



# Environmental Sustainability Annual Report

## 2019/20

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## Approval Page

Version	Governance Group	Date Approved
1.0	Sustainability Committee (SC)	15 March 2021
1.0	Estates Strategy Board (ESB)	22 March 2021
1.0	Senior Executive Team (SET)	18 May 2021

## Overview

Our 2019/20 environmental sustainability report summarises our performances against our environmental objectives and commitments as well as show our progress towards embedding good environmental practices across all areas of our operations.

The highlights of our performance during the year under review are:

- Governance: We expanded the membership of our Sustainability Committee to include additional relevant stakeholders. The governance group is responsible for the delivery of our environmental objectives and commitments
- Sustainability Leadership Scorecard (SLS) and UN Sustainable Development Goals: we are pleased to report that we achieved Silver SLS status based on the self-assessment of our 2019/20 performances
- Carbon reduction and responding to climate change: Our carbon footprint (CO<sub>2</sub>e) reduced by 28.5% from 26,394 tCO<sub>2</sub>e during the 2018/19 academic year to 18,870 tCO<sub>2</sub>e at the end of the year under review
- Energy efficiency investment: We secured a £2.46 Million energy efficiency loan from Salix (at 0% interest rate) as part of our commitment to deliver our six-year, 30% carbon reduction target
- Energy procurement and savings: we successfully carried out an energy procurement competition during the year under review and the savings that will be realised from our new energy supply service contracts between 1 October 2020 and 30 September 2021 is £1.04 Million
- Waste management and Resource Efficiency: The total general wastes generated across our UK campuses reduced by 50%, but our recycling performance reduced from 33% to 29% between the 2018/19 and 2019/20 academic. We have also continued to deliver our ReUse scheme and used book collection service.
- Construction and refurbishment: One of the recently completed refurbishment projects have been shortlisted for BREEAM Awards 2021
- Biodiversity: We have continued to maintain our medicinal and sensory gardens and 40 of our staff and 10 students have continued to use the allotments within our Mile End Campus
- Sustainable procurement: As part of our commitment to influence our suppliers and contractor to embed good environmental practices across their operations; we are

pleased to report that 9 of our top-12 suppliers and contractors currently have ISO 14001:2015 certificates

- **Embedding environmental sustainability:** As part of our commitment to embed good environmental practices across all areas of our operations and academic offering to our students, we are currently offering professional development (CPD) courses to our staff and students. During the year under review, 58 professional services and academic staff participated in our environmental sustainability skills for the workforce course and 68 students completed the optional module on sustainable development

## Governance

Our Sustainability Committee (SC) is responsible for the delivery of our environmental sustainability objectives and commitments. This governance group reports to our Senior Executive Team (SET) and / or to our Estates Strategy Board (ESB).

The Vice Principal, Policy and Strategic Partnerships, (a member of our Senior Executive Team) provides oversight of our environmental sustainability delivery approach and is the Chair of the Sustainability Committee. The Vice Chair is the Director of Estates, Facilities and Capital Development

During the year under review, we expanded the membership of our SC to include staff union representatives and increased the number of academics that attend our SC's meetings. During the 2019/20 academic year, our SC met in October 2019, January 2020, April 2020 and July 2020.

## Sustainability Leadership Scorecard and UN SDGs

The United Nations adopted the 2030 Agenda for Sustainable Development in 2015. The Agenda for Sustainable Development is underpinned by the current Sustainable Development Goals (UN SDGs).

We are currently using the Sustainability Leadership Scorecard (SLS) framework coordinated by the Environmental Association for Universities and Colleges (EAUC) to embed relevant social, economic and environmental drivers into all aspects of our operation as well as monitor our performances against these goals.

We are pleased to report that we achieved Silver SLS status based on the self-assessment of our 2019/20 performance. As seen in Table 1, Food and Drink (Catering), Community, and Public Engagement are two areas of priority that requires significant improvement.

**Table 1: Queen Mary, 2019/20 Sustainable Leadership Score (Self-Assessment)**

Category	Status	Priority Areas	Score (%)
Leadership and Governance	Gold	Staff Engagement and Human Resources	78.1%
		Leadership	78.1%
		Health and Wellbeing	68.7%
		Risk	59.4%
Estates and Operations	Gold	Resource Efficiency and Waste	71.9%
		Biodiversity	75.0%
		Construction and Innovation	62.5%
		Water	62.5%
		Travel and Transport	59.4%
		Climate Change Adaptation	71.9%
		Energy Management	93.7%
Partnership and Engagement	Silver	Community and Public Engagement	46.9%
		Business and Industry Interface	68.7%
		Procurement and Supplier Engagement	75.0%
		Food and Drink (Catering)	37.5%
Learning, Teaching & Research	Silver	Student Engagement	81.2%
		Research	62.5%
		Learning and Teaching	56.2%

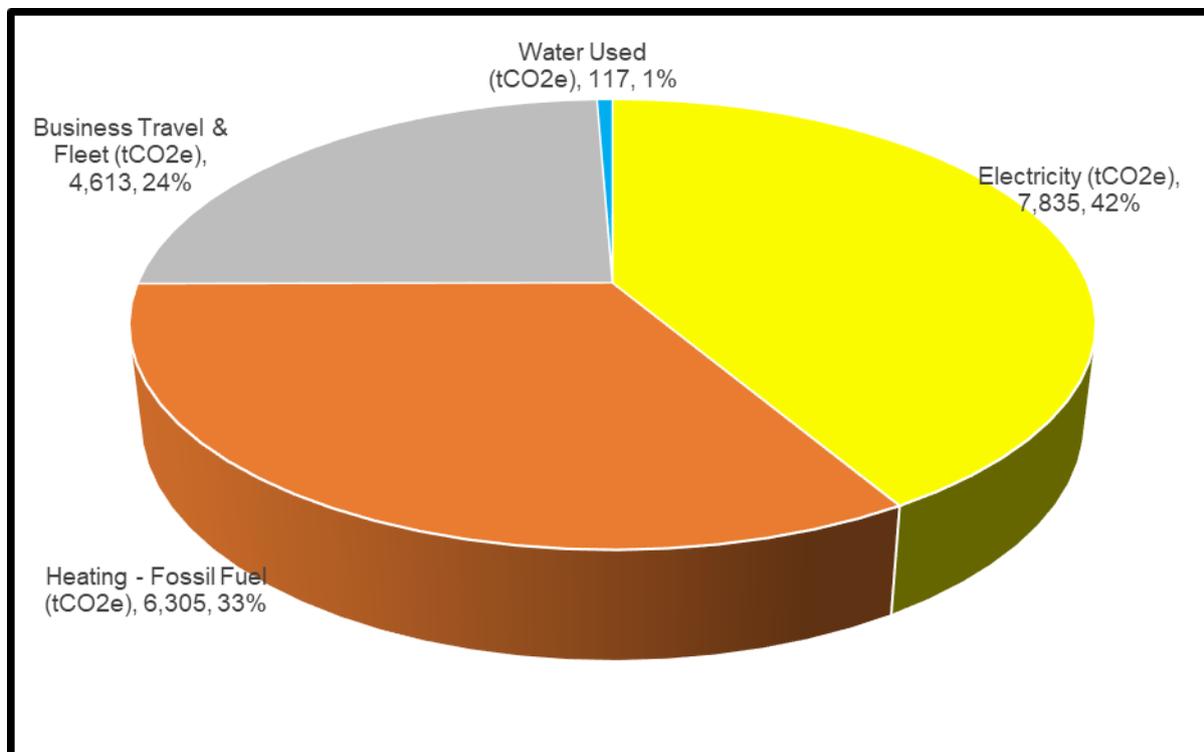
## Carbon Reduction and Responding to Climate Change

Our six-year 30% carbon reduction target against our 2018/19 carbon footprint is one of our immediate responses to the risks associated with climate change as well as our commitment to support the delivery of the UK's 2050 net-zero carbon target and the UN Conference of Parties (COP) climate emergency goals.

Our carbon footprint (CO<sub>2</sub>e) is represented by the emissions associated with the energy and water used across our UK campuses, fuel used by our vehicles and business travel<sup>1</sup>.

During the 2019/20 academic year, we emitted 18,870 tCO<sub>2</sub>e. Our 2019/20 carbon footprint was made of electricity and fossil fuel used across our UK campuses (75%), the water we used (1%) and our travel and transportation (24%). To put our current carbon footprint into context, on the average we emitted 0.92 tCO<sub>2</sub>e for every student. Figure 1 show the breakdown of our current carbon footprint.

**Figure 1: Queen Mary's 2019/20 Carbon Footprint**

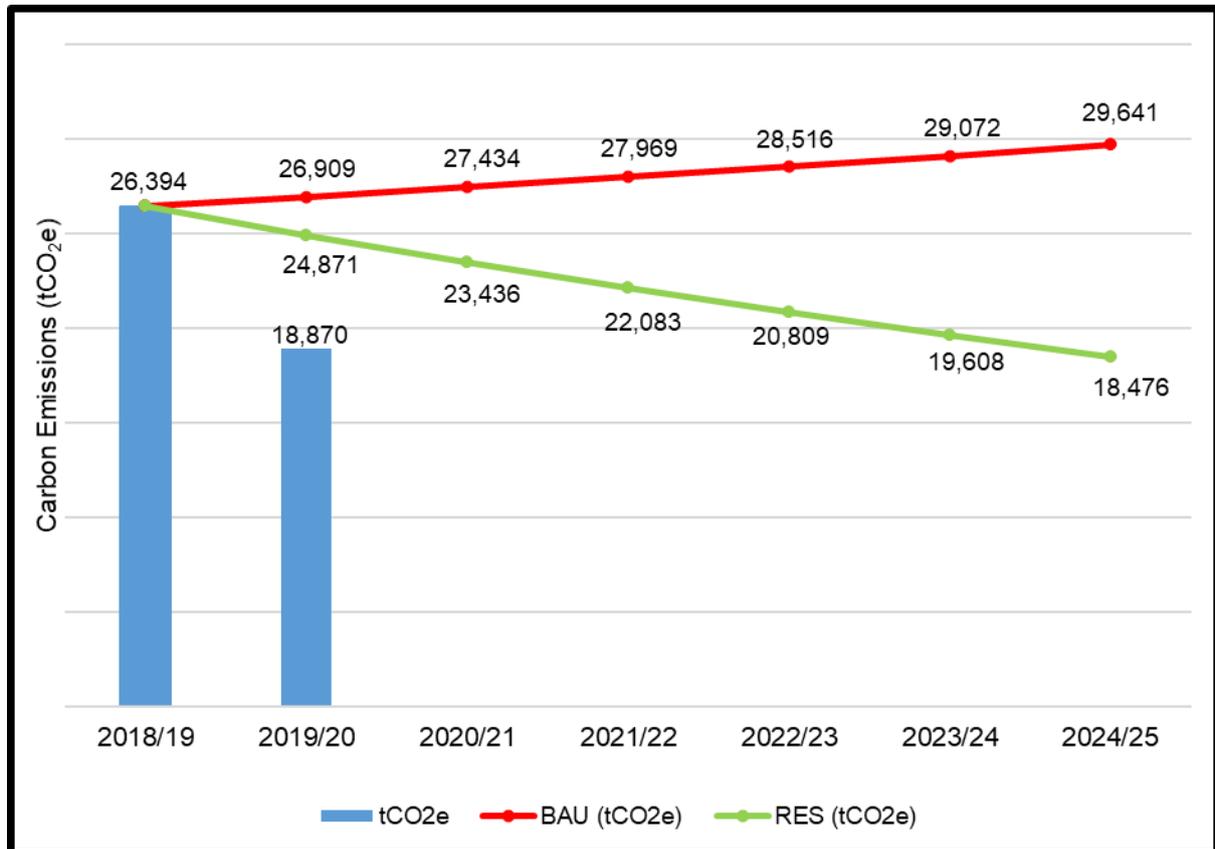


Our carbon footprint reduced by 28.5% from 26,394 tCO<sub>2</sub>e to 18,870 tCO<sub>2</sub>e between the 2018/19 and 2019/20 academic years. This significant performance improvement in our carbon footprint could be partly attributed to our responses to the national restriction and lock-downs associated with COVID-19 pandemic from March 2020.

<sup>1</sup> Distances our Staff and Researchers travel to carry out academic and operational responsibilities (excluding those via Oyster Cards)

Figure 2 show our 2018/19 and 2019/20 carbon footprints compared to our business as usual (BAU) and modelled reduced emission scenario (RES) trajectory based on our six-year 30% carbon reduction target.

**Figure 2: Our Carbon Reduction Performance against BAU and Target Emissions**



Further comparison of our current carbon footprint and associated indicators against our 2018/19 baseline show that:

- Our student number increased by 4.5% from 19,595 to 20,477
- The water we used across our UK increased by 0.6% from 338,772 m<sup>3</sup> to 340,876 m<sup>3</sup>
- Our business travel reduced by 31% from 31.9 Million km to 21.99 Million km
- The natural gas used for heating our UK campuses reduced by 7% from 33,150 MWh to 30,817 MWh
- The heating oil used at our Chislehurst Campus increased by 4.3% from 96,307 Litres to 100,416 Litres
- The electricity used across our UK campuses reduced by 11.4% from 37,537 MWh to 33,260 MWh

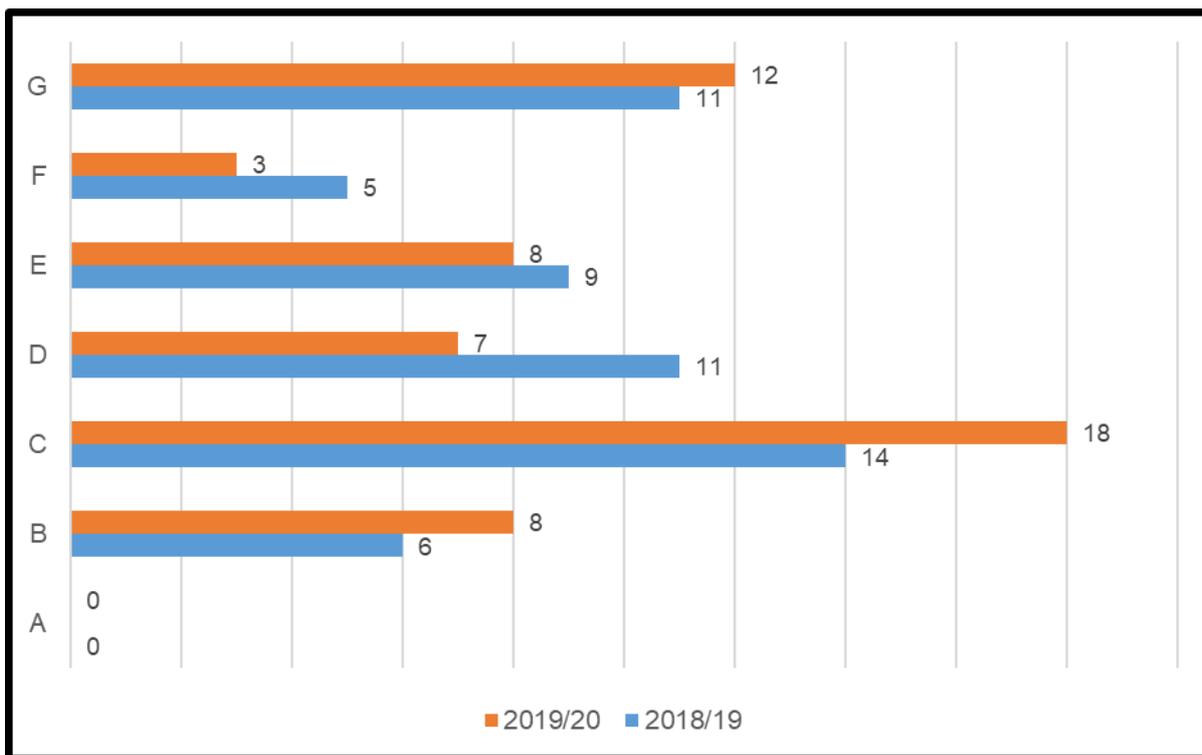
- We achieved 31.6% carbon intensity reduction (Carbon / Student) from 1.35 to 0.92 tCO<sub>2</sub>e/Student

## Building Energy Performance

Appendix 1 contain a comparative summary of the energy used across our UK campuses. The Display Energy Certificates (DECs) and Energy Performance Certificates (EPCs) are the main parameters that we currently use to monitor the performances of our buildings.

The average DECs and EPCs scores of buildings across our UK campuses reduced by 8.5% from 124.7 (2018/19) to 114.1 (2019/20). Figure 3 show the breakdown our DECs and EPCs (over the last two years).

**Figure 3: Queen Mary's DEC and EPC Profile (2018/19 and 2019/20)**



## Water Used

The COVID-19 pandemic significantly stalled the delivery of our water efficiency priorities. As seen in Table 3, the water used across our UK campuses increased 0.6% between the 2018/19 and 2019/20 academic years. However, water efficiency will continue to be an integral aspect of our commitment to continue to improve our environmental performances.

**Table 3: Water Used across our UK Campuses**

Campus	Water Used m <sup>3</sup> (2018/19)	Water Used m <sup>3</sup> (2019/20)
Charterhouse	28,840	15,533
Whitechapel	68,391	19,681
West Smithfield	2,241	2,062
Mile End	191,242	277,923
Lincoln Inn Fields	1,339	1,234
Chislehurst Sports Ground	27,873	9,699
Others	18,844	14,684
<b>Total</b>	<b>338,772</b>	<b>340,816</b>

## Travel and Transportation

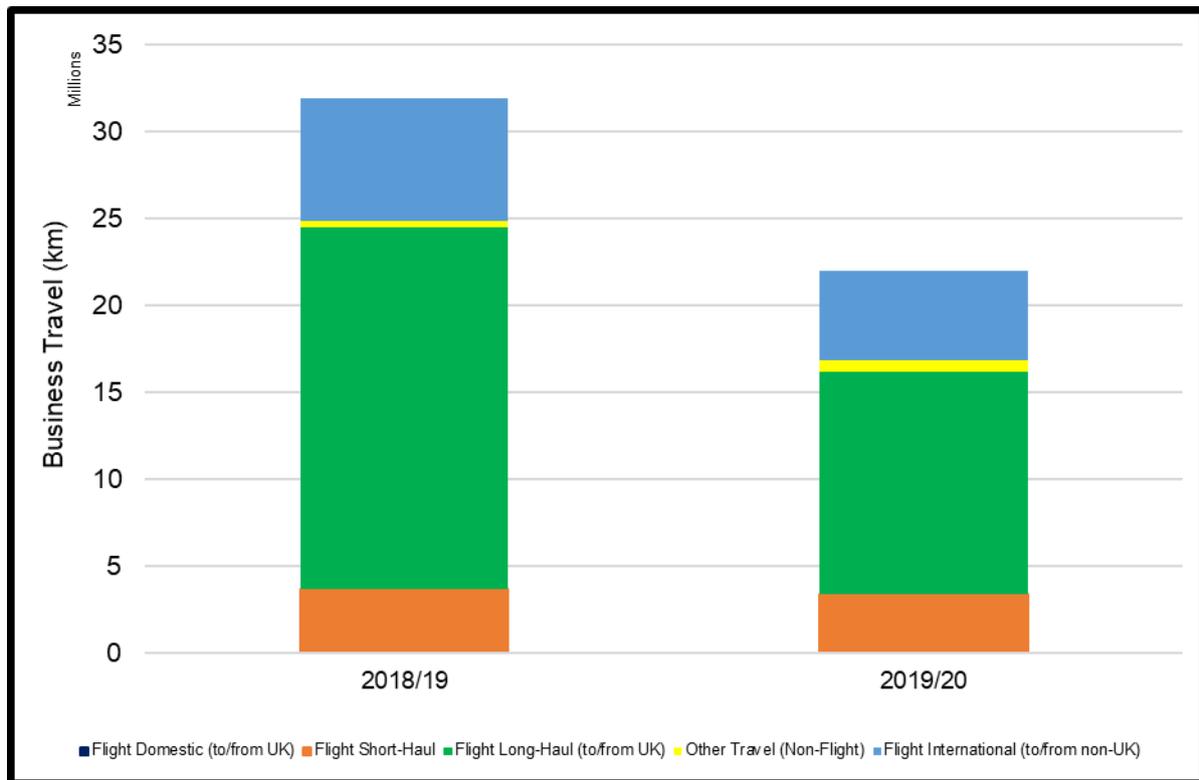
Appendix 2 show the breakdown of our 2018/19 and 2019/20 business travel<sup>2</sup>. Our 2019/20 business travel of 21.99 Million km is 31% lower than our 2018/19 business travel of 31.93 Million km. This environmental performance improvement is consistent with the period of the 2019/20 academic year that was effected by the lock-down and restrictions associated with the COVID-19 pandemic. See Figure 4 for the profile of our 2018/19 and 2019/20 business travel.

We will be reviewing and adapting remote working and virtual teaching and collaboration that were common practices during restrictions associated with the COVID-19 pandemic.

As part of our commitment to encourage sustainable travel, we currently have 858 bicycle storage facilities across our three main UK campuses and sustainable travel and transportation will continue to be an integral priority of all our construction and refurbishment projects.

<sup>2</sup> Distances our Staff and Researchers travel to carry out academic and operational responsibilities (excluding those via Oyster Cards)

**Figure 4: Queen Mary's 2018/19 and 2019/20 Business Travel**



## Energy Efficiency Investment (£2.46 Million)

As part of our commitment to deliver our six-year, 30% carbon reduction target, we secured a £2.46 Million energy efficiency loan from the Salix in March 2020. These projects are estimated to deliver 2,321,808 kWh (electricity) and 4,157,720 kWh (gas) savings. Table 2 show an overview of these energy efficiency projects.

**Table 2: Queen Mary's Salix Tranche 3 Project Overview**

Project Title / Description	Cost (£)	Projected Savings	
		Electricity (kWh)	Gas (kWh)
Joseph Priestley: Plate Heat Exchanger	£397,907	105,780	1,763,680
BMS Upgrade: Whitechapel Campus	£602,946	727,382	1,358,785
BMS Upgrade: Arts Two Building	£32,573	34,526	39,742
BMS Upgrade: Computer Science Building	£16,629	56,325	100,627
BMS Upgrade: Engineering Building	£83,025	201,279	400,434

		Projected Savings	
BMS Upgrade: G. E. Fogg Building	£48,783	164,607	37,477
BMS Upgrade: G. O. Jones Building	£8,629	31,010	21,069
BMS Upgrade: Peoples Palace Building	£105,017	85,970	435,906
Whitechapel Lighting Upgrade	£1,170,000	914,929	NA
<b>Total</b>	<b>£2,465,509</b>	<b>2,321,808</b>	<b>4,157,720</b>

## Energy Procurement and Savings (£1.04 Million)

The energy procurement competition that we carried out during the 2019/20 academic year was aligned to our efficiency priorities and commitment to explore green electricity tariff. One of the outcome of this procurement process is that we entered into fixed 12-months energy contracts and with effect from 1 October 2020 all non-half hour (NHH) electricity supply are from green tariff (representing 5% of our annual electricity consumption).

Furthermore, these fixed 12-months energy service contracts will deliver a saving of £1.04 Million between 1 October 2020 and 30 September 2021 compared to our 2019/20 spend.

## Waste Management

During the year under review, the total volume of general wastes generated across our three main campuses reduced by 50%, while the proportion of recyclable materials collected from these campuses reduced from 33% to 29% between the 2018/19 and 2019/20 academic years. Table 4 show the breakdown of the residual waste and recyclable materials collected over the last two years from our main UK campuses.

**Table 4: General Wastes and Recyclable Materials Collected from our Campuses**

Campus	Recycling (tons)		Residual Wastes (tons)		Total (tons)	
	2018/19	2019/20	2018/19	2019/20	2018/19	2019/20
Charterhouse Square	104	73	282	78	386	151
Whitechapel	41	25	213	215	254	240
Mile End	382	133	566	277	948	410
<b>Total</b>	<b>527</b>	<b>231</b>	<b>1,061</b>	<b>570</b>	<b>1,588</b>	<b>801</b>

In conjunction with our commitment to reducing the amount of waste we produce, we currently support a Students Union (SU) led Re-Use campaigns aimed at encouraging our students and staff to donate all unused materials at the end of each semester. 1,222 kg of these materials were donated during the 2019/20 compared to 1,179 kg collected during the 2018/19 academic year.

In addition, to the ReUse campaign, we operate a used book collection service at our Mile End Campus. The numbers of books donated during the 2019/20 compared to the 2018/19 academic year reduced by 53%. See Table 5 for a summary of the environmental benefits of this scheme.

**Table 5: Environmental Benefits of the Recycled and ReUsed Books**

Description	Total		Recycled		ReUsed	
	2018/19	2019/20	2018/19	2019/20	2018/19	2019/20
Total Books Donated	14,766	6,958	8,575	5,110	6,191	1,848
Books (kg)	9,166	4,319	5,323	3,172	3,843	1,147
Trees	237	111	136	81	101	30
Water (g)	130,626	53,805	49,808	29,681	80,818	24,124
Green-house Gases (tCO <sub>2</sub> e)	14,265	14,749	8,178	10,744	6,087	4,005
Landfill space (m <sup>3</sup> )	24	15	14	11	10	4
Electricity kWh	48,583	22,785	27,852	16,597	20731	6,188

## Construction and Refurbishment

Our long-term ambition is to integrate innovative energy efficiency technologies and good environmental approaches into all our new builds and refurbishment projects.

In recognition of the outstanding work of our Capital Project Team, the transformation project of our Mathematics Building, which achieved Building Research Establishment Environmental Assessment Method (BREEAM) Excellent rating, has been shortlisted for the BREEAM Awards 2021. This award recognise the people, projects and organisations that are leading the way with significant achievements in sustainable building design, development and management.

We are also pleased to report that the recent refurbishment of our Empire House Building achieved BREEAM Very Good rating.

## Biodiversity

Our Green Mary Garden is an important area of our Mile End Campus. This garden and allotment plots were constructed to provide opportunities for students, staff, and the wider community (including local schools) to engage with and learn more about the biodiversity and ecological systems. These allotments are currently used by 40 staff members and 10 students. The restrictions associated with the COVID-19 pandemic significantly restricted the use of these allotments during the year under review.

We have however continue to maintain the medicinal and sensory plants within the designated sections of our Green Mary Gardens. Table 6 contain an overview of the plants within our Green Mary Garden

**Table 6: Overview of Queen Mary’s Medicinal and Sensory Gardens**

Sensory Plants	Medicinal Plants
Sight: Swiss Chard	Anti-anxiety: <i>Chamomile</i> , <i>Matricaria chamomilla</i>
Sound: love-in-amist, <i>Nigella damascene</i>	Anti-bacterial and high vitamin C content: <i>Horseradish</i> , <i>Armoracia Rusticana</i>
Touch: Lamb’s ears, <i>Stachys bryzantine</i>	Variety of roles: <i>Allium sativum</i>
Smell: Curry plant, <i>Helichrysum italicum</i>	Bronchial spasm and wind relief: Fennel, <i>Foeniculum vulgare</i>
Taste: Strawberry, <i>Fragaria vesca</i>	Treatment of skin conditions: Comfrey, <i>Symphytum x uplandicum</i>

## Sustainable Procurement

The goods and services we procure have varying level of impacts on the environment. Therefore, including environmental specifications into relevant aspects of our procurement and commissioning processes will influence our supply chain, suppliers, and contractors to reduce the environmental impacts of their operations.

Our 2019/20 Modern Slavery statement and a Founding Partner of the London Living Wage Foundation, we have continued to challenge our suppliers and contractor to embed good environmental practices into relevant aspects of our procurement and commissioning processes.

We are pleased to report that during the year under review, 11 of our 12 top suppliers and contractors (total spend £24.82 Million) had current environmental management system (EMS) and 9 of these suppliers and contractors have certified ISO 14001:2015 EMS.

## **Embedding Environmental Sustainability**

We are currently a Corporate Member of the Institute of Environmental Management and Assessment (IEMA). We are using this membership to engage, partner and collaborate with link-minded organisations to deliver good environmental outcomes as well as optimise current and emerging environmental opportunities.

In addition to the above, we are an approved IEMA's Training Centre. Between May and July 2020, we delivered the IEMA CPD course on environmental sustainability skills for the workforce course to 58 professional services and academic colleagues across 20 departments / service areas.

One of the outcomes of the IEMA CPD sessions is that 12 of the participants of this course have started a network of Environmental Sustainability Champions (ESCs). These ESCs are currently committed to become actively involved in promoting the benefits of good environmental practices within their service areas as well as across our campuses.

In conjunction with the above, we are offering all our students opportunity to register and complete an optional CPD certified course on sustainable development. Two of the intended outcomes of this course is that the participating students would become more aware of practical actions that they can take to reduce their environmental footprint as well as the benefits of good environmental practices. During the year under review, 68 students across 13 schools registered and completed this CPD course.

## **Looking Ahead**

We are aware that our 2019/20 environmental performance was skewed by the global and local restrictions and lock-downs associated with the COVID-19 pandemic. Irrespective of this reality, we will continue to adapt our environmental sustainability delivery approaches to ensure that we will be able to deliver evidence based good environmental sustainability outcomes, respond to the current and emerging environmental opportunities and challenges.

Below are some immediate and short-term initiatives that we will be implementing as part of our environmental sustainability commitments:

- Develop and adopt an environmental sustainability policy. This policy will contain our environmental vision
- Develop, adopt and implement our Environmental Sustainability Action Plan (ESAP). This plan will serve as the framework on which we deliver our environmental sustainability objectives
- Continue to identify, prioritise and implement good environmental sustainability initiatives and projects
- Continue to monitor and report our environmental sustainability performances
- Continue to embed good environmental across all areas of our operations
- Continue to use the SLS' framework to monitor and report our performances against the UN SDGs
- Actively work towards attaining ISO 14001:2015 Environmental Management System by July 2022



Dr Philippa Lloyd (Chair Sustainability Committee)  
Vice Principal Policy and Strategic Partnerships



Professor Colin Bailey (CBE)  
President and Principal

**Appendix 1: Energy Used across Queen Mary's UK Campuses**

Campus	Electricity (kWh)		Gas (kWh)		Heating Oil (kWh)	
	2018/19	2019/20	2018/19	2019/20	2018/19	2019/20
Charterhouse	6,904,126	6,092,884	6,281,653	6,358,588		
Whitechapel	7,940,094	7,369,639	7,949,153	6,903,780		
Mile End	21,099,556	18,252,294	17,425,230	16,458,714		
West Smithfield	319,650	241,016	441,949	446,314		
Chislehurst Sports Ground	50,234	36,287	NA	NA	96,307	100,416
Lincoln's Inn Field	284,944	228,730	NA	NA		
Others	937,993	1,044,234	1,051,814	650,103		
<b>Total</b>	<b>37,536,597</b>	<b>33,265,083</b>	<b>33,149,798</b>	<b>30,817,499</b>	<b>96,307</b>	<b>100,416</b>

**Appendix 2: Breakdown of Queen Mary's Business Travel**

Category	2018/19	2019/20
Flight: Domestic (to/from UK)	29,920	69,913
Flight: Short-Haul	3,668,394	3,267,183
Flight: Long-Haul (to/from UK)	20,760,459	12,817,375
Other: Travel (Non-Flight)	362,742	648,441
Flight: International (to/from non-UK)	7,109,810	5,183,037
<b>Total</b>	<b>31,931,324</b>	<b>21,985,949</b>

Environmental Sustainability Annual Report (2019/20)

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