TIET Strategy for Sustainability

Nurturing Change Agents for a Sustainable Tomorrow

CONTENTS

TIETStrategyforSustainability_Revision_V1.1

INTRODUCTION

Need for this framework

The ethos of our institution has a focus on sustainability since our inception and we have initiated and engaged in a multitude of diverse sustainable development initiatives over the last six decades. While we have made commendable progress in various sustainability endeavors, our executive management acknowledged the need for a unified framework that consolidates and aligns our vision and efforts towards a sustainable future.

The purpose of this document is to act as a base for setting expectations of what we wish to achieve regarding sustainability at our institution and how we plan to do it. This document outlines our vision, objectives, and strategies to integrate sustainability and climate action into all aspects of our institution, catering to the needs of our diverse student body. This framework will provide clarity, guide decision-making, and enhance accountability, ensuring our actions are purposeful and impactful.

Vision

We started with these fundamental questions: "What is the role of an education institution in the context of sustainability?" and "What makes our educational institution uniquely positioned to contribute to local and global sustainability efforts?". We sought to identify the most relevant aspects for embedding sustainability in our operations, collaborations, and communications. We synthesized the insights from these inquiries with our existing vision to formulate a comprehensive sustainability vision that aligns with our institution's purpose.

Vision of TIET: *"To be recognized as a leader committed to excellence in higher education, research and innovation that meets the aspirations of the global community."*

One of our missions: *"To make Patiala, Punjab and India proud of being the most sustainable region of the world through creating, disseminating and applying actionable engineering knowledge."*

Connecting with our vision and mission, *Our aim is to nurture conscious leaders who will learn and apply actionable knowledge to solve local and global sustainability problems. We aim to be the positive change agent in our region of Punjab, extending to India and the global community at large.*

Where we exist

We recognize and acknowledge our unique location in the culturally rich region of Patiala, Punjab, situated in northwestern India. This acknowledgment of the context forms an essential aspect of our sustainability strategy and policy document. Being located in Patiala, we embrace the cultural heritage and traditions of the region, which shapes our institution's identity and values. Our connection to the local community, environment, and socio-economic context influences our sustainability approach and actions.

The region of Punjab holds significant historical and ecological importance. It is home to diverse ecosystems, including agricultural lands, rivers, forests, and wildlife. Punjab, which

means "Land of Five Rivers," has been an agriculturally prosperous region for centuries. The agricultural legacy of Punjab can be traced back to ancient times when the Indus Valley Civilization thrived in this region. The fertile soil, abundant water resources from the rivers and favorable climatic conditions provided ideal conditions for agriculture.

Traditionally, Punjab's agriculture was dominated by a mixed cropping system, with farmers growing a variety of crops, including wheat, rice, pulses, oilseeds, sugarcane, and cotton. The Green Revolution brought even more prosperity to many farmers and contributed to the economic development of Punjab. However, the intensive agricultural practices associated with the Green Revolution also posed challenges. Over-reliance on chemical fertilizers and pesticides led to environmental concerns, soil degradation, water pollution and health issues. The excessive use of groundwater for irrigation contributed to declining water tables and water scarcity issues.

Our sustainability strategy has kept these challenges of our region in focus and even chose thematic areas based on this context. We acknowledge the importance of engaging and collaborating with the local community, understanding their unique perspectives, and involving them in our sustainability initiatives. We recognize our responsibility to address the pressing environmental and social challenges specific to our region of Punjab.

Our Focus
Thematic Areas: After analyzing our contemporary environment and our strengths as an institution, we have identified key thematic areas in which we will focus our efforts. We will keep working on all the 17 SDGs wherever possible but our focus will be in these areas:
   1. Food Security
   2. Sustainable Water Management
   3. Health
   4. Sustainable Engineering & Innovation
   5. Sustainability & Climate Change Education

For ease of understanding and division of function, our strategic plan is divided in 5 different functional areas.
   1. Sustainable Campus: This section highlights the actions needed for achieving environmental and social sustainability within our campus operations.
   2. Shaping Thought Leaders: This section highlights the strategies needed to inculcate the idea of sustainability in our internal and external stakeholders.
   3. Driving Innovation for Climate Change Mitigation: We aim to develop technologies for climate change mitigation and facilitate local communities to innovate keeping the sustainability challenges in mind. This section highlights the strategies to enhance innovation.
   4. Outreach & Partnerships: The strategies in this functional area focus on our efforts to educate and influence our external stakeholders about transition to a sustainable future through partnerships and training programmes.

5. Governance & Leadership: The Governance & Leadership section of our sustainability strategy document outlines the crucial role that effective governance and strong leadership play in driving sustainable practices within our educational institute. This section highlights the strategies formulated to monitor and enhance our sustainability efforts.

Targets 2030

We have set the following ambitious yet achievable targets for our institution considering our resources and expertise in the area.

1. Achieve a 25% reduction in greenhouse gas emissions by 2030, working towards a long-term goal of carbon neutrality. We aim to achieve Net Zero by 2070, in line with the target of the Government of India.
2. Implement waste management strategies to achieve a 75% reduction in overall waste sent to landfill by 2030, with a focus on recycling, composting, and eliminating the use of single-use plastics.
3. Increase the representation of women in our workforce to achieve a gender-balanced workforce, aiming for a 50% increase in women.
4. Enhance biodiversity by implementing habitat restoration projects, increasing the number of native plant species on campus by 25%, and creating wildlife-friendly areas.
5. Enhance climate change and sustainable development literacy among the local community in our region by implementing targeted education and engagement initiatives, with the goal of reaching 75% of the local population.
6. Foster partnerships and collaborations with local communities, organizations, and stakeholders to address regional sustainability challenges and contribute to the wider community's well-being.
7. Engage with local communities through outreach programs, aiming to involve 80% of students and staff in sustainability-related initiatives, community projects, and partnerships.
8. Increase the percentage of sustainably sourced products and services to 50% of total procurement expenditure, supporting fair trade, environmentally friendly, and socially responsible suppliers.
9. Integrate sustainability topics into at least 50% of academic programs, ensuring that all students have access to education on environmental and social responsibility, fostering a culture of sustainability literacy.
10. Establish a robust sustainability reporting framework, regularly monitoring and reporting on key performance indicators to ensure transparency, and set measurable targets for continuous improvement.

These ambitious targets require efforts from all our stakeholders - students, faculty, administration and executive management. The relevant efforts required have been structured in different functional areas in the following sections. This structure will guide our decision-making ensuring that the actions of all stakeholders are unified, purposeful and impactful.

1. SUSTAINABLE CAMPUS

A change we believe in has to start from within. We believe that our campus should be the breeding and testing ground for our sustainability driven innovations. We want to make our operations as the role model for the external institutions we wish to influence. This section highlights the initiatives that would be targeted to make the operations at our campus inline with our Targets 2030.

A sustainable campus requires efforts for reducing carbon emissions, reducing water use, effective waste management, and sustainable procurement policy. The strategies for achieving our targets 2030 in our campus are mentioned in the following headers.

Reducing Carbon footprint

- Explore renewable energy options suitable for the local context, such as solar and biomass, to meet a significant portion of our energy requirements. For instance, *There is a plan to add solar panels in multiple buildings on our campus.*
- Conduct regular energy audits and develop an Energy Management Plan to optimize energy consumption, considering the specific energy needs and challenges of the local region.
- Enabling use of carbon-neutral means of transportation like cycling and walking through building dedicated paths for cycles and encouraging using these means through regular communications.
- Establishing carbon sinks to reduce the carbon footprint. We have established a policy to increase forest cover by 25% through strategic tree plantation initiatives and the development of nature parks, in and around our campus. *One such park being developed is the Nirvana Nature Park.*
- Limiting the use of vehicles on campus to reduce carbon emissions at campus. For instance, *some areas of campus are made vehicle free.* Also, *a policy of Vehicle-Free day has been introduced in Oct 2023, which directs faculty and students to not use their vehicles within campus on wednesday of every week.*
- Direct carbon emissions should be reduced by limiting the use of internal combustion engines at campus. For instance, only E-rikshaws are allowed within the campus for paid commute.

Sustainable Infrastructure

- Incorporation of electricity saving technologies like smart electric meters, LED lighting, sensor-based switches.
- Utilizing reduced energy consumption mechanisms in construction and usage of campus buildings.
- Prioritize the use of environmentally friendly materials in construction and renovation projects. Consider using recycled or locally sourced materials, sustainable timber, and low-impact building products. Emphasize waste reduction and recycling practices during construction and demolition activities.
- Facilitation of adoption of future ready technologies which reduce the impact on the environment. For instance, *EV charging stations have been installed at various locations in the campus.*

- Implement water-efficient technologies, including low-flow fixtures, dual-flush toilets, and rainwater harvesting systems.
- Educate the campus community about the importance of water conservation and promote responsible water usage practices.
- Implement water conservation measures like recycling of wastewater. For instance, *In house Sewage Treatment Plants (STPs) have been set up for treating wastewater to facilitate reuse within campus or by municipality.*
- Incorporate green spaces and biodiversity-friendly elements in the campus design. For instance, *planting native vegetation, and creating wildlife habitats in the campus.*
- Ensure that all campus facilities are designed and maintained to be accessible to individuals with disabilities. Consider inclusive design principles that accommodate diverse needs and promote a welcoming and inclusive environment for everyone.

Sustainable Waste Management

We are setting up Waste Management Systems in which we invest in technologies for segregation, handling and upcycling of waste and we are developing a culture of where each member of the Thapar family would view waste as value rather than as a burden.

- Establish a comprehensive waste segregation system, ensuring separate bins for recyclables, compostables, and non-recyclable waste. For instance, *we have partnered with Saahas Zero Waste, a waste management company in India, to set up a comprehensive waste management system.*
- Implement strategies to minimize waste generation at the source, such as promoting digital documentation, reducing paper usage, and encouraging students and staff to bring reusable containers and bottles.
- Design and implement awareness and training programs for our internal stakeholders. For instance, *A 2-day workshop on Household waste management was conducted for faculty and students to foster sustainable practices.*
- Develop systems to properly dispose off waste which cannot be recycled. Set up partnerships with local bodies for the waste which cannot be handled on site. Establish monitoring of waste management which will be handled by external stakeholders.
- Establish a composting program for organic waste generated on campus, such as food scraps and landscaping waste. Implement composting systems to divert organic waste from the landfill and produce nutrient-rich compost for campus gardens.
- Develop protocols and procedures for the safe handling and disposal of hazardous waste, such as chemicals, batteries, and fluorescent bulbs. Ensure compliance with local regulations and establish partnerships with licensed hazardous waste management facilities for proper disposal.
- Implement proper disposal and recycling methods for electronic waste (e-waste). Set up systems for collecting electronic devices, such as old computers, printers, and mobile phones, and ensure they are recycled through certified e-waste recycling facilities.

- Collaborate with local waste management agencies and NGOs to promote responsible waste disposal practices and explore innovative waste-to-resource initiatives
- Implement measures to reduce food waste at the mess facilities at the campus, such as accurate meal planning, portion control, and monitoring of food production and consumption. Promote awareness among students about the environmental and social impacts of food waste and encourage responsible eating habits.
- Establish protocols for food waste management in collaboration with our caterer. This can include dedicated bins for food waste, utilization of food waste in compost or biogas generation.
- Develop a long-term plan for installing a biogas plant on campus.
- Conduct regular waste audits to assess the effectiveness of waste management initiatives, identify areas for improvement, and track progress towards waste reduction targets.

Sustainability-driven procurement policy

The products and services we consume will be chosen based on principles of sustainability. The detailed description of our procurement policies is described in a separate policy document. It is aimed at local, ethical and responsible sourcing, adopting technologies with reduced environmental impact, incorporating life cycle assessment and prioritizing use of green building materials, renewable sources of energy, carbon-efficient materials, fair trade products and likewise.

2. SHAPING THOUGHT LEADERS

We wish to inculcate the idea of sustainability in students, faculty and every external stakeholder that is connected to us. Our aim is to add a lens in people's minds with which they are able to understand the unsustainable issues around them more clearly.

Expanding knowledge about Sustainability
- Infuse sustainability concepts and principles across disciplines, ensuring that all students develop a deep understanding of sustainability. For instance, *increasing courses about sustainability, environmental education and climate change in every program.*
- Introduction of experiential learning courses to all programs, allowing students to gain a deeper sensitization and addressing the specific sustainability challenges faced by local communities in the Punjab region and globally.
- Encourage students to engage with local communities through internships, research projects, and community-based initiatives, fostering mutual learning and sustainable development.
- Create platforms for students to share their research, projects, and initiatives that address regional sustainability concerns, promoting sustainable practices that resonate with the local culture and traditions.

- Offer specialized sustainability programs and courses that equip students with the knowledge, skills, and values required to become sustainability leaders and agents of change in the local context.

Excellence Seeking Mindset
- Promote a culture of excellence, encouraging students, faculty, and staff to continuously strive for sustainability excellence.
- Recognize and celebrate outstanding achievements in sustainability that contribute to the well-being of local communities and inspire others to follow suit.

Engagement with Alumni
- Our Alumni are in influential positions in multinational companies across the world. Establish frameworks for holding conversations with them on how to influence sustainability change in their organizations
- Our Alumni are engaged in impactful projects and set up various NGOs. Communication of the impact generated by our alumni
- Collaborate with our Alumni to design and execute social impact projects.

3. DRIVING INNOVATION FOR CLIMATE CHANGE MITIGATION

Climate change is a pressing challenge globally, which affects every species on the planet. Scientific research has established that the recent change in the climate has been brought about by the actions of humans and will continue to affect us unless we come up with innovative actionable solutions. Our focus is on facilitating research which would drive innovations for climate change mitigation and development of sustainable technologies. Started as an engineering institution, we are committed to facilitate research and development of technologies which can aid in climate change mitigation.

- Establish mechanisms for boosting research which would limit human impact on climate change or even reduce it. **Example:** *The School of Energy and Environment (SEE) was established in which actionable research is being conducted to develop cutting edge technologies.*
- We understand that the innovations from the social sciences, arts and humanities are also required in parallel to technical advancements for effective innovations for climate change mitigation. Our Management and Liberal Arts schools are encouraged to research behavior change which facilitates climate change mitigation.
- Establish dedicated research centers and institutes focused on addressing the unique sustainability challenges of the Punjab, fostering interdisciplinary research and innovation.
- Encourage faculty and students to undertake research projects that tackle regional sustainability issues, aiming for practical and scalable solutions that benefit the local communities.
- Instill the idea of Social Entrepreneurship in all our students regardless of the programs they are in.
- Our institution's incubator and accelerator, Venturelab, shall prioritize supporting and nurturing startups that aim to solve pressing societal problems.

- Venturelab will establish partnerships, collaborations, and networks with relevant stakeholders, including social impact organizations, nonprofits, and government agencies, to create an ecosystem that supports startups in their mission to address societal problems.

4. OUTREACH & PARTNERSHIPS

A lot of what we do as an institution affects the connections we have built over the last seven decades. Collaboration is a key aspect of how we function. As our connections and partnerships view us as a change agent in our region, it is our responsibility to share and propagate our ideas of sustainable living to our connected communities.

Partnerships & Collaborations
- Forge strategic partnerships with local government agencies, NGOs, industry leaders, and other educational institutions in the Punjab to collaboratively address regional sustainability challenges.
- Engage in joint initiatives, research projects, and knowledge-sharing activities that contribute to sustainable development and the well-being of the local communities.

Public Awareness & Training programmes
- Design waste management systems, facilitate implementation and conduct awareness training programs for local schools in Patiala.
- Engage with the local community through sustainability-focused events, workshops, seminars, and public awareness campaigns that are tailored to local cultural context.
- Utilize various communication channels, including local media and community networks, to disseminate information, inspire action, and raise awareness about regional sustainability issues.
- Our experienced faculty is encouraged to conduct training programmes on sustainability and share their knowledge with local companies and communities
- Influencing businesses and the way business is conducted. Develop training programmes with businesses to inculcate sustainability in their decision making processes.

Stakeholder Engagement
- Establish connections with the key stakeholders relevant to the institution's sustainability goals. This may include students, faculty, staff, alumni, local communities, government agencies, industry partners, non-profit organizations, and other educational institutions.
- Determine the most effective channels and methods for engaging with different stakeholder groups. This may include focus groups, surveys, workshops, online platforms, newsletters, social media, and face-to-face interactions.
- Encourage active participation and feedback from students, faculty, staff, alumni, local communities, and other regional stakeholders in shaping sustainability initiatives and driving continuous improvement.
- Establish activities in course curriculum, which requires students to engage with local stakeholders and work on sustainable development goals.

5. GOVERNANCE & LEADERSHIP

As an institution committed to shaping the leaders of tomorrow, we recognize that our governance structures and leadership practices have a profound impact on our ability to create a sustainable future. This section focuses on the principles, policies, and mechanisms that guide our decision-making processes, promote transparency, and ensure accountability in our pursuit of sustainability. It highlights the importance of embedding sustainability into our institution's governance framework and outlines the leadership responsibilities in driving sustainability initiatives forward.

Sustainability Board
   ● Establish a dedicated Sustainability Board comprising experts from academia, industry, and local community organizations. The board will provide strategic guidance, and oversee sustainability initiatives.
   ● Conduct regular reviews of the sustainability policy, incorporating emerging best practices, regional dynamics, and evolving sustainability challenges to ensure its ongoing relevance and effectiveness.

Sustainability Committee
   ● Form a cross-functional Sustainability Committee consisting of faculty, staff, and student representatives. The committee will be responsible for implementing sustainability initiatives, setting targets, and monitoring progress, considering the regional context and student perspectives.

Reporting and Accountability
   ● Establish a robust system for monitoring and tracking sustainability performance indicators that are relevant to the Punjab region, including energy consumption, waste generation, water usage, and social impact.
   ● Regularly assess and report progress towards sustainability goals, ensuring transparency, and accountability to the university community, local stakeholders, and regulatory bodies.

Annual Sustainability Report
   ● Publish an annual Sustainability Report that highlights the university's sustainability achievements, challenges, and future plans in the context of the Punjab and any global efforts.

- Engage independent auditors to ensure the accuracy and credibility of the sustainability reporting process, building trust and confidence among stakeholders.