Sustainable Development Strategy: Operations

So far, GreenTU has collaborated extensively with several departments around TU Delft, notably including Campure & Real Estate (CRE). Based on this experience, the vision for operation is divided into six areas: energy, food, mobility, waste, water, and procurement. For each of these areas, extensive suggestions have been thought up in dialogue with various stakeholders. This summary provides a brief overview of some of these suggestions. Strategies range from requiring a low investment to be implemented (<€500,000) to requiring a high investment (>€5,000,000).

Energy

When it comes to energy usage and infrastructure at TU Delft, GreenTU has a vision involving three things:

1. reflecting TU Delft's expertise in the campus operations;
2. building a sustainable, reliable, affordable, and future-proof energy system;
3. developing a system to monitor, evaluate and track progress.

In working towards this vision, two areas of focus are (1) to find ways to reduce the energy demand of campus operations and (2) to improve the environmental footprint of the energy TU Delft consumes.

This first area offers many opportunities for improvement in an array of scales. For example, winter and summer closures of the environmental control systems could be initiated, as many (sections of) buildings are empty during these periods, thereby not requiring heating or cooling. Additionally, lighting systems could be upgraded, as well as the insulation of the older buildings, which are currently lagging behind.

When it comes to improving the energy mix TU Delft is reliant on, an appealing idea is to increase the on-campus generation of clean energy. This includes the geothermal site discussed, as well as vertical solar panels on high-rise facades, or on-campus wind energy. Another potential step involves switching to electric heating from gas heating.

Food

The emissions that result from food is categorized as scope 3 emissions. Among the emissions accounted for in the **CO_2 roadmap of TU Delft**, those from food are overall the highest contributor to the environmental footprint of campus activity. GreenTU's vision for sustainable catering and food consumption includes:

1. defining healthy and sustainable food standards for the all caterers;
2. reducing high-emission items, such as meat, dairy, packaging, and single-use cutlery, as well as food waste, by scaling up initiatives such as No Meat Week and creating clear, practical, and universal guidelines for catered events;
3. and creating awareness among the consumers for alternative options and the impact of their food choices.

Mobility

A mobility strategy broadly focuses on two things: daily commutes to campus and employee/student travel for purposes such as research, networking, or education. Each of these require a dedicated approach:

1. **Make low-impact commute options attractive**: provide employees with NS business cards, promoting carpooling, subsidising (e-)bikes, and improving (e-) bike facilities.
2. **Discourage air travel**: subsidise train travel and regulate when air travel can be considered, encourage video conferencing (e.g. by improving facilities), and enforce a compensation in cases where air travel is the only realistic option.

Waste

The total waste generated is estimated to be around 2.8 million kg per year, which will only increase in a business as usual scenario. Major waste streams include residual waste, GFT (food/garden waste), paper, cardboard, and debris from construction work. This accounts for 908 t CO_2-eq.

For waste management, GreenTU proposes a series of low-investment strategies in terms of waste treatment and waste reduction:

1. collecting data and performing a material flow analysis to improve understanding and track progress;

2. improving waste separation for caterers and through common bin islands;
3. improving visibility and awareness for hazardous-material bins;
4. improving facilitation and encouragement for reusable cups at coffee machines and reusable cutlery at caterers.

Water

The following suggestions aim to improve water consumption at TU Delft:

1. Collecting rainwater for internal use. Wastewater from sinks could also be repurposed in toilets, for example.
2. Implementing sensor-based taps where this has not been done so far.
3. Setting up taps for refilling water bottles. By improving the convenience of reusable water bottles, the use of single-use plastics is also reduced.

Procurement

These emissions associated with procurement at TU Delft are, at the time of writing, not yet clearly accounted for. However, what is known is that they play a significant role, especially when considering circularity. A few Sustainable Purchasing Guidelines are follows:

1. collection of procurement data, analysis, and reporting;
2. incorporate sustainability into contracts and tenders;
3. cost decisions should value the long-term impact of sustainable procurement;
4. preference to purchase reusable commodities;
5. review the sustainability value of the products by metrics and certificates:
    a. Energy: purchasing electronics with A+ (or better) or Energy Star rated
    b. Packaging: gradually ban single use plastic and invest in reusable and long-lasting items. Or use recyclable or compostable alternatives
    c. Paper: purchase recycled paper and ensure used/waste paper is almost completely recycled.