■ Achieve Net Zero for Scope 1 and 2 emissions by 2045	■ 30% reduction in waste disposed or Waste Disposal Index (WDI) by FY2030, compared to the baseline year of FY2022

[12] Compared to the baseline year being the average of FY2018–FY2020 levels

OUR REPORT FOR FY2023

24.4%
reduction in Energy Utilisation Index[13]

29.1%
reduction in Water Efficiency Index[13]

3.9%
reduction in Scope 2 Emissions from FY2022
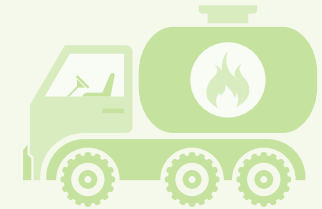
18.4%
increase in Waste Disposal Index from FY2022

[13] Compared to the baseline year being the average of FY2018–FY2020 levels

MATERIAL TOPIC

ENERGY MANAGEMENT

OUR COMMITMENT AND APPROACH

Efficient energy management is TP's priority and is integral to reducing our carbon footprint. We manage our energy consumption by upgrading our chiller systems for improved efficiency, enhancing our Internet of Things (IoT) to monitor real-time consumption, and harnessing renewable energy through the use of solar panels.

ENERGY CONSUMPTION

TP achieved a 24.4% reduction in EUI in FY2023, compared to the baseline year of FY2018–FY2020 levels. **We are proud to announce that we have exceeded Green.Gov's target of achieving a 10% reduction in EUI by FY2030.** Moving forward, we strive to reduce our EUI by up to 49% from our baseline by FY2030.

While the age and design structure of the buildings on campus present certain challenges and restrictions for energy management such as limited roof space for solar panels installation, we are actively exploring innovative solutions to enhance our buildings' energy efficiency. We foresee our energy performance will continue to improve with advancing technology.

Energy Consumption

	FY2018–FY2020 (Baseline)	FY2021	FY2022	FY2023
Energy Consumption (MWh)	40,570	34,708	31,527	30,288
Energy Utilisation Index (kWh/m^2)	119.3	101.8	94.6	90.2
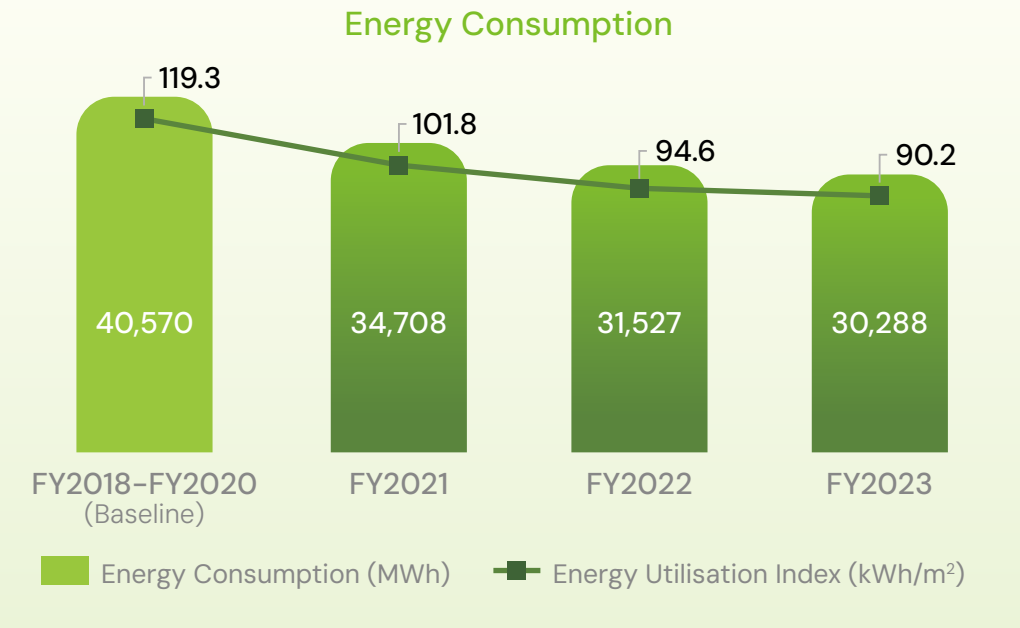
ENERGY MANAGEMENT

ENERGY REDUCTION INITIATIVES

TP is constantly on the hunt for energy efficient technologies, with trials carried out and reviewed periodically. We developed sustainable design strategies for our buildings such as installing energy efficient lighting systems and improving façade designs to reduce overall energy consumption.

Monthly meetings were set in place to chart our campus utility conservation journey and review on-going initiatives. **One of our initiatives was the upgrade of chiller systems[14] which significantly reduced our overall energy consumption.**

Additionally, the solar panels on TP's rooftops generated 117,990 kWh of electricity in FY2023, which supports our electricity consumption. While acknowledging the current limitations of our electricity generation capacity, we have strategic plans underway to expand our solar panel installations outlined in the 'Future Plans' section.

Solar panels on the rooftop of TP's buildings

Internet of Things (IoT) sensors integration with Facility Booking System and Building Management System - Air Con Management System

TP created an integrated smart air-conditioning control system to reduce energy consumption and ensure optimal thermal comfort for staff and students. By merging several smart systems, we can precisely control the air-conditioning's operational timings.

Occupancy → IoT Sensors (Occupancy) → Status → Chope A Facility

CloudTT → Data → Chope A Facility

sTMS → Data → Chope A Facility

Chope A Facility → Command

Report a Fault

Command

[14] For more information on our upgrade of chiller systems, refer to Page 54 of this Report

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

ENERGY MANAGEMENT

FUTURE PLANS

Install more solar panels which aim to produce about 6% of TP's FY2022 energy consumption by FY2028

Attain SLE Platinum for 6 of our buildings by FY2026 and actively involve our students in the feasibility studies

Implement real-time monitoring and tracking capabilities to efficiently manage energy and water consumption across our facilities

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

OUR COMMITMENT AND APPROACH

We recognise water as a precious natural resource and understand the crucial role water stewardship plays in environmental sustainability and the well-being of our stakeholders. We reaffirm our dedication to effective water management through a holistic approach which includes reducing our reliance on potable water, adopting sustainable water management practices and investing in water conservation technologies.

MATERIAL TOPIC

WATER MANAGEMENT

WATER CONSUMPTION

TP relies on both potable and non-potable water (NEWater) drawn from municipal sources for human consumption, cleaning, and horticulture needs. In FY2023, there was a 29.1% decrease in WEI compared to the baseline years of FY2018–FY2020 levels. This reflected the effectiveness of TP's water conservation efforts. **We have successfully achieved GreenGov's FY2030 target of reducing WEI by 10% from FY2018–FY2020 levels, and we are committed to achieve a total of 34% reduction from our baseline by FY2030.**

All wastewater generated is discharged responsibly, adhering strictly to regulatory guidelines governing wastewater discharge and diversion.

Total water consumed and water efficiency index (WEI)

	FY2018–FY2020 (Baseline)	FY2021	FY2022	FY2023
Water consumed (m³)	259,998	224,253	226,301	217,909
WEI (L/person/day)	62.7	88.8	44.3	44.4

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

WATER MANAGEMENT

WATER REDUCTION INITIATIVES

TP conducts weekly monitoring and tracking of water consumption to detect leaks or irregularities in usage. Any outliers are investigated to ensure they align with school activities.

To conserve natural resources such as potable water, we try to use NEWater where possible. In FY2023, about 51.8% of our total water consumption was derived from NEWater.

Breakdown of total water consumed by source

	FY2021	FY2022	FY2023
NEWater (m³)	133,324 (59.5%)	114,167 (50.4%)	112,825 (51.8%)
Potable water (m³)	90,929 (40.5%)	112,134 (49.6%)	105,084 (48.2%)

NEWater (m³)   Potable water (m³)
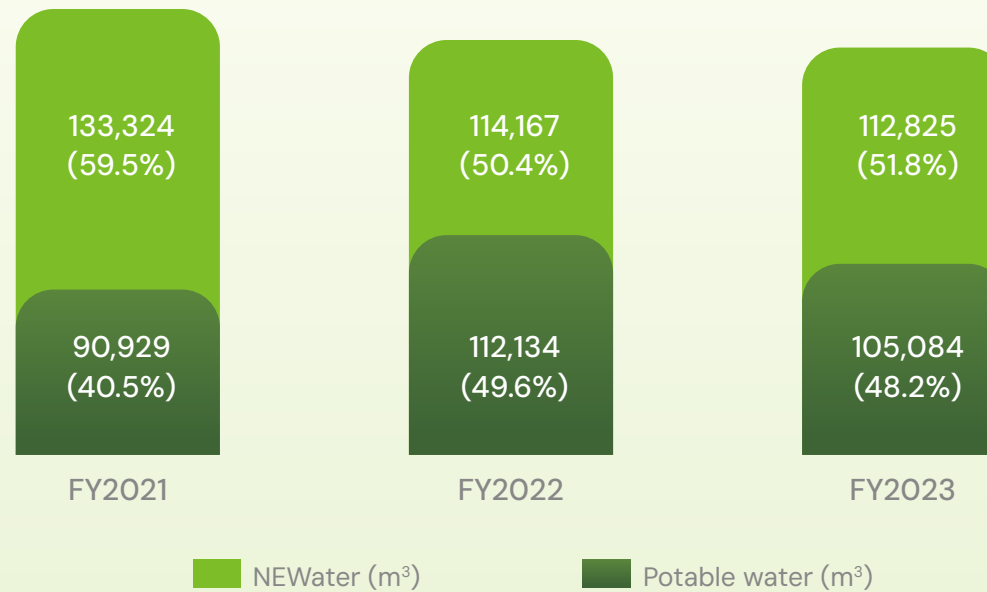
WATER MANAGEMENT

All water fittings and appliances in TP have a 3-tick rating under Singapore's Public Utility Board's Mandatory Water Efficiency Labelling (WELS) grading system.

Cooling Towers

TP upgraded the cooling tower water treatment systems from chemical to non-chemical methods. Non-chemical methods conserve water by reducing the frequency of water discharged. **This strategic shift has enabled TP to achieve annual savings of 8,485 m^3 of water.**
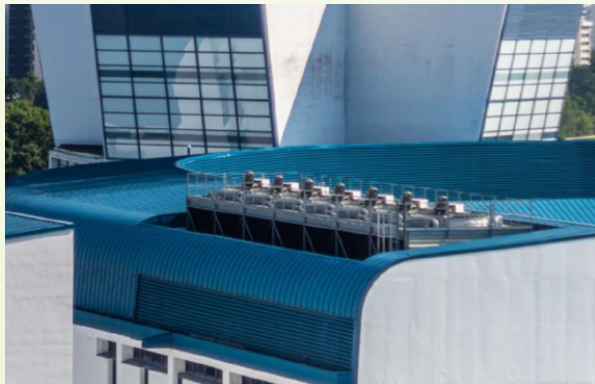
Cooling towers

Rainwater Harvesting Tank

TP harvests 9,000 m^3 of rainwater annually, transforming it into irrigation water for our campus. We aim to expand this rainwater harvesting system across the campus. This initiative is projected to offset approximately 2% of our monthly consumption, making every drop count.

Underground rainwater harvesting system

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

WATER MANAGEMENT

FUTURE PLANS

Transition towards **smart water monitoring** systems to better identify any leakages in tanks and underground pipes

Rainwater harvesting catchment area and reduction of water consumption in Air-Conditioning Mechanical Ventilation (ACMV) system

MATERIAL TOPIC

GHG INVENTORY AND MANAGEMENT

This year, TP undertook a comprehensive sustainability gap analysis in establishing baseline for our emissions reduction targets. It also provided us a capability-building platform for staff and students to work on real sustainability issues and challenges.

GHG EMISSIONS

We started monitoring our Scope 1 and 2 emissions this year, choosing FY2023 as our reference year for future emission reduction efforts.

The combined Scope 1 and 2 emissions decreased by 11.6% from FY2022 to 13,796 tCO2e in FY2023. Scope 2 emissions, primarily from chiller plant energy consumption, accounted for 91.5% of our total GHG emissions. Over 99% of our Scope 1 emissions were due to gradual refrigerant leakage from daily cooling system operations.

TP has set an ambitious **target of 35% GHG reduction** with measurable outcomes by FY2030.

One major challenge in achieving TP's net-zero emission target is our current dependence on non-renewable energy sources in Singapore's electricity grid. Despite this constraint, we are committed to reducing Scope 2 emissions.

Apart from Scope 1 and 2 emissions, we face challenges in quantifying Scope 3 emissions due to its complexity. Despite these challenges, **we are actively engaged in the process of quantifying Scope 3 and have identified the main sources of our emissions,** which arise from commuting and overseas travel by staff and students. We are committed to tracking our Scope 3 inventory diligently and aim to report our performance in the coming years.

OUR COMMITMENT AND APPROACH

Accurately tracking and measuring our carbon footprint helps us to understand and mitigate our environmental impact. We identified key sources of emissions and implemented targeted reduction strategies such as upgrading our chiller systems and other equipment as well as enhancing our buildings with green features which effectively improved overall system efficiency.

GHG Emissions

Legend:
- Scope 1 (tCO_2e)
- Scope 2 (tCO_2e)
- GHG Emissions Intensity ($kgCO_2e/m^2$)

	FY2021	FY2022	FY2023 (Baseline)
GHG Emissions Intensity	48.2	46.8	41.1
Scope 2	14,245	13,140	12,624
Scope 1	2,189	2,460	1,172
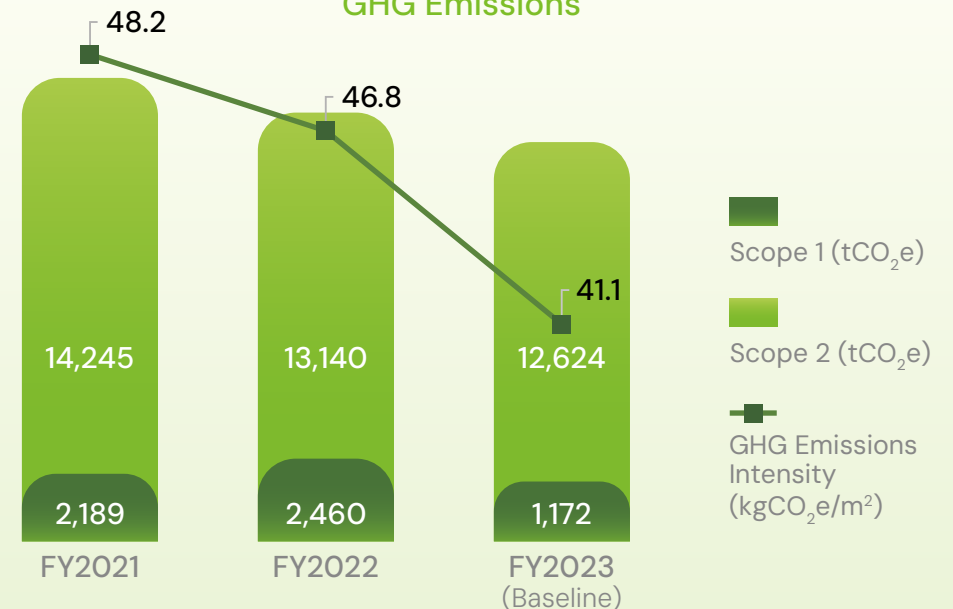
GHG REDUCTION INITIATIVES

The substantial 52.4% decrease in Scope 1 emissions from FY2022 resulted from the effective upgrade of our chiller systems. The systems now use R1233zd, a refrigerant gas with significantly lower global warming potential. The reduction in refrigerant top-up further complemented this effort and significantly lowered our Scope 1 emissions.

GHG INVENTORY AND MANAGEMENT

GHG REDUCTION INITIATIVES

TP's ongoing efforts in reducing electricity consumption has achieved a steady decline in our Scope 2 emissions.

1. TP upgraded key equipment such as chillers, cooling towers, pumps, air handling units, and aircon fan coil units. **The revamp of two chiller systems, the upgrade of cooling towers and other equipment enhancements have collectively reduced our energy consumption by over 40% from FY2018 to FY2023.**

2. We carried out upgrades that **enhanced system efficiency by 25%** in classrooms, consultation rooms, staff offices, and other areas, all of which now showcase significant green features such as:

   • A Building Management System
   • Efficient lighting in accordance with Super Low Energy standards
   • Energy efficient passive displacement ventilation systems
   • IoT and motion sensors for lighting and air-conditioning controls

Chiller plant

Students in a classroom

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

GHG INVENTORY AND MANAGEMENT

FUTURE PLANS

As part of our journey to reach net zero and achieve our reduction targets, we have identified five key areas[15] to focus on to meet our 35% GHG reduction goal:

AC Operations

Cooling features

Air-Conditioning
Mechanical
Ventilation System

Solar panels

LED lighting
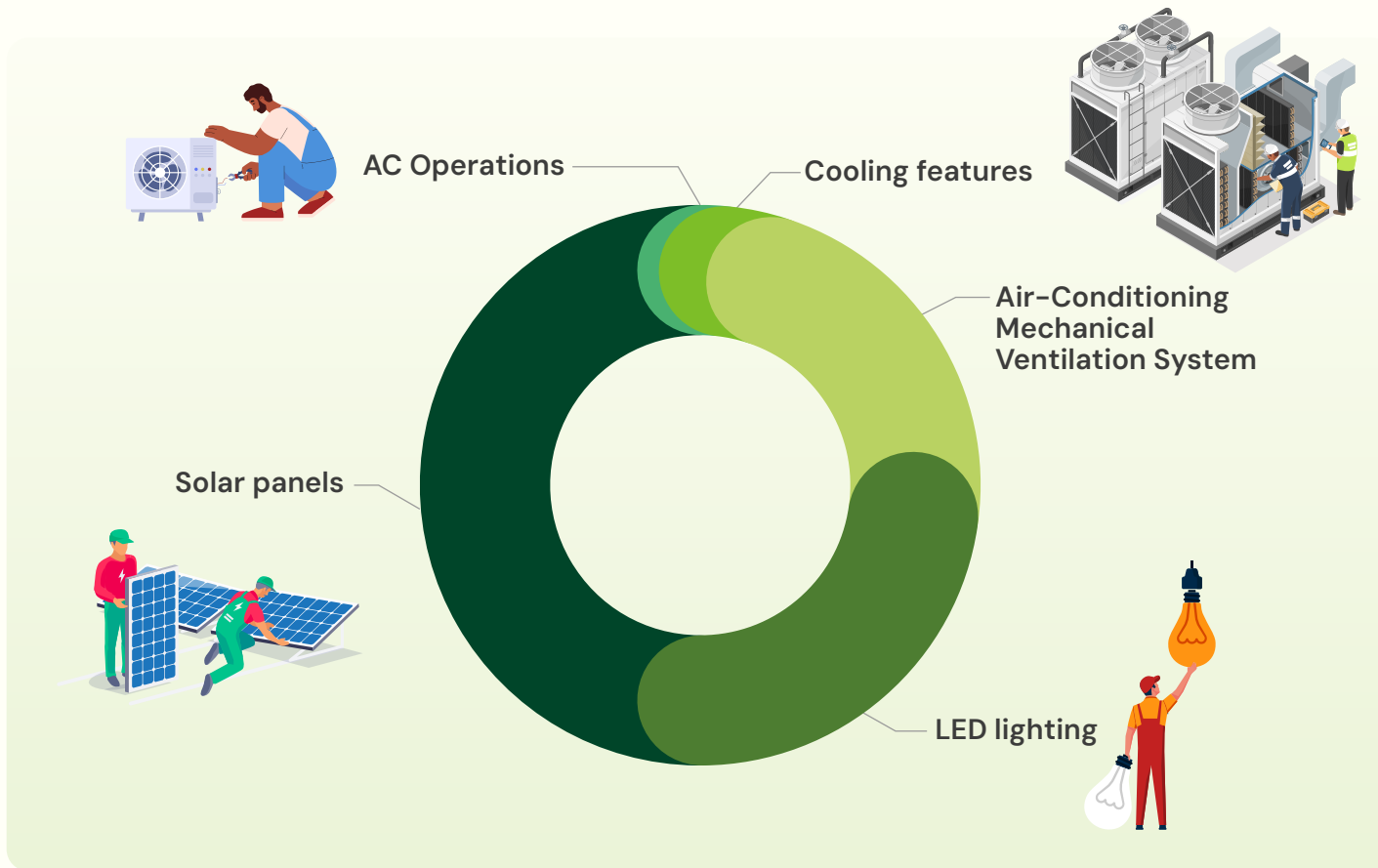
[15] The coloured bars represent the proportion each initiative contributes toward our 35% GHG reduction goal.

MATERIAL TOPIC
WASTE MANAGEMENT

OUR COMMITMENT AND APPROACH

Given the substantial volume of waste generated by our operations and stakeholders, effective waste management is crucial. Our commitment is to provide a clean and sustainable living environment for all stakeholders. Our waste management strategy focuses on prioritising resource sustainability, minimising waste generation, diverting waste from incinerators through recycling, and conducting waste audits.

NON-HAZARDOUS WASTE

In FY2023, TP produced a total of 28,456 kg of recyclable waste and 596,092 kg of non-recyclable waste, **representing an 18.4% increase in the Waste Disposal Index (WDI) compared to FY2022.** This increase is largely attributed to more physical events such as orientations, graduation ceremonies, and an increased rate of disposal.

As waste generation rises, shifting behaviours and mindsets become crucial. Our Centre for Applied Behavioural Sciences (CABS) aids in fostering sustainable behaviours by applying behavioural insights. Our future plans encompass reducing consumption via behaviour change strategies, amplifying recycling initiatives, and persistently advocating for practices of reducing, reusing, and recycling.

Despite this challenge, we remain committed to achieving a 30% reduction in WDI from FY2022 levels by FY2030.

Total waste generated and waste disposal inbox (WDI)

	FY2021	FY2022 (Baseline)	FY2023
Recyclable waste (kg)	18,172	34,125	28,456
Non recyclable waste (kg)	394,927	524,180	596,092
WDI (kg/person/day)	0.156	0.103	0.122

Legend:
- Recyclable waste (kg)
- Non recyclable waste (kg)
- WDI (kg/person/day)
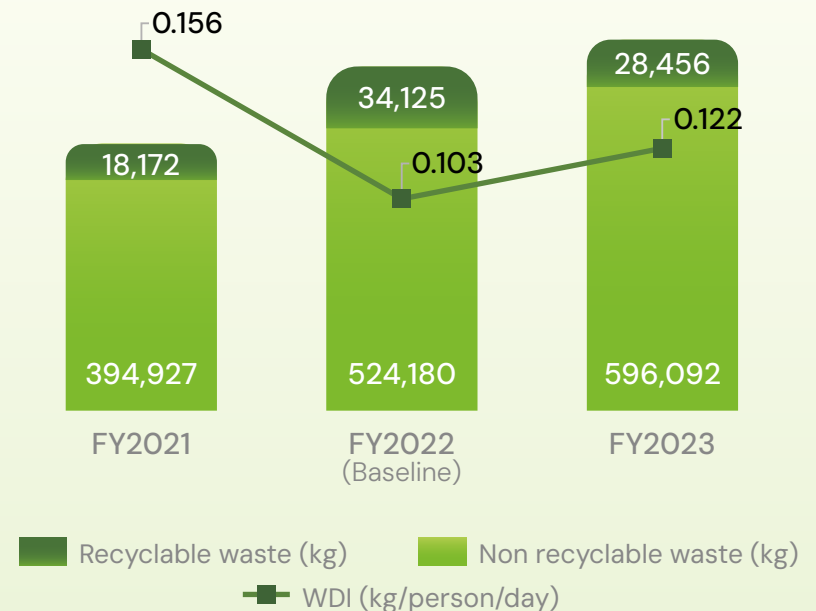
WASTE MANAGEMENT

WASTE REDUCTION INITIATIVES

Breakdown of recyclable waste (KG) (FY2023)

- 493.5 E-waste
- 14,400 Paper
- 12,321 Food
- 920 Lightbulb
- 84 Glass
- 101 Plastic
- 136 Metal
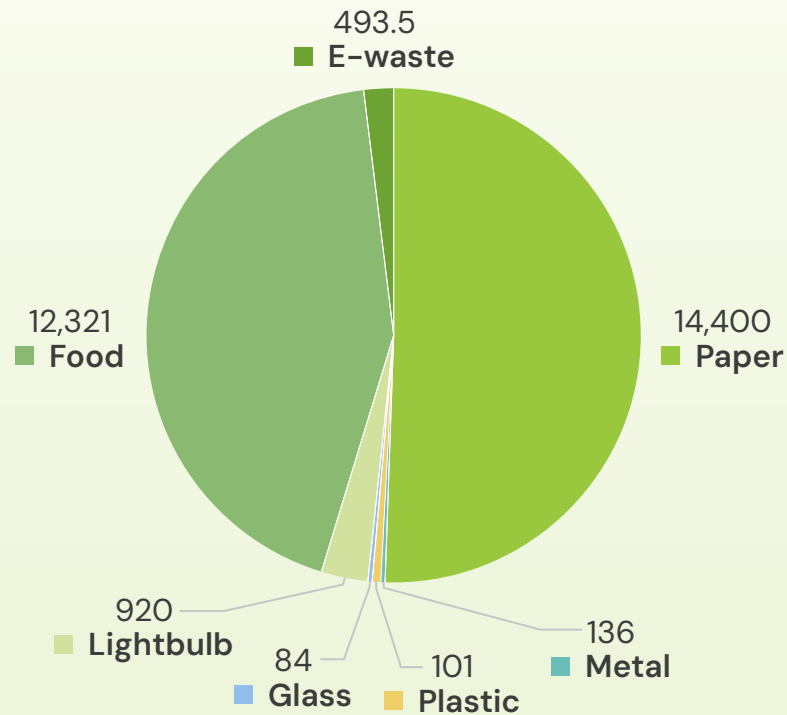
We have to start building capability to get comprehensive and accurate waste data sustainably. In our initial attempt, a joint waste audit with major project Students from School of Engineering across TP's 13 bin centres found that 40% of general waste could be recycled.

To address food waste, our campus has three food waste digesters that convert food waste into grey water, thus decreasing landfill waste. This strategy has proven effective, as in FY2023 alone, we processed a total of 12,321 kg of food waste.

HAZARDOUS WASTE

TP engaged NEA-licensed vendors to process and discard all hazardous waste generated as a by-product of activities from teaching and research laboratories such as:

- biohazardous waste (pathogenic, pathological, sharps, cultures)
- toxic chemical waste from chemical analysis
- solid waste contaminated with chemicals

Students handling biohazardous waste

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

WASTE MANAGEMENT

FUTURE PLANS

Continue providing **reusable cups and jars** at meeting rooms to reduce disposables

Build comprehensive and accurate data collection capability

Increase **recycling bins** in common areas to promote recycling

Install water dispensers in meeting rooms and auditorium foyers to reduce plastic bottle usage

Install compost machines to manage organic waste

7

Pillar 4
Engagement & Well-being

Nurturing our people and uplifting communities

Our Material Topics

We champion sustainability initiatives with a focus on the wellness, development and safety of our stakeholders, while also contributing to positive social impact initiatives within the wider community.

Human Capital Management

Our Material Topics

Foster an inclusive culture and prioritise staff well-being as well as career development

Our Targets

- To have at least 80% of staff to complete 1 or more foundational sustainability-related courses by FY2026

Student Well-being

Our Material Topics

Invest in a range of support services and resources to guide students through their educational journey

Our Targets

- To ensure all academic staff complete basic training under the Student Support & Development Framework (SSDF) by FY2025

Community Engagement and Impact

Our Material Topics

Foster positive and meaningful social impact for our community and stakeholders

Our Targets

- To hold one sustainability anchored campus-wide community engagement event annually

Occupational Health and Safety

Our Material Topics

Cultivate a safe, healthy, and sustainable working environment

Our Targets

- To attain zero major workplace injuries

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

OUR REPORT FOR FY2023

Awarded the **People's Association Community Spirit (Excellence) Award**

97.9% Student Satisfaction Rate *(Student Experience Survey 2023)*

Zero Reported cases of major injuries and fatalities

86% Overall Organisation Employee Engagement Survey Score

1st Runner-up Best Career Development Programme (Organisation) Award 2023

MATERIAL TOPIC

HUMAN CAPITAL MANAGEMENT

OUR COMMITMENT AND APPROACH

As an institute of higher learning, we recognise the critical role of our people in driving quality education. We are dedicated to fostering an environment that values diversity, equity, and inclusion, and prioritising the well-being and professional development of our people. We manage this through our policies, staff engagement, professional training, health and wellness programmes.

TP was awarded

1st Runner-up

at the Best Career Development Programme (Organisation) Award 2023

TP abides by the

Singapore Tripartite Alliance for Fair & Progressive Employment Practices (TAFEP) and is a member of the Amalgamated Union of Public Employees (AUPE)

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

HUMAN CAPITAL MANAGEMENT

EMPLOYEE RIGHTS AND EMPLOYMENT PRACTICES

Employee rights are fundamental to TP's core values of "respect for the dignity of the individual". **We provide equitable, fair, and dignified working conditions to create a conducive and inclusive environment for all staff through six policies, guiding principles and practices:**

Age-Diverse Workforce
Our re-employment policy ensures opportunities for eligible staff to continue their employment upon reaching the minimum retirement age.

Equal Opportunities
We promote generational, cultural and sex equity. We provide equal opportunities for all staff in recruitment, career advancement, and access to learning opportunities.

Work-Life Balance
Our Flexible Work Arrangement policy offers flexibility for personal commitments through staggered work hours, telecommuting, and both part-time and full-time options.

Our Policies & Guiding Principles

Fair Employment Practicles

Talent Acquistion Process
We select the most qualified candidates for each role through a suitability test and at least two rounds of interviews.
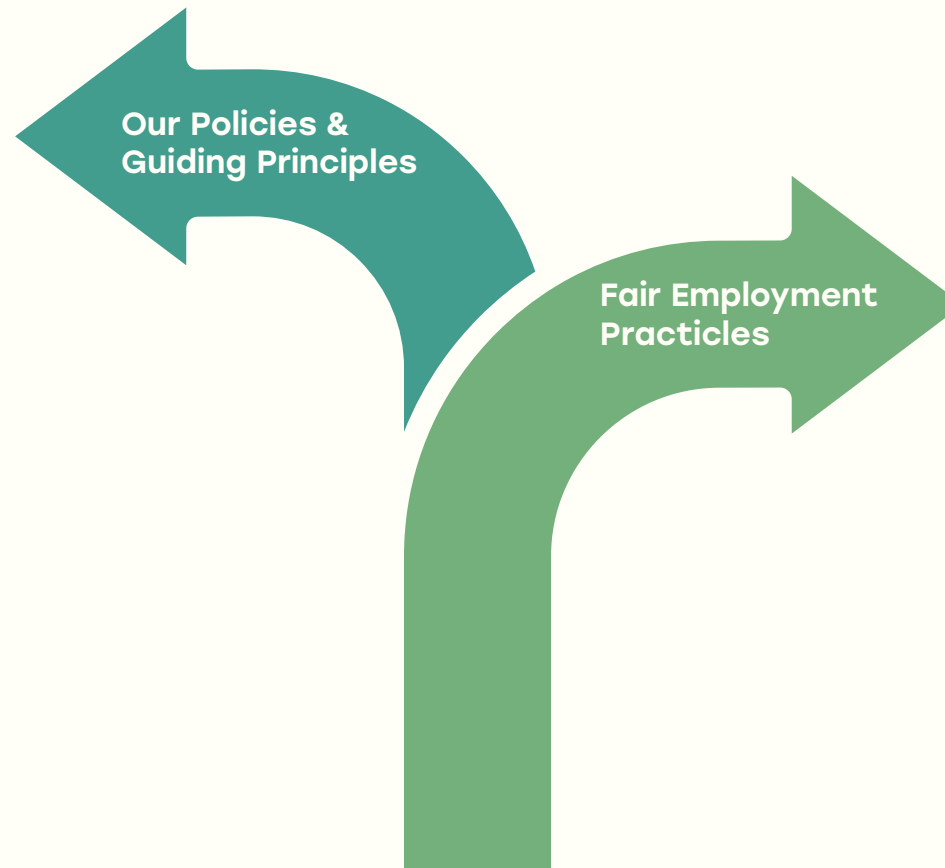
Inclusive Hiring
We recruit based on meritocracy, impartiality and incorruptibility.

Fair Remuneration and Salary
We follow the ITE/Polytechnic Scheme (IPS) structured pay scale. Our staff receive fair remuneration based on experience and performance.

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

HUMAN CAPITAL MANAGEMENT

DIVERSITY, EQUITY AND INCLUSION

TP fosters an inclusive culture and embraces the diverse talents, backgrounds, and perspectives of our staff. **In FY2023, we had a staff strength of 1,758 (including adjunct lecturers), comprising 66.3% academic and 33.7% non-academic staff.**

The higher proportion of academic staff demonstrates our commitment to providing high-quality education and robust teaching, supporting our diverse range of academic programmes. The non-academic category includes permanent staff from corporate services and administrative departments.

Number of Staff

FY2021	FY2022	FY2023
1,683	1,869	1,758
640 (38.0%)	626 (33.5%)	592 (33.7%)
1043 (62.0%)	1243 (66.5%)	1166 (66.3%)

Academic Staff   Non-Academic Staff
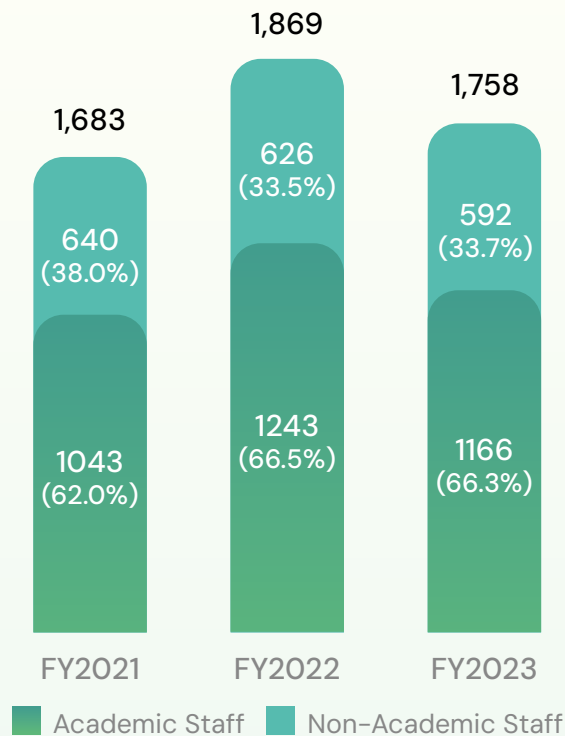
Number of Staff by Employee Category (FY2023)

Academic Staff	Non-Academic Staff
1,166	592
341 (29.2%)	
825 (70.8%)	592 (100.0%)

Permanent   Temporary
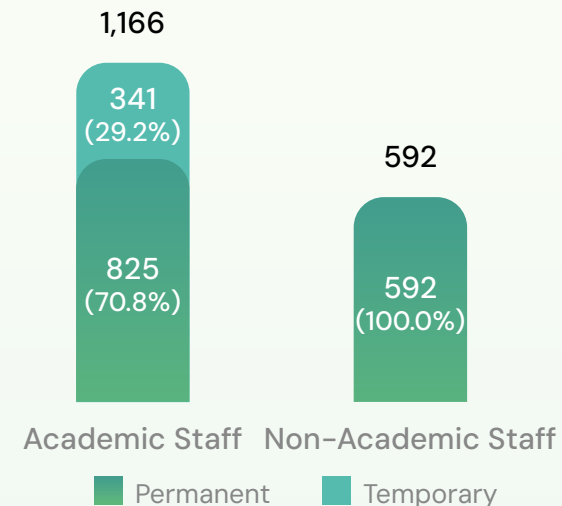
HUMAN CAPITAL MANAGEMENT

Age Group

TP's staff age profile has remained relatively consistent each year. **We recruit and develop staff across all age groups to maintain a dynamic and experienced workforce.** In FY2023, 44.5% of our staff were above 50, bringing deep expertise, experience and invaluable skills to our students. The 30–50 age group balances 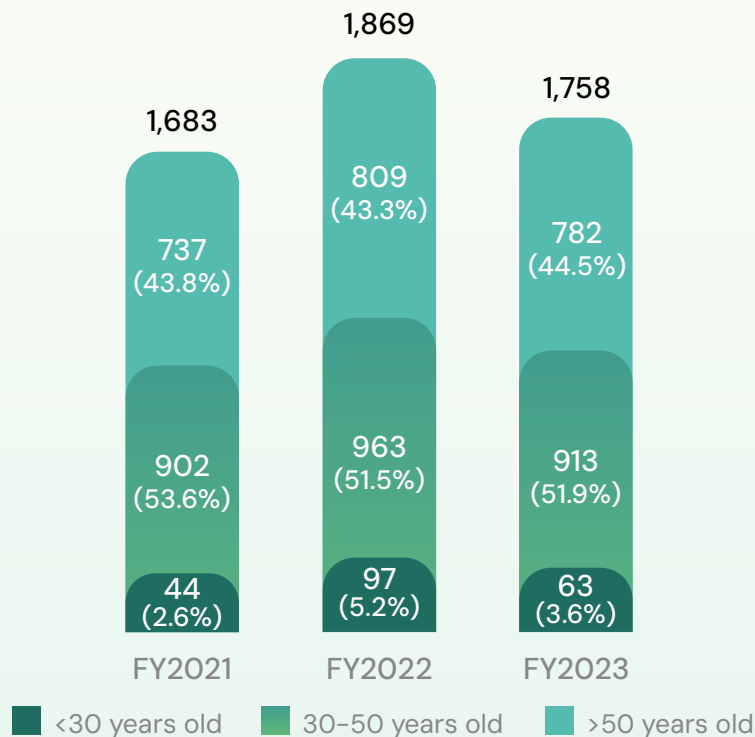teaching and leadership roles, contributing significantly to our academic and operational excellence. The below 30 age group brings fresh perspectives and innovative ideas, crucial for keeping our curriculum current.

Number of Staff by Age Group

	FY2021	FY2022	FY2023
Total	1,683	1,869	1,758
>50 years old	737 (43.8%)	809 (43.3%)	782 (44.5%)
30–50 years old	902 (53.6%)	963 (51.5%)	913 (51.9%)
<30 years old	44 (2.6%)	97 (5.2%)	63 (3.6%)

Legend: ■ <30 years old ■ 30–50 years old ■ >50 years old

Number of Staff by Employee Category and Age Group (FY2023)

	Non-Academic Staff Permanent	Academic Staff Temporary	Academic Staff Permanent
Total	592	341	825
>50 years old	248 (41.9%)	150 (44.0%)	384 (46.5%)
30–50 years old	312 (52.7%)	178 (52.2%)	423 (51.3%)
<30 years old	32 (5.4%)	13 (3.8%)	18 (2.2%)

Legend: ■ <30 years old ■ 30–50 years old ■ >50 years old
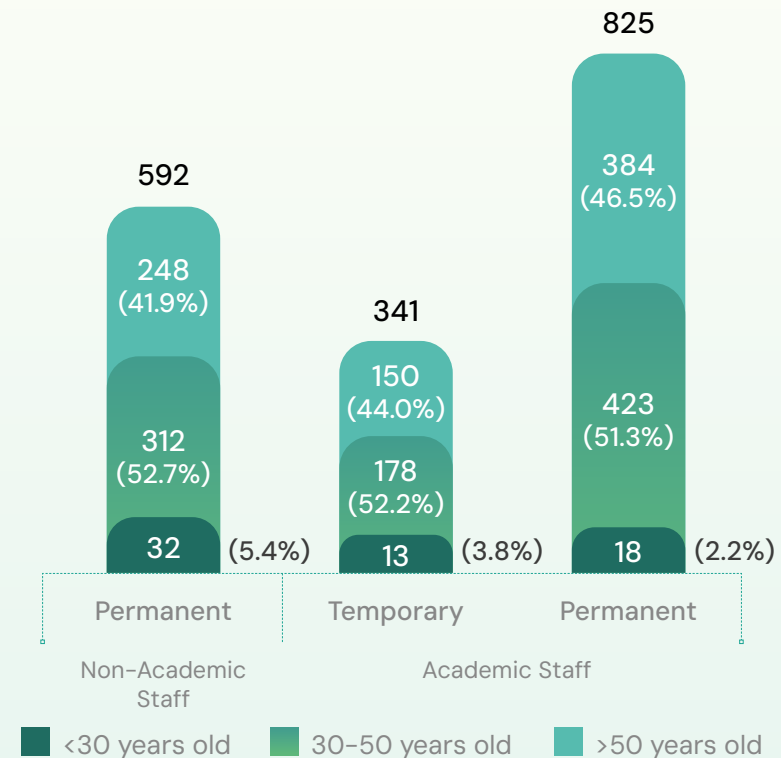
HUMAN CAPITAL MANAGEMENT

Sex

Our hiring practices are guided by our HR Policy, ensuring fairness and inclusivity in recruitment and staff appointments. **Our workforce achieved a well-balanced distribution between male and female employees, with females constituting 46.6% of our staff.**

Number of Staff by Sex

	FY2021	FY2022	FY2023
Total	1,683	1,869	1,758
Female	785 (46.6%)	881 (47.1%)	819 (46.6%)
Male	898 (53.4%)	988 (52.9%)	939 (53.4%)
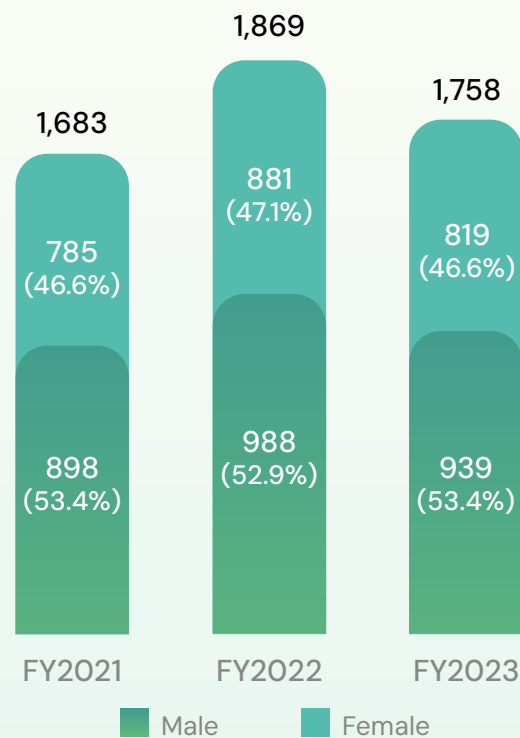
Number of Staff by Employee Category and Sex (FY2023)

	Non-Academic Staff Permanent	Academic Staff Temporary	Academic Staff Permanent
Total	592	341	825
Female	351 (59.3%)	130 (38.1%)	338 (41.0%)
Male	241 (40.7%)	211 (61.9%)	487 (59.0%)

Legend: ■ Male ■ Female
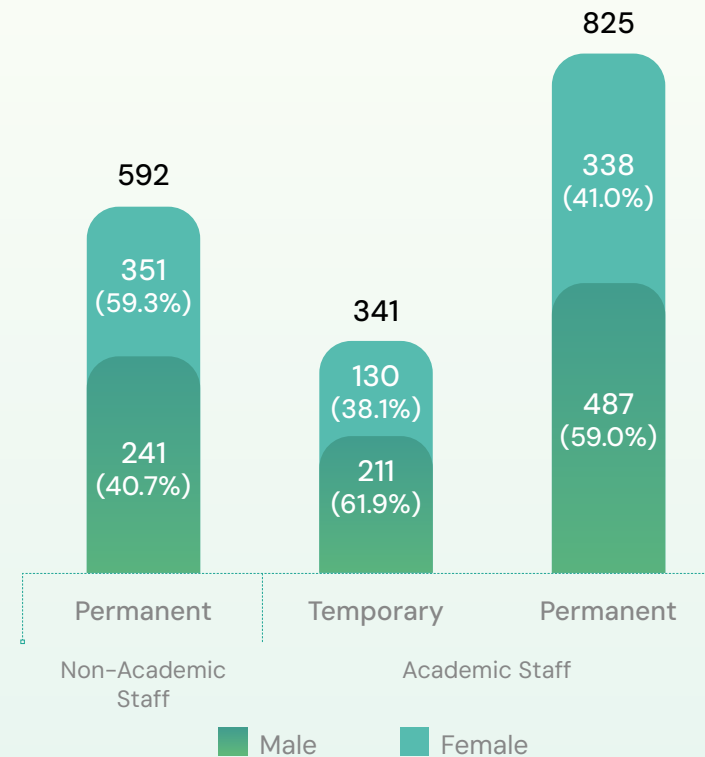
HUMAN CAPITAL MANAGEMENT

New Hires

This year, we welcomed 134 new permanent staff, resulting in a 7.6% new hire rate. This marks a 30.1% increase in new hires and a 2.1% rise in the new hire rate[16] compared to FY2022, attributable to our at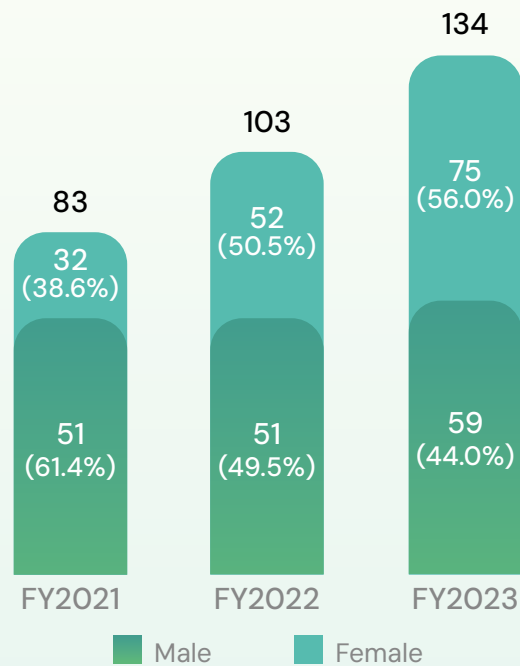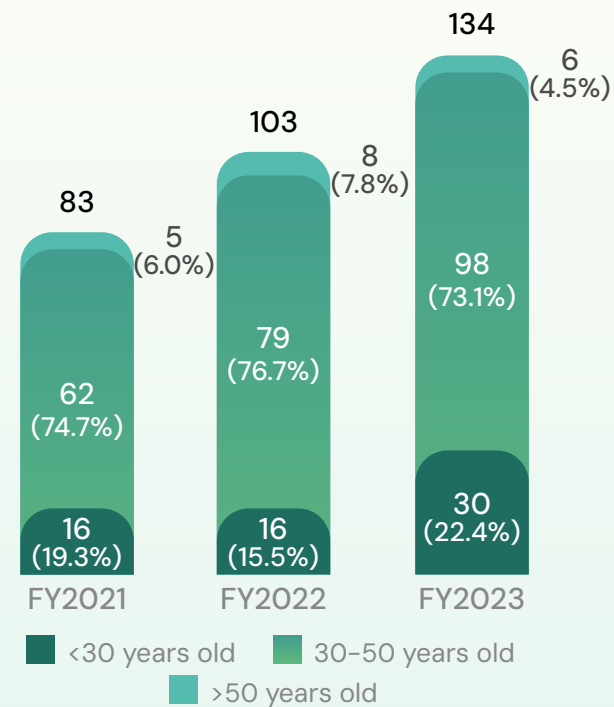tractive benefits and strong corporate culture. We had slightly more females (56.0%) than males among the new hires, with the majority aged 30 to 50 (73.1%).

Number of New Hires by Sex

FY2021: 83 — Female 32 (38.6%), Male 51 (61.4%)
FY2022: 103 — Female 52 (50.5%), Male 51 (49.5%)
FY2023: 134 — Female 75 (56.0%), Male 59 (44.0%)

- Male
- Female

Number of New Hires by Age Group

FY2021: 83 — >50 years old 5 (6.0%), 30–50 years old 62 (74.7%), <30 years old 16 (19.3%)
FY2022: 103 — >50 years old 8 (7.8%), 30–50 years old 79 (76.7%), <30 years old 16 (15.5%)
FY2023: 134 — >50 years old 6 (4.5%), 30–50 years old 98 (73.1%), <30 years old 30 (22.4%)

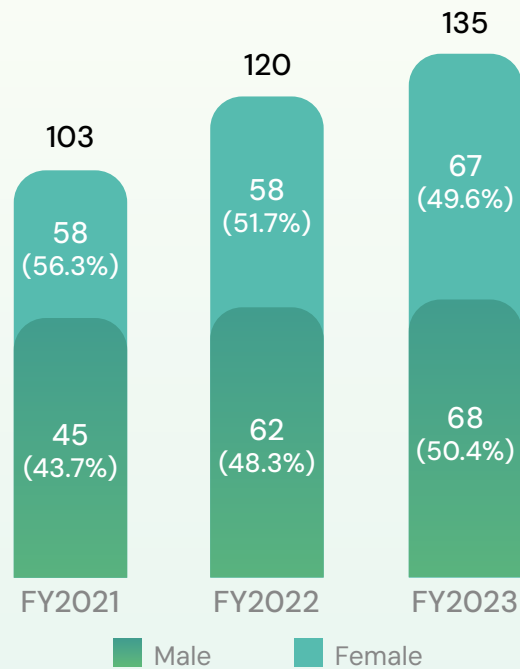- <30 years old
- 30–50 years old
- >50 years old

[16] New hire rate = Number of new staff who joined TP / Total number of staff

HUMAN CAPITAL MANAGEMENT

Turnover

On the other hand, TP's turnover rate[17] stood at 7.7%, with 135 staff leaving the institute due to the competitive job landscape and natural attrition. **With a new hire rate of 7.6%, our staff replacement stands comfortably at a ratio of 1:1.**

Number of Turnover by Sex

	FY2021	FY2022	FY2023
Total	103	120	135
Female	58 (56.3%)	58 (51.7%)	67 (49.6%)
Male	45 (43.7%)	62 (48.3%)	68 (50.4%)

Number of Turnover by Age Group

	FY2021	FY2022	FY2023
Total	103	120	135
>50 years old	43 (41.7%)	57 (47.5%)	69 (51.1%)
30–50 years old	46 (74.7%)	54 (45.0%)	61 (45.2%)
<30 years old	14 (13.6%)	9 (7.5%)	5 (3.7%)
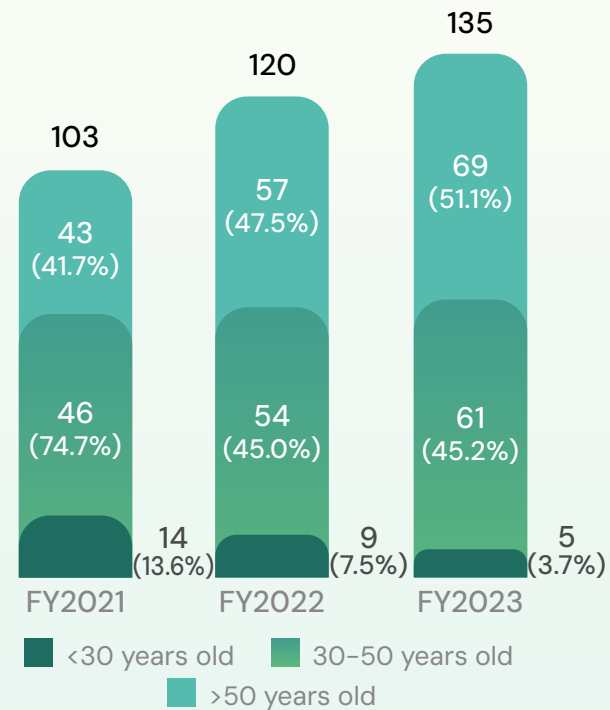
[17] Turnover rate = Number of staff who left TP / Total number of staff

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

HUMAN CAPITAL MANAGEMENT

STAFF ENGAGEMENT AND WELL-BEING

We prioritise staff well-being and engagement by creating a supportive environment where staff feel valued and engaged.

Staff Engagement

The PCEO engages with TP staff to solicit feedback and gain a comprehensive understanding of staff needs and expectations.

Staff Communication Sessions

The annual Staff Communication event serves as a key platform where the PCEO reviews the past year's successes and challenges, sets out the priorities for the forthcoming year and provides staff with a clear understanding of TP's goals. This event facilitates direct interaction between senior leadership and staff, promoting an environment of open dialogue.

PCEO addressing staff at a Staff Comm Session

PCEO Chat Session with Staff

Each year, over 30 chat sessions are conducted for individual schools, departments and specific staff groups. Facilitated by HR, these sessions allow staff to engage with the PCEO on TP-related matters. Running from late June to September, these sessions also provide opportunities for staff to ask questions, share feedback, and discuss topics directly with the PCEO, fostering transparency and enhancing communication.
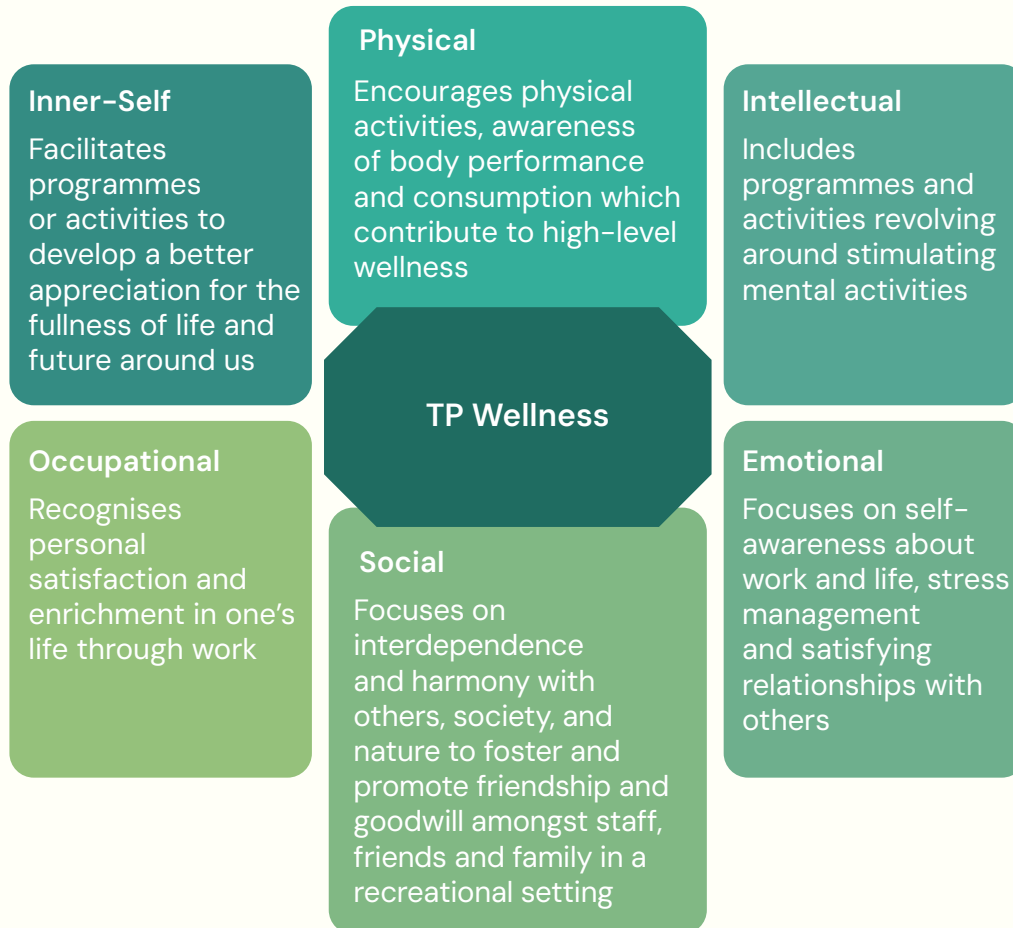

PCEO engaging with staff during the chat sessions

HUMAN CAPITAL MANAGEMENT

Staff Well-being

TP promotes staff health and well-being through a comprehensive Staff Wellness Framework. This holistic approach focuses on various aspects of well-being, including physical, intellectual, emotional, social, occupational, and self-development.

Staff Wellness Framework

Inner-Self

Facilitates programmes or activities to develop a better appreciation for the fullness of life and future around us

Physical

Encourages physical activities, awareness of body performance and consumption which contribute to high-level wellness

Intellectual

Includes programmes and activities revolving around stimulating mental activities

TP Wellness

Occupational

Recognises personal satisfaction and enrichment in one's life through work

Social

Focuses on interdependence and harmony with others, society, and nature to foster and promote friendship and goodwill amongst staff, friends and family in a recreational setting

Emotional

Focuses on self-awareness about work and life, stress management and satisfying relationships with others

Wellness Ambassadors

TP has Wellness Ambassadors comprising staff members to promote well-being within the public sector. These Wellness Ambassadors play a crucial role by offering a supportive presence and a listening ear to their colleagues.

Employee Benefits

TP's comprehensive benefits package includes flexible benefit allowances, digitalisation subsidy, insurance, dental benefits and onsite health screening, amongst others.

Employee Engagement Survey

The Employee Engagement Survey (EES) serves as a diagnostic tool to understand employee engagement levels. In FY2023, TP achieved an overall organisation EES score of 86%, showing an upward trend from prior years' scores.

Overall Organisation Employee Engagement Survey Score

| EES2018	EES2021	EES2023
76%	85%	86%
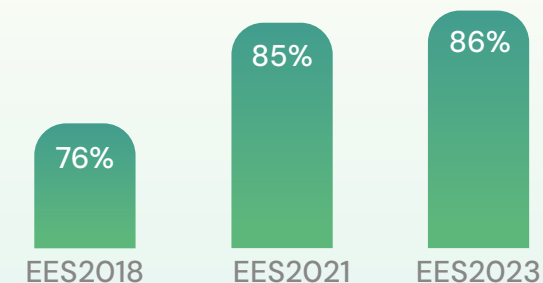
HUMAN CAPITAL MANAGEMENT

STAFF TRAINING

TP values a culture of continuous learning by offering staff opportunities for upskilling and self-improvement.

TP's Staff Capability Development Framework

To foster professional and personal growth, and prepare staff for long-term success, we enhanced our "Staff Development Framework" in FY2024. This framework emphasises future-readiness and is structured around five key areas with individual learning roadmaps.
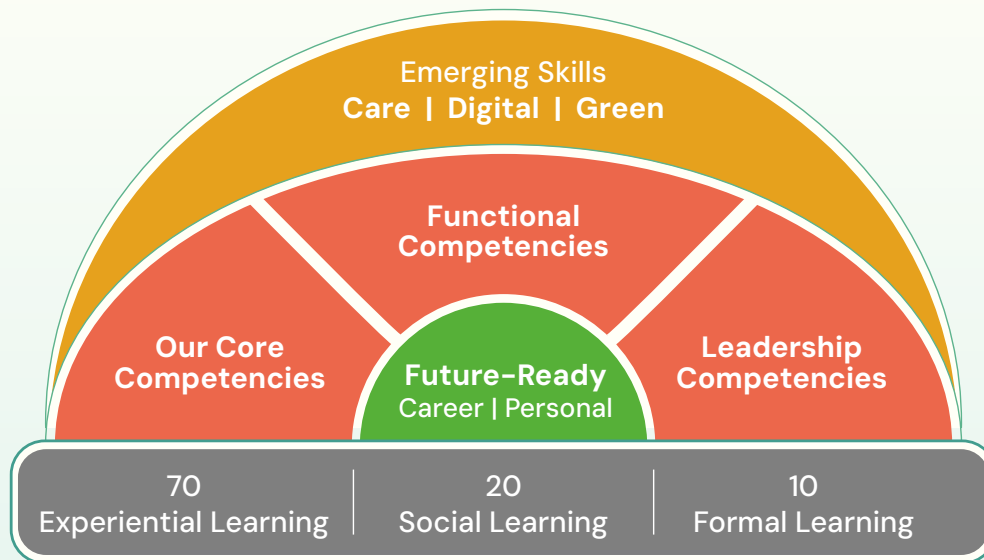
Staff Capability Development Framework

Key Area 1: Future Ready Skills
Equip staff for long-term career and personal success.

Key Area 2: Our Core Competencies
Articulate the critical behaviours expected of all staff across the Public Service, from support staff to leaders.

Key Area 3: Functional Competencies
Provide staff with job-specific competencies for effective performance and full proficiency in the job role.

Key Area 4: Leadership Competencies
Provide leadership competencies for those in supervisory and leadership positions.

Key Area 5: Emerging Skills Roadmap
Address skills relevant to the Green, Digital, and Care economies in response to evolving economic and market demands.

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

HUMAN CAPITAL MANAGEMENT

Staff Training

This year, staff averaged 89.2 training hours[18], a 1.2% increase from FY2022 due to post-pandemic normalcy allowing more training activities. Academic staff averaged more training hours than non-academic staff as they are required to stay current with knowledge and teaching methods.

The ratio of average training hours between male and female staff is approximately 1:1.

Average Training Hours by Staff Category

82.0 (FY2021)
88.3 (FY2022)
89.2 (FY2023)

FY2021: 86.6, 76.3
FY2022: 97.6, 76.5
FY2023: 94.4, 82.0
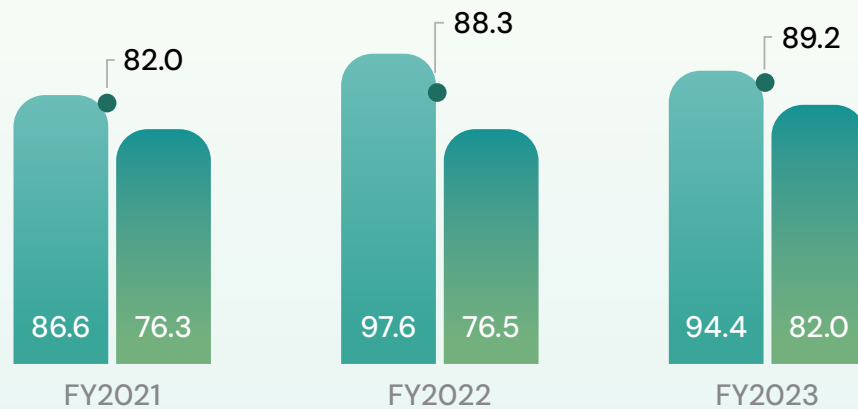
■ Average Training Hours for Non-Academic Staff
■ Average Training Hours for Academic Staff
● Average Training Hours Per Staff

Average Training Hours By Sex

FY2021: 82.4, 81.5
FY2022: 90.2, 86.1
FY2023: 89.7, 88.7
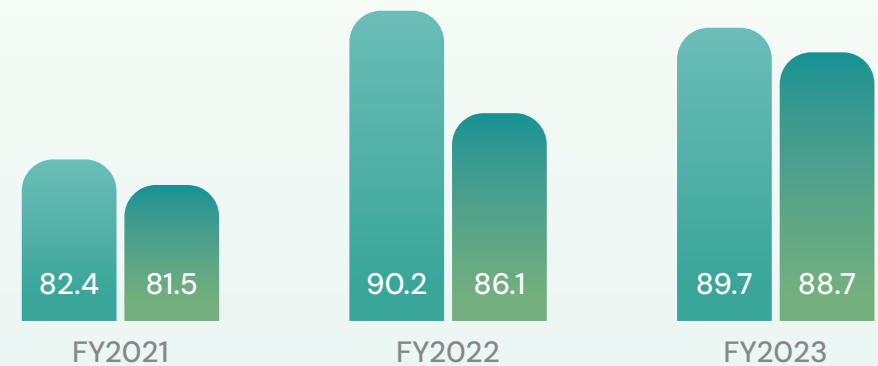
■ Average Training Hours for Female
■ Average Training Hours for Male

[18] Average training hours = Total training hours / Total number of full-time staff
The average training hours computed does not include adjunct lecturers.

HUMAN CAPITAL MANAGEMENT

Training Programmes

TP prioritises continuous training to equip staff with the skills needed for today's dynamic workplace. Departments like the Staff Capability Development (SCD) and Learning Academy (LA) oversee all staff learning and training, with full support from senior management.

At TP, our training programmes blend experiential learning (70%) through industry engagement, social learning (20%) via mentoring programmes and peer sharing, and formal learning (10%) supported by formal qualifications sponsorship and local and overseas programmes.

Industry Engagement

- Engage industry workgroups/professional bodies
- Take on industry and consultancy projects
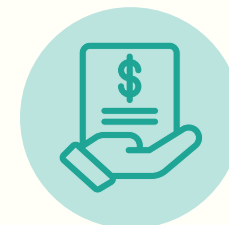- Support staff on industry attachments

Mentoring Programmes and Peer Sharing

- Foster continuous learning through peer sharing and experienced mentor guidance

Local and Overseas Programmes

- Sponsor staff for local seminars, conferences, and overseas learning trips

Formal Qualifications Sponsorship

- Support staff pursuing formal qualifications

We adopt a holistic approach to ensure all TP staff are advocates for sustainability. Staff are encouraged to participate in the "Foundations of Sustainability – Opportunities and Risks" course so that they have a good grasp about what sustainability entails.

HUMAN CAPITAL MANAGEMENT

Industry attachment at ACRA Sustainability Reporting Office

"

I contributed to Body of Knowledge on IFRS Sustainability Disclosure Standards to help advance the rollout of Sustainability Reporting in Singapore.

This experience broadened my perspectives, honed a diverse set of skills, leverage transferable knowledge while enriching my experience in sustainability reporting.

"

Wong Nee Tat
Course Chair
Diploma in Accountancy & Finance

Industry attachment at RHT Green and Aeterni

"

I participated in a diverse range of projects, including developing sustainability strategies for companies in ASEAN, producing the inaugural sustainability report for a listed company and developing a training programme for a local IHL.

My experience allowed me to apply my knowledge to the TP-wide PET subject, Sustainability & Climate Action, where I am the subject leader. It also equipped me to deliver consultancy services and develop CET courses in the sustainability field.

"

Zhang Yu
Lecturer
Centre for Transcultural Studies

HUMAN CAPITAL MANAGEMENT

CAREER DEVELOPMENT

TP's Career Development portal is dedicated to nurturing the professional growth of all employees. **We also provide transition assistance programmes to support continuous employability and guide career transitions.** Examples include:

For staff transiting into a new role
- Structured Monitoring Programme
- Career Transition Conversations

For staff preparing for retirement
- Lifework for Senior Staff
- Foundational Lifework for Support Staff
- Financial Literacy Workshop

Career Development
- Structured Mentoring Programme
- TP Career Coach
- Internal Transfer to schools and departments
- Secondment to external organisations

Under the annual Performance Management Review, staff set work goals and career development plans, and engage in mid-year reviews and year-end appraisals with their Reporting Officers. In FY2023, 100% of active full-time permanent staff underwent a Performance Management Review.

HUMAN CAPITAL MANAGEMENT

Below describes two career development programme conducted in TP.

Structured Mentoring Programme (SMP)

The SMP is a nine-month programme structured to foster the development of TP's existing and prospective leaders The mentors, comprising TP's senior management, with their vast experience and deep understanding of various job roles and industry landscapes, are invaluable resources for mentees. Paired with mentees, our mentors offer insightful career advice and guidance, enrich the mentees' professional journey and also strengthen the leadership fabric of TP.

Mentors and mentees engaging in sharing sessions

Camp Infinity

A two-day leadership retreat was attended by 35 middle managers and 8 senior management members. The goal of this retreat was to strengthen collaboration among TP's leaders. This retreat had activities which included a Psychological Safety workshop, fireside chat, and team-building exercises.

Team-building exercises

MATERIAL TOPIC

STUDENT WELL-BEING

OUR COMMITMENT AND APPROACH

We create a supportive and inclusive environment where every student can thrive academically, socially, and emotionally. Our supportive environment enables students to reach their full potential and prepares them to make positive contributions to society upon graduation. Our commitment is evident through a range of comprehensive support services tailored to meet diverse needs, including career guidance, counselling, and health resources.

TP received the Silver Ribbon Mental Health Award for Schools for the third consecutive year in 2023

This award, presented to TP at the 3rd Global Summit for Mental Health Advocates, recognises ongoing efforts to promote mental health awareness, reduce stigma, and provide essential support for TP's students.

STUDENT WELLNESS & SUPPORT

The Student Wellness & Support is **committed to ensuring the well-being and growth of TP's students.**

Care@TP

TP has state-of-the-art, upgraded facilities designed to offer students a comfortable and supportive counselling environment.

Care Persons in TP

We have dedicated Care Persons who take care of a TP student's overall well-being and emotional needs. All Care Persons are trained in student support and SEN awareness. They also assist students throughout their academic journey and participate in communities of practice to enhance their care-giving skills.

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

STUDENT WELL-BEING

Special Educational Needs (SEN)

Established in April 2021, SENvocates, a TP CCA interest group, supports peers with SEN and advocates for disabilities through inclusive community activities, awareness talks, and volunteering with external organisations.

Activities held by SENvocates

In FY2021, Sumitomo Life Insurance (SLI) and TP signed a Memorandum of Understanding (MOU) to offer digital career training for students. SLI's initiative called TomoWork, offered a 12-week Talent Accelerator Programme (TAP) which equips TP graduates with SEN with in-demand skills and real business challenges. TAP is now hosted annually by various polytechnics.

Student Experience Survey (SES)

Biennially, we conduct a Student Experience Survey (SES) to understand students' needs and to enhance their satisfaction. In FY2023, 97.9% of students reported being satisfied with the career guidance, Care Persons support, and mental well-being services provided.

MATERIAL TOPIC

COMMUNITY ENGAGEMENT AND IMPACT

OUR COMMITMENT AND APPROACH

At TP, the ethos of service learning runs deep, underscored by our unwavering commitment to fostering positive and meaningful social impact for our community. We champion sustainability and give back to the community by engaging our staff, students, and stakeholders in community engagement programs centered around partnerships and environmental stewardship.

INDUSTRY COLLABORATIONS

We foster sustainable value and lasting change by collaborating with industry partners to co-develop impactful, scalable initiatives.

TP-ECOllab Symposium 2023

This event was to share with industries practical know-how and solutions to help them in their sustainability journey. This year's symposium saw notable industry speakers like Dr. Bicky Bhangu and Ms. Esther An who offered valuable sustainability perspectives. This event also highlighted the practical application of knowledge and commitment to sustainability from our academic schools. The commemoration of eight MOUs prior to this event signifies strong partnerships and collaborations that TP has with the industry.

Snapshots of the TP-ECOllab Symposium

TP received the

PA Community Spirit (Excellence) Award

for our sustained efforts in co-creating and co-delivering programmes to strengthen community building

Click here for more information on TP-ECOllab Symposium

COMMUNITY ENGAGEMENT AND IMPACT

ADVANCING SUSTAINABILITY AWARENESS

We promote sustainability through workshops, campaigns, events, and local partnerships.

Students participating in a tree planting activity

TP's student interest groups and clubs organise events like Adventure @ St John's, Eco Fest, NParks mangrove guided walks, and beach cleanups to raise environmental awareness and foster an eco-conscious mindset among the community.

GIVING BACK TO THE COMMUNITY

Our initiatives encourage staff and student volunteerism, fostering community engagement to build a more cohesive and caring society.

Project Refresh

Staff engaged in the painting and cleaning of houses of elderly residents

In collaboration with North East CDC, over 100 staff and students cleaned and painted the homes of seniors in Hougang, Tampines, and Sengkang.
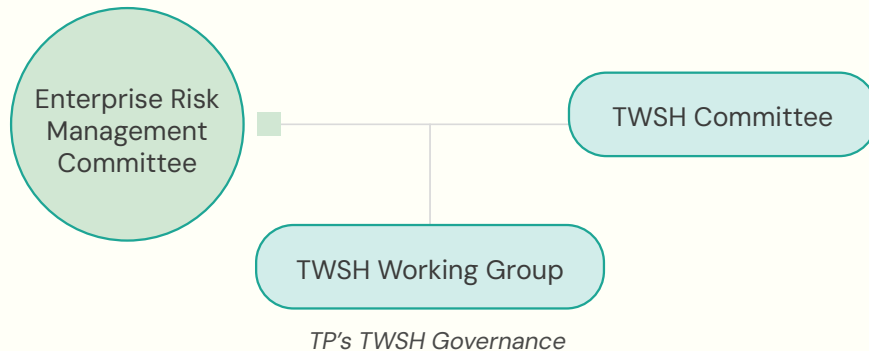
MATERIAL TOPIC

OCCUPATIONAL HEALTH AND SAFETY

OUR COMMITMENT AND APPROACH

Ensuring the Total Workplace Health and Safety (TWSH) of our stakeholders is a top priority at TP. We are committed to fostering a safe, healthy, and sustainable working environment for our stakeholders. To achieve this, we have robust safety policies, management systems and guidelines in place. We proactively implement safety measures, and train our staff on health and safety practices.

TP achieved the bizSAFE Level 3 certification by Singapore's Workplace Safety and Health Council.

and departments. They oversee the implementation and management of risk management programmes.

TWSH GOVERNANCE

Enterprise Risk Management Committee

TWSH Committee

TWSH Working Group

TP's TWSH Governance

The Enterprise Risk Management (ERM) Committee, chaired by our PCEO, leads all TWSH-related matters, directs strategic initiatives and approves policies.

Supporting them is the TWSH Committee, which comprises both management and non-management representatives from various schools

TWSH POLICY

TP's TWSH Policy, endorsed by the PCEO, provides a comprehensive framework for maintaining high workplace safety and health standards. It is continuously improved to foster a strong TWSH culture among TP's staff and students.

Through the TWSH@TP Inspection initiative, senior management conducts monthly site inspections and record observations using a checklist. They offer a fresh perspective and allow departments to implement new initiatives or policies to enhance TWSH.
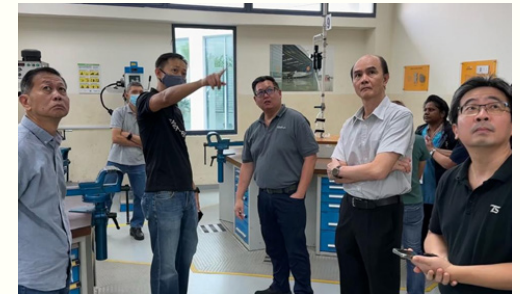
PCEO conducting a TWSH inspection

Our staff are represented through the TWSH Working Group, overseen by the Director or Deputy Director. This group, consisting of representatives from Schools and Departments, meets monthly to discuss TWSH matters, develop safety measures, review procedures, and conduct monthly inspections to identify and mitigate potential hazards.

OCCUPATIONAL HEALTH AND SAFETY

TWSH MANAGEMENT SYSTEM

Our TWSH Management System follows a five-pronged approach that identifies hazards, assesses risks, and implements strategies to mitigate them. It covers all TP activities, services, and facilities affecting the health and safety of staff, visitors, and the public.

COMMUNICATION

1 Preparation

2 Risk Assessment

3 Implementation

4 Record-Keeping

5 Review

Staff tripped in carpark

In FY2023, a staff member tripped on a curb while walking across the carpark, resulting in minor injuries.

To prevent similar incidents, TP followed the five-pronged approach outlined in the TWSH Management System and implemented clear demarcations for all car park curbs, enhancing visibility and reducing the risk of accidents.

Before curb demarcation measures

After implementing curb demarcation measures

OCCUPATIONAL HEALTH AND SAFETY

OUR PERFORMANCE

This year, there were eight minor injuries reported, with no fatal incidents. The injuries mainly resulted from minor car accidents, trips while walking, falls from faulty office chairs, and accidents while handling heavy objects.

**Work-related injuries reported to MOM in the past 3 years:**

	FY2021	FY2022	FY2023
Number of minor injuries	3	7	8
Number of major injuries	1	2	0
Number of fatal incidents	0	0	0

TRAINING AND AWARENESS ON TWSH

Regular training and meetings keep our staff informed about safety protocols and emergency procedures. A training needs analysis table ensures staff attend relevant TWSH courses. For example, our PCEO and Deputy Principals must obtain bizSAFE Level 1 Certification. We also inform staff about upcoming TWSH-related seminars and workshops.

The "See Something Say Something" Initiative

This initiative allows staff and students to report occupational health hazards on campus via a mobile application, fostering a culture where everyone feels safe and emphasising personal and social responsibility.
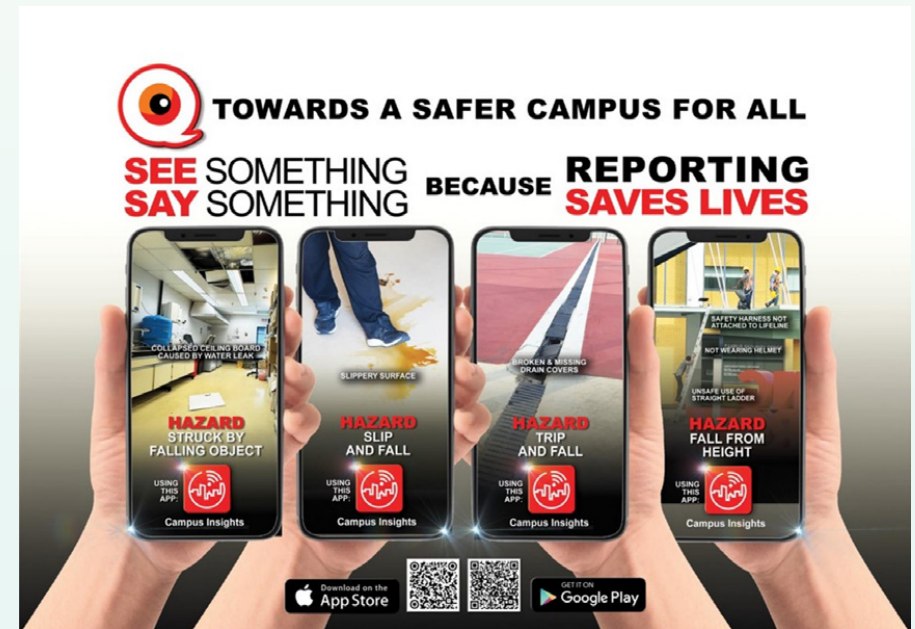
"See Something Say Something" initiative poster

8

Pillar 5
Strategy & Compliance

Driving Responsible Practices Through Leadership

Our Material Topics

We uphold the highest standards of integrity, transparency, and ethical conduct by integrating these principles into our policies, procedures, and practices.

	Anti-Corruption	Climate-related Risk Management	Green Procurement Policies	Information Security Including Privacy
Our Material Topics	Operate with utmost integrity through policies, training and oversight mechanisms	Integrate climate considerations into decision–making processes	Drive positive environmental change through responsible resource management	Safeguard sensitive information and privacy rights of stakeholders
Our Targets	■ Enforce **zero tolerance** towards all forms of corruption, bribery, and unethical business practices	■ **Integrate climate risks** into the Enterprise & Risk Management policy	■ **Enhance green evaluation criteria** for all tenders in FY2024	■ **Ensure 100% staff completion rate** for Cybersecurity & Data Protection Quiz

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix
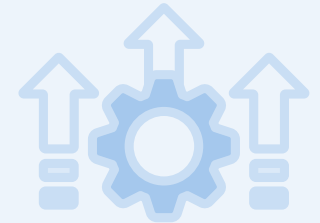
OUR REPORT FOR FY2023

Zero
reported cases of
corruption, bribery
and information
security breach
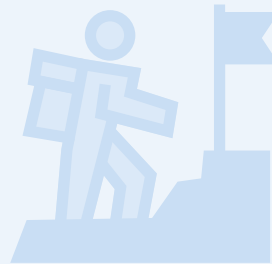
Embarked on TP's
**first climate-
related
disclosures**

Implemented
**green
procurement
criteria** for tender
processes

Upgraded
TP's data loss
protection practice

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

MATERIAL TOPIC
ANTI-CORRUPTION

OUR COMMITMENT AND APPROACH

At TP, we recognise the critical importance of integrity and ethical conduct across our campus as it build trusts among our stakeholders. We firmly uphold anti-corruption measures as one of our core values and reaffirm our commitment to promoting integrity in all that we do. This is managed through rigorous oversight, continuous education, robust anti-corruption measures and policies.

CODE OF CONDUCT FOR TP STAFF

Staff must avoid conflicts of interest and disclose personal interests in transactions. Additionally, our staff are required to be familiar with our Code of Conduct and relevant policies in the staff portal and are encouraged to complete a Code of Conduct quiz annually. To ensure compliance, all staff must submit their annual declaration on indebtedness, investments, workplace/student relationships, among other matters.

WHISTLEBLOWING POLICY

TP's whistleblowing policy offers a confidential reporting avenue for reporting of serious breaches of laws or TP's policies and suspicions of misconduct.

All reports received shall be referred to an independent Whistleblowing Committee for investigation.
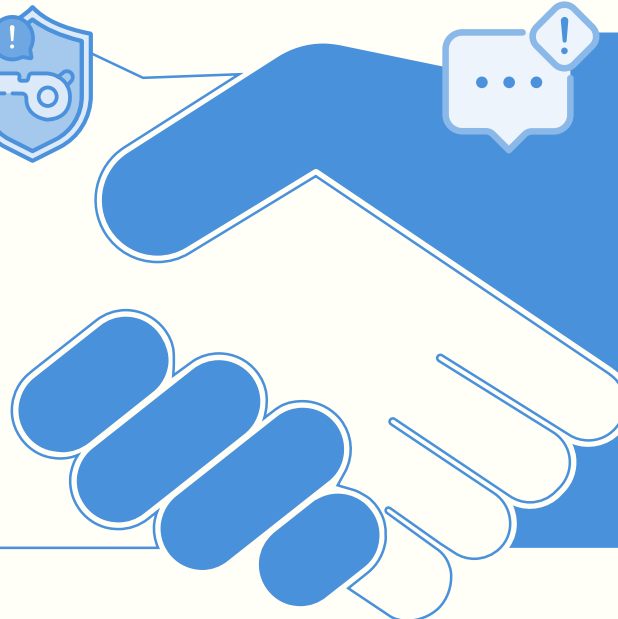
GRIEVANCE MECHANISM

TP's grievance mechanism allows our staff to raise grievances and concerns, and these will be carefully reviewed by our management.

We do not tolerate irresponsible reporting. Allegations that are proven to be baseless may result in disciplinary action.

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

MATERIAL TOPIC

# CLIMATE-RELATED RISKS MANAGEMENT

OUR COMMITMENT AND APPROACH

According to the World Economic Forum 2023 Global Risks Report[19], environmental risks persist as one of the top risks. Acknowledging the urgent need to address climate change and its associated risks to build, we are dedicated to embedding climate resilience across all aspects of our institute. To this end, we have conducted our inaugural climate risk assessment to proactively identify and manage climate-related risks and opportunities.

This year, TP embarked on our climate-related disclosures, implementing it in a phased approach. The assessment references Singapore's Third National Climate Change Study by Meteorological Service Singapore (MSS) and is guided by the IFRS S2 standards. We also conducted a qualitative scenario analysis and have committed to enhancing our disclosure efforts in the future.

GOVERNANCE

The Board of Governors (BOG) oversees all climate-related risks and opportunities and receive regular updates from the Audit and Risk Management Committee.

Working alongside the Sustainability Committee, the Enterprise and Risk Management (ERM) Committee will integrate new climate-related risks to the risk register after approval from BOG.

Board of Governors

Audit and Risk Management Committee

Senior Management

Enterprise and Risk Management Committee

Risk Owners
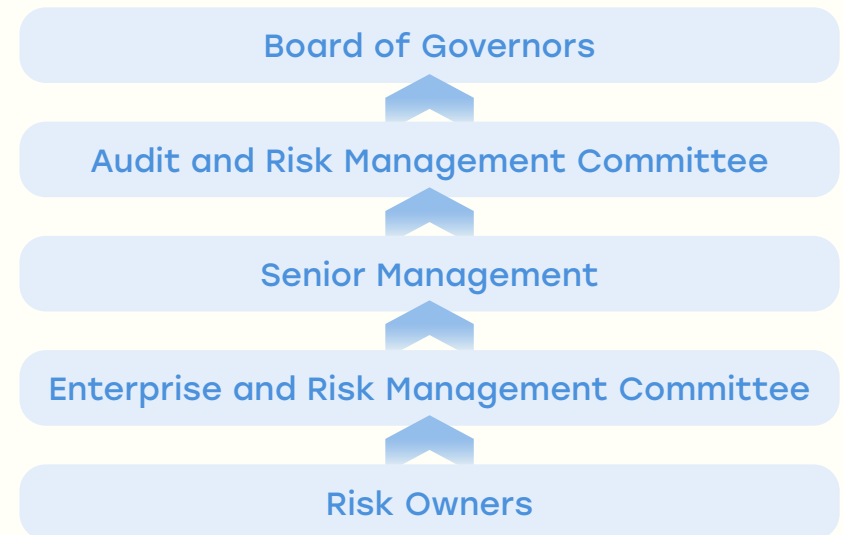
TP's Risk Management Structure

[19] The World Economic Forum 2023 Global Risks Report brought together leading insights on the evolving global risks landscape on the possibility of the occurrence of an event or condition which, if it occurs, would negatively impact a significant proportion of global GDP.

CLIMATE-RELATED RISKS MANAGEMENT

STRATEGY

We took reference from Shared Socioeconomic Pathways[20] (SSPs) and selected the following scenario pathways to evaluate our identified risks shown on page 90 to 92 :

■ **Physical risks**

SSP5–8.5

to signify warming that is likely to surpass 4°C (climate adaptation scenario)

SSP1–2.6

to signify a scenario aimed at limiting global warming to below 2°C above pre-industrial levels (climate mitigation scenario)

■ **Transition risks**

We conducted a climate risk assessment to evaluate the resilience of TP's campus against physical and transition risks, considering the likelihood, impact, and potential mitigation plans. We referenced two sets of time horizons from GreenGov.SG and our net zero emissions targets:

■ **Medium Term:** up to FY2030

■ **Long Term:** up to FY2045

[20] SSP is used alongside the Representative Concentration Pathways (RCPs) to analyse the feedbacks between climate change and socioeconomic factors, such as world population growth, economic development and technological progress. The scenario analysis acts as a stress test to better understand TP's understanding of vulnerabilities it faces under various scenario pathways.

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

CLIMATE-RELATED RISKS MANAGEMENT

Physical risks refer to potential negative impacts resulting from the physical effects of climate change. These risks can be acute, driven by specific events, or chronic, involving long-term shifts and increased variability in weather patterns.

PHYSICAL RISK – ACUTE RISKS

Risk Drivers	Impacts	Mitigation/Opportunities
Heatwave	■ Greater exposure to heat stress and hence, an increase in spending on heat stress-related health issues ■ Cancellation of lessons/student activities ■ Increase in energy costs for cooling and ventilation	■ Use of efficient 3-5 ticks or other efficient air-conditioning (AC) systems for new installations and replacements ■ Reduction of AC energy consumption using sustainable air treatment technology ■ Installation of Smart AC Control ■ Conduct education on heat stress for staff and students
Flood	■ Damage to property/assets ■ Supply chain disruptions ■ Cancellation of lessons/student activities	■ Installation of sump pumps was done for basement plant room which houses electrical distribution equipment. This equipment supplies electricity to both the Temasek Culinary Academy and Global Connect Village ■ Assessment of flood for other electrical distribution equipment and chilled water plants at ground level – low risk

CLIMATE-RELATED RISKS MANAGEMENT

PHYSICAL RISK – CHRONIC RISKS

Risk Drivers	Impacts	Mitigation/Opportunities
Rise in Mean Temperature	■ Additional energy costs for cooling and ventilation ■ Additional repair and maintenance costs to maintain the school buildings ■ Greater exposure to heat stress and hence an increase in spending on heat stress–related health issues	■ Installation of network energy and water metering to provide insights into per building/floor consumption ■ Refer to *Heatwave* Risk Driver on Page 90 for similar mitigation/opportunities
Prolonged Rainy Seasons	■ Increase operational and maintenance costs to enhance safety on premises, repairs and/or replace damaged assets ■ Increase risk of flooding that may disrupt school activities and affect commute for students and staff	■ Installation of sump pumps for basement plant room containing electrical distribution equipment supplying electricity to Temasek Culinary Academy and Global Connect Village ■ Ongoing study by EFM and students for areas prone to slippery floors due to wind driven rain
Rise in Sea Levels	■ Disruption of supply chain ■ Increase cost of purchased goods	N/A

CLIMATE-RELATED RISKS MANAGEMENT

Transition risks refer to potential negative impacts related to the shift towards a low-carbon global economy.

TRANSITION RISK – POLICY AND LEGAL RISKS

Risk Drivers	Impacts	Mitigation/Opportunities
Enhanced Emissions Reporting Obligations	▪ Create knowledge gap as staff may not possess the necessary expertise to meet new requirements	▪ Develop staff capability in ESG reporting through relevant training
Increase in Environmental Regulations	▪ Additional expenditures to increase water efficiency and reduce water consumption ▪ Improve waste management and recycling practices	▪ Refer to *Pillar 3 – Facilities & Operations* for more information about our mitigation plans

TRANSITION RISK – TECHNOLOGY RISK

Risk Drivers	Impacts	Mitigation/Opportunities
Increased Cost to Transition to Lower Emissions Technologies	▪ Increase cost of investment in new technologies, practices and processes (e.g., solar panels, IoT sensors, submeters, switch to leasing model, cloud-based storage etc.)	▪ Refer to *Pillar 3 – Facilities & Operations* for more information about our mitigation plans

TRANSITION RISK – MARKET RISK

Risk Drivers	Impacts	Mitigation/Opportunities
Introduction of green procurement policies	▪ Increase volatility and costs of raw materials ▪ Restrictions on sourcing for carbon-heavy raw materials	▪ Eliminate bottled water, tetra pack and water canisters for onsite events ; stop use of paper cups ▪ Regularly review TP's Green Supplier Policies

TRANSITION RISK – REPUTATION RISK

Risk Drivers	Impacts	Mitigation/Opportunities
Increased demand for sustainability-related courses, consultancy and research expertise	▪ Increase training costs to bring educators up to speed on new sustainability topics ▪ Reputational damage/loss of competitiveness if unable to meet demand	▪ Develop sustainability-related capabilities for staff and students

RISK MANAGEMENT

TP formalised a Risk Management Framework to identify, assess and manage risks in TP. Working alongside the Sustainability Committee, the ERM Committee works with the risk owners to identify relevant climate-related risks that needs to be managed.

METRICS AND TARGETS

TP is committed to ambitious net zero targets by FY2045. We have been closely monitoring our environmental performance in energy, water, waste and carbon emissions (Scope 1 and 2). Please refer to *Pillar 3 – Facilities & Operations* for more information about our environmental targets.

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

MATERIAL TOPIC
GREEN PROCUREMENT POLICIES

OUR COMMITMENT AND APPROACH

Green procurement is integral to our commitment to sustainability, as it allows us to minimise our carbon footprint and conserve resources. Our commitment to green procurement demonstrates our dedication to responsible sourcing and sustainable practices. By prioritising environmentally-friendly materials and implementing policies that promote green procurement practices, we actively manage our environmental impact and foster a campus-wide culture of sustainability.

GREEN PROCUREMENT POLICIES

We prioritise green procurement practices, ensuring suppliers use sustainable materials and adopt ethical employment practices, contributing to environmental conservation and social responsibility. Our policy aligns closely to GreenGov Green Procurement Guidelines[21] to ensure it reflects best procurement practices.

OUR GREEN INITIATIVES

Integrated generic green procurement criteria into the evaluation processes for Invitation to Tenders, allocating a percentage of evaluation scores to these indicators. Specific green procurement criteria for information technology hardware and construction tenders were also integrated into the Invitation to Tender process.

Centralised the procurement processes where possible by aligning purchasing with actual demand, leading to improved inventory management and decreased wastage.

Despite the green premium associated with eco-friendly options, our commitment to green procurement remains. We actively balance environmental stewardship with cost efficiency, despite possible increased expenses.

[21] Refer to GreenGov Green Procurement Guidelines for more details.

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

GREEN PROCUREMENT POLICIES

FUTURE PLANS

Install more water dispensing stations throughout TP's campus and encourage stakeholders to carry their own reusable cups or bottles.

Continuous communication strategy to keep our staff and students informed about updates or revisions to our green procurement policies.

MATERIAL TOPIC

INFORMATION SECURITY INCLUDING PRIVACY

OUR COMMITMENT AND APPROACH

Safeguarding sensitive information and preserving operational integrity are paramount to us. We prioritise protecting our digital assets, ensuring the privacy of our students and staff, and upholding our reputation as a trusted centre of learning and research. We are committed to maintaining the highest standards of cybersecurity and data privacy through our robust framework and management systems, as well as staff awareness initiatives.

INFOCOMM TECHNOLOGY (ICT) GOVERNANCE

ICT and Digitalisation Steering Committee
- Chaired by PCEO
- Provides direction on and approves ICT-related matters

Chief Data Officer
- Leads the data strategy
- Fosters a data-empowered culture centred within TP

Staff Capability Development and HR Team
- Drives digital capabilities initiatives

Chief Information Officer
- Leads technology integration and capability building
- Leads the development of TP's ICT policies and standards

Agency Chief Information Security Officer
- Oversees the key ICT security issues
- Ensures TP complies with relevant standards

Our policies align with the Instruction Manual for Infocomm Technology and Smart Systems (ICT&SS) Management. TP's owned and managed ICT systems undergo periodic audits and compliance checks to ensure compliance to ICT&SS requirements.

An annual mandatory IT Security Awareness Quiz is conducted for all staff, and it covers Cybersecurity, Data Protection, and Incident Management.

CAPACITY BUILDING

TP conducts two Tech Talks annually with the aim of raising cybersecurity awareness, educating staff on cyber risk management and the potential impacts of security incidents. The inclusion of role-play exercises to simulate cyber risks enhances TP's readiness for real-life incidents and digital challenges.

Raising cyber security awareness at a Tech Talk event

INFORMATION SECURITY INCLUDING PRIVACY

Data Management	Third Party Management	ICT Security and Data Incident Management	IT Disaster and Recovery Plan	Risk Management
■ Aligns best practices with ICT & SS Management ■ Reviews policy biannually by the Data Administration Group ■ Maintains strict data confidentiality by staff	■ Oversees security, data, and project risks in outsourced work ■ Conducts regular audits on third party systems cloud-based, hosting and maintenance services	■ Reports all ICT security and data incidents to the Security Incident Response Team ■ Escalates severe incidents to the CIO-led Security Incident Response Group ■ Conducts post-incident inquiries to evaluate the effectiveness of plans, response actions, and preventive measures	■ Reponse efforts are directed by the IT Disaster Recovery Command Centre, with key vendors and supplies providing necessary support during an IT disaster ■ Tracks progress by the Manager of Logistics, Admin & Communications, who prepares reports to the ICT and Digitalisation Steering Committee (IDSC) and PCEO	■ Conducts periodic risk assessments based on system type and data sensitivity ■ Identifies medium to high cyber and data security risks that requires PCEO's approval

Strengthening Our Cyber Security

■ Upgraded Data Loss Protection to better safeguard classified and sensitive data in email, aligning with the Whole-of-Government approach by GovTech

■ Simulate phishing email campaigns to assess and improve staff cybersecurity awareness and response, identify vulnerabilities and provide ongoing training to ensure vigilance against cyber threats.

9

Appendix

TECHNICAL ANNEXES

GHG INVENTORY AND MANAGEMENT

ORGANISATIONAL BOUNDARY

We compiled our GHG emissions in accordance with the GHG Protocol Corporate Standard. TP used operational control methods which covers TP's campus, but do not include tenants and leased facilities that are beyond our operational control.

EMISSIONS FACTOR FOR SCOPE 2

The emission factor for Scope 2 was obtained from Energy Market Authority's Grid Emission Factor for FY2022 – 0.4168 $kgCO_2$/kWh.

EMISSIONS FACTORS AND GHG GLOBAL WARMING POTENTIAL VALUES FOR SCOPE 1

The emission factors and global warming potential values applied to quantify Scope 1 emissions were obtained from GHG Protocol Emission Factors and the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report.

DEFINITION OF GHG EMISSION INTENSITY

Our definition of GHG Emission Intensity is aligned with the GreenGov.sg initiative:

$$\frac{\text{Total Scope 1 and 2 emissions } (kgCO_2e)}{\text{Campus Gross Floor Area } (m^2)[22]}$$

[22] TP's Gross Floor Area for FY2023 is 335,960 m^2 and it is aligned with our organisational boundary.

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

TECHNICAL ANNEXES

ENERGY MANAGEMENT

DEFINITION OF ENERGY UTILISATION INDEX (EUI)

Our definition of EUI and Baseline EUI is aligned with the GreenGov.sg initiative:

Calculation of Baseline EUI
$$\frac{\text{Total TP's building energy consumption between FY2018 and FY2020 (kWh)}}{\text{Total Campus Gross Floor Area between FY2018 and FY2020 (m}^2)[23]}$$

Calculation of EUI
$$\frac{\text{Total TP's building energy consumption (kWh)}}{\text{Total Campus Gross Floor Area (m}^2)[23]}$$

[23]

FY	Average number of operational days	Average number of students per day	Average Number of staff + onsite contractor per day	Average number of visitors per day	Campus Gross Floor (m²)
FY2018–2020	287	12,665	1,640	549	339.976
FY2021	302	7,087	1,139		341,100
FY2022	302	14,869	1,903		333,111
FY2023	300	14,353	1,854		335,960

TECHNICAL ANNEXES

WATER MANAGEMENT

DEFINITION OF WATER EFFICIENCY INDEX (WEI)

Our definition of WEI and Baseline WEI is aligned with the GreenGov.SG initiative:

Calculation of Baseline WEI
$$\frac{\text{Total TP's building water consumption between FY2018 and FY2020 (Litre)}}{\substack{\text{Average number of operational days per year between FY2018 and} \\ \text{FY2020* (Average number of full qualification students, staff, onsite} \\ \text{contractors per day + 0.25* (Average number of visitors per day)} \\ \text{between FY2018 and FY2020)}^{23,24}}}$$

Calculation of WEI
$$\frac{\text{Total TP's building water consumption (Litre)}}{\substack{\text{Average number of operational days in the year*} \\ \text{(Total number of full qualification students, staff, onsite} \\ \text{contractors + 0.25 of visitors per day)}^{23,24}}}$$

[23] FY	Average number of operational days	Average number of students per day	Average Number of staff + onsite contractor per day	Average number of visitors per day	Campus Gross Floor (m²)
FY2018–2020	287	12,665	1,640	549	339.976
FY2021	302	7,087	1,139		341,100
FY2022	302	14,869	1,903		333,111
FY2023	300	14,353	1,854		335,960

[24] The following estimates were included in the calculation of WEI and WDI:
- Sundays and public holidays were excluded from the number of operational days
- The number of staff includes permanent staff and adjunct lecturers based on full–time Equivalent hours
- 50% of full qualification CET students were included to account for lesser hours spent on campus
- The average number of visitors per day was based on a study done for all major TP events

TECHNICAL ANNEXES

WASTE MANAGEMENT

DEFINITION OF WASTE DISPOSAL INDEX (WDI)

Our definition of WDI and Baseline WDI is aligned with the GreenGov.SG initiative:

Calculation of Baseline WDI	Calculation of WDI
$$\frac{\text{Total waste disposed in FY2022 (kg)}}{\substack{\text{Average number of operational days in FY2022*} \\ \text{(Total number of full qualification students, staff, onsite} \\ \text{contractors} + 0.25 \text{ of visitors per day in FY2022) [23,24]}}}$$	$$\frac{\text{Total waste disposed (kg)}}{\substack{\text{Average number of operational days in the year*} \\ \text{(Total number of full qualification students, staff, onsite} \\ \text{contractors} + 0.25 \text{ of visitors per day) [23,24]}}}$$

[23]

FY	Average number of operational days	Average number of students per day	Average Number of staff + onsite contractor per day	Average number of visitors per day	Campus Gross Floor (m²)
FY2018–2020	287	12,665	1,640	549	339.976
FY2021	302	7,087	1,139		341,100
FY2022	302	14,869	1,903		333,111
FY2023	300	14,353	1,854		335,960

[24] The following estimates were included in the calculation of WEI and WDI:
- Sundays and public holidays were excluded from the number of operational days
- The number of staff includes permanent staff and adjunct lecturers based on full-time Equivalent hours
- 50% of full qualification CET students were included to account for lesser hours spent on campus
- The average number of visitors per day was based on a study done for all major TP events

GRI CONTENT INDEX

Statement of use:	TP has reported with reference with the GRI Universal Standards 2021 for the period 1 April 2023 to 31 March 2024.
GRI 1 used:	GRI 1: Foundation 2021
Applicable GRI Sector Standards:	TP will apply the latest GRI Sector Standard for our industry when the standard is made available.

Disclosure No.	Disclosure Topic	Page Reference
GRI 2: General Disclosures 2021		
2-1	Organisational details	About this Report, page 4
2-2	Entities included in the organisation's sustainability reporting	
2-3	Reporting period, frequency and contact point	
2-4	Restatements of information	This is TP's inaugural sustainability report. Hence no restatements have been made.
2-5	External assurance	External assurance has not been sought for this report. We may consider seeking external assurance for future reports.
2-6	Activities, value chain and other business relationships	About this Report, page 4
2-7	Employees	Diversity, Equity and Inclusion, page 64
2-8	Workers who are not employees	Description of the contractual relationship between workers and the organisation and type of work performed includes sensitive information and are not to be disclosed due to confidentiality reasons.
2-9	Governance structure and composition	Sustainability Governance, page 13
2-10	Nomination and selection of the highest governance body	FY2023/24 Annual Report, Our Board of Governors
2-11	Chair of the highest governance body	The chair of the Board is not a senior executive of the organisation.
2-12	Role of the highest governance body in overseeing the management of impacts	Sustainability Governance, page 13
2-13	Delegation of responsibility for managing impacts	
2-14	Role of the highest governance body in sustainability reporting	

GRI CONTENT INDEX

Disclosure No.	Disclosure Topic	Page Reference
GRI 2: General Disclosures 2021		
2-15	Conflicts of interest	Anti-Corruption, page 87
2-16	Communication of critical concerns	
2-17	Collective knowledge of the highest governance body	FY2023/24 Annual Report, Our Board of Governors
2-18	Evaluation of the performance of the highest governance body	This includes sensitive information and are not to be disclosed due to confidentiality reasons.
2-19	Remuneration policies	
2-20	Process to determine remuneration	
2-21	Annual total compensation ratio	
2-22	Statement on sustainable development strategy	Sustainability Strategy, page 18
2-23	Policy commitments	Sustainability Governance, page 13
2-24	Embedding policy commitments	Anti-Corruption, page 87 Employee Rights and Employment Practices, page 63 Green Procurement Policies, page 93 Information Security Including Privacy, page 95
2-25	Processes to remediate negative impacts	Anti-Corruption, page 87
2-26	Mechanisms for seeking advice and raising concerns	Stakeholder Engagement, page 14 Anti-Corruption, page 87
2-27	Compliance with laws and regulations	There were no instances of non-compliance with laws and regulations during the reporting period.
2-28	Membership associations	Human Capital Management, page 62
2-29	Approach to stakeholder engagement	Stakeholder Engagement, page 14
GRI 3: Material Topics 2021		
3-1	Process to determine material topics	Materiality Assessment, page 15
3-2	List of material topics	Five Sustainability Pillars and Material Topics, page 16

GRI CONTENT INDEX

Disclosure No.	Disclosure Topic	Page Reference
Pillar 1: Academics & Curriculum		
Material Topic: Sustainability Curriculum Integration		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Sustainability Curriculum Integration, page 22
Pillar 2: Research & Innovation		
Material Topic: Research and Industry Linkages		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Research and Industry Linkages, page 34
Pillar 3: Facilities & Operation		
Material Topic: Energy Management		
GRI 3: Material Topics 2021/ GRI 305: Energy 2016		
3-3	Management of material topics	Energy Management, page 46
302-1	Energy consumption within the organisation	
302-2	Reductions of energy consumption	
Material Topic: Water Management		
GRI 3: Material Topics 2021/ GRI 303: Water and Effluents 2018		
3-3	Management of material topics	Water Management, page 49
303-1	Interactions with water as a shared resource	
303-2	Management of water discharge-related impacts	
303-5	Water consumption	

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

GRI CONTENT INDEX

Disclosure No.	Disclosure Topic	Page Reference
Material Topic: GHG Inventory and Management		
GRI 3: Material Topics 2021/ GRI 305: Emissions 2016		
3-3	Management of material topics	GHG Inventory and Management, page 53
305-1	Direct (Scope 1) GHG emissions	
305-2	Energy indirect (Scope 2) GHG emissions	
305-4	GHG emissions intensity	
305-5	Reduction of GHG emissions	
Material Topic: Waste Management		
GRI 3: Material Topics 2021/ GRI 306: Waste 2020		
3-3	Management of material topics	Waste Management, page 56
306-1	Waste generation and significant waste-related impacts	
306-2	Management of significant waste-related impacts	
306-3	Waste generated	
306-4	Waste diverted from disposal	
306-5	Waste directed to disposal	
Pillar 4: Engagement & Well-being		
Material Topic: Human Capital Management		
GRI 3: Material Topics 2021/ GRI 404: Employment 2016		
3-3	Management of material topics	Employee Rights and Employment Practices, page 63
401-1	New employee hires and employee turnover	Diversity, Equity and Inclusion, page 67
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Staff Engagement and Well-being, page 70

Introduction &
Board Messages

Sustainability
Highlights

Sustainability
Approach

Pillar 1
Academics &
Curriculum

Pillar 2
Research &
Innovation

Pillar 3
Facilities &
Operations

Pillar 4
Engagement &
Well-being

Pillar 5
Strategy &
Compliance

Appendix

GRI CONTENT INDEX

| Disclosure No.	Disclosure Topic	Page Reference
GRI 405: Diversity and Equal Opportunity 2016		
405-1	Diversity of governance bodies and employees	Diversity, Equity and Inclusion, page 64 and FY2023/24 Annual Report Our Board of Governors
GRI 404: Training and Education 2016		
405-1	Average hours of training per year per employee	Staff Training, page 72
405-2	Programmes for upgrading employee skills and transition assistance programmes	
405-3	Percentage of employees receiving regular performance and career development reviews	Career Development, page 75
Material Topic: Student Well-being		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Student Well-being, page 77
Material Topic: Community Engagement and Impact		
GRI 3: Material Topics 2021/ GRI 413: Local Communities 2016		
3-3	Management of material topics	Community Engagement and Impacts, page 79
413-1	Operations with local community engagement, impact assessments, and development programmes	
Material Topic: Occupational Health and Safety		
GRI 3: Material Topics 2021/ GRI 403: Occupational Health and Safety 2018		
3-3	Management of material topics	Occupational Health and Safety, page 81
403-1	Occupational health and safety management system	
403-2	Hazard identification, risk assessment, and incident investigation	
403-3	Occupational health services	
403-5	Worker training on occupational health and safety	

Introduction & Board Messages

Sustainability Highlights

Sustainability Approach

Pillar 1 Academics & Curriculum

Pillar 2 Research & Innovation

Pillar 3 Facilities & Operations

Pillar 4 Engagement & Well-being

Pillar 5 Strategy & Compliance

Appendix

GRI CONTENT INDEX

Disclosure No.	Disclosure Topic	Page Reference
Material Topic: Occupational Health and Safety		
GRI 3: Material Topics 2021/ GRI 403: Occupational Health and Safety 2018		
403-6	Promotion of worker health	Occupational Health and Safety, page 81
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	
403-8	Workers covered by an occupational health and safety management system	
403-9	Work-related injuries	
Pillar 5: Strategy & Compliance		
Material Topic: Anti-Corruption/ GRI 205: Anti-Corruption 2016		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Anti-Corruption, page 87
205-2	Communication and training about anti-corruption policies and procedures	
Material Topic: Climate-related Risks Management		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Climate-related Risks Management, page 88
Material Topic: Green Procurement Policies		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Green Procurement Policies, page 93
Material Topic: Information Security Including Privacy		
GRI 3: Material Topics 2021		
3-3	Management of material topics	Information Security Including Privacy, page 95

SASB CONTENT INDEX (EDUCATION)

SASB Code	Accounting Metric	Page Reference
Data Security		
SV-ED-230a.1	Description of approach to identifying and addressing data security risks	Information Security Including Privacy, page 95
SV-ED-230a.2	Description of policies and practices relating to collection, usage, and retention of student information	
Quality of Education and Gainful Employment		
SV-ED-260a.3	Job placement rate	Disclosed as part of Polytechnic Graduate Employment Survey (GES)
Marketing and Recruiting Practices		
SV-ED-270a.1	Description of policies to ensure disclosure of key performance statistics to prospective students in advance of collecting any fees and discussion of outcomes	TP's key performance statistics to prospective students are shared through the website, annual report and sustainability report that is made publicly available. Information is also shared through face-to-face platforms such as the open house and school visits.
SV-ED-270a.2	Total amount of monetary losses as a result of legal proceedings associated with advertising, marketing, and mandatory disclosures	None for the reporting period.

SASB Code	Activity Metric	Page Reference
Data Security		
SV-ED-000.A	Number of students enrolled	FY2023/24 Annual Report, Our lifelong learning community
SV-ED-000.C	Average registered credits per student, percentage online	Average registered credit units (CU) per student for the reporting period is at 120 CUs where 1 CU equates to 15 hours of curriculum time. Average percentage online has not been disclosed due to confidentiality reasons.
SV-ED-000.D	Number of: (1) teaching staff and (2) all other staff	Diversity, Equity and Inclusion, page 64

Temasek
POLYTECHNIC
CREATING TOMORROW

GET IN TOUCH
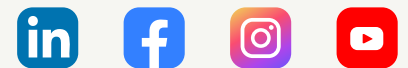
21 Tampines Ave 1, Singapore 529757

6788 2000

tp.edu.sg/sustainability

BDO

This sustainability report was prepared in collaboration with BDO Singapore