

First year students in  
geography and  
environmental science

# GEG4007/4008 Ideas and Practice in Geography / Environmental Science

The aim of the module is to support first year students as they transition from school/work to university.

The module does this in two ways:

- (1) by aiding acquisition of basic learning skills, particularly reading, note taking, discussion, referencing, essay writing and presentations; and
- (2) by helping the students to cultivate a critical awareness of the development and practice of Geography or Environmental Science as an academic discipline.

For Environmental Scientists this is achieved through theme of '**sustainability**' running through Sem B in one-hour tutorials each week for which students prepare by reading on-line material & reflecting on questions.

# GEG4007/4008 Ideas and Practice in Geography / Environmental Science

At first we take a chronological approach to history of sustainability.



In week one students asked to read Chapter in 'Our Common Future'. They are encouraged to state own point of view and critically evaluate based on own experience.....

Asked a series of questions for discussion in tutorial:

- *Do you agree with this definition of sustainable development?*
- *What does sustainability mean to you?*
- *Do you see any areas of the report as problematic or that you would want to change?*

Introducing sustainability as combination of environment and socio-economic development.

In following tutorials we discuss other global reports on sustainability and examine way in which global sustainability policy has evolved since 1987.



**UN Documents**  
Gathering a body of global agreements

[Home](#) | [Sustainable Development](#) | [Education](#) | [Water](#) | [Culture of Peace](#) | [Human Rights](#) | [Keywords](#) | [Search](#)

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**Our Common Future, Chapter 2: Towards Sustainable Development**

From A/42/427. *Our Common Future: Report of the World Commission on Environment and Development*

**I. The Concept of Sustainable Development**

**II. Equity and the Common Interest**

**III. Strategic Imperatives**

1. *Reviving Growth*
2. *Changing the quality of Growth*
3. *Meeting Essential Human Needs*
4. *Ensuring a Sustainable Level of Population*
5. *Conserving and Enhancing the Resource Base*
6. *Reorienting Technology and Managing Risk*
7. *Merging Environment and Economics in Decision Making*

**IV. Conclusion**

# Week 3: UN Sustainable Development Goals



- You will each be assigned THREE goals to explore in detail. During the tutorial be prepared to explore the goals, their targets and what progress has been made in realising them. How has the coronavirus pandemic affected the goal, if at all?
- Which of the UN Sustainable Development Goals is most important to you and why?
- The UN have called for three levels of action to achieve these goals: local, global and people action. What do you understand by these different types of action?



# Sustainability themes

We then spend each week focusing on different sustainability themes:

Water

Agriculture

Food

Energy

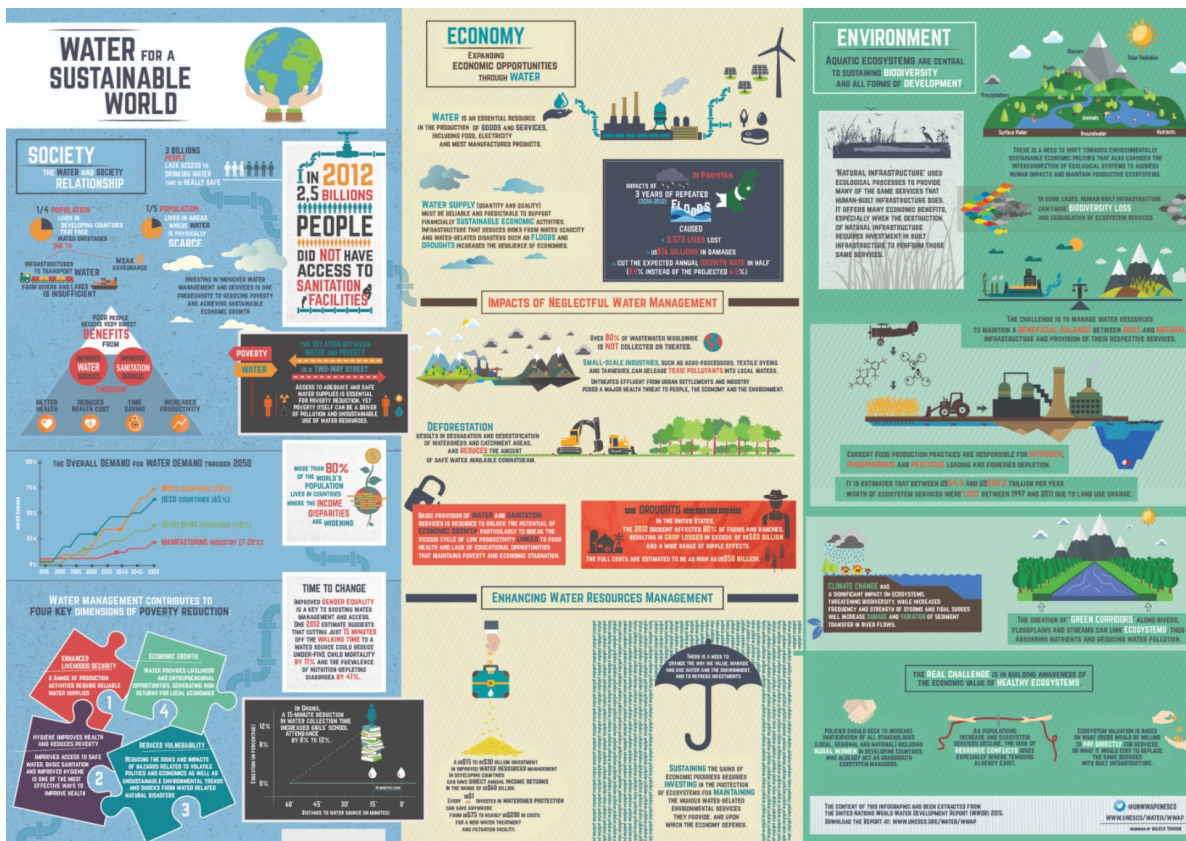
Citizen Science

# Sustainability themes: sustainable water management

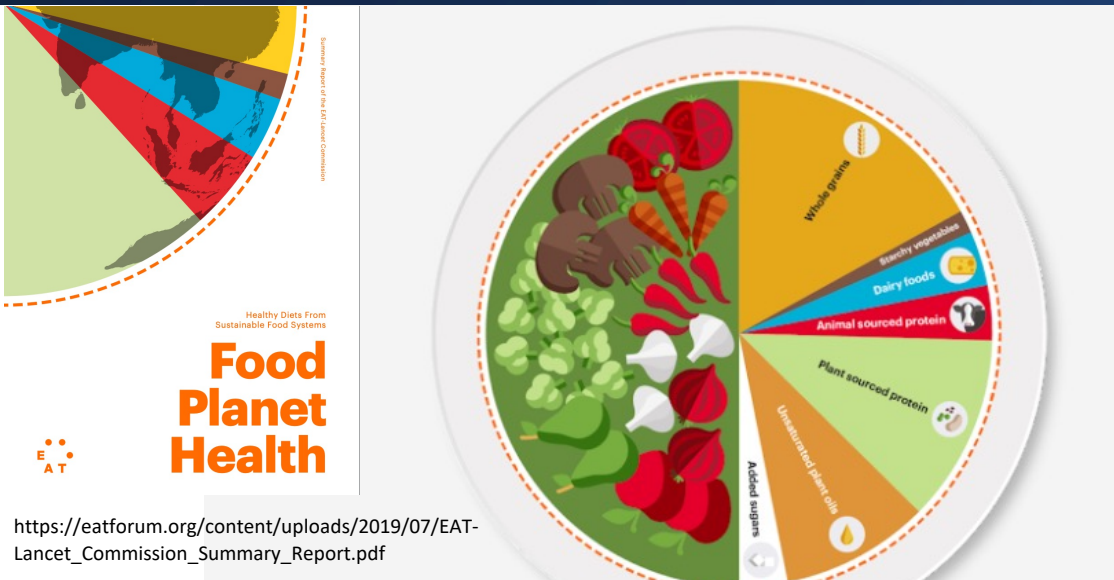
**Step one.** Develop your understanding of the full scope of sustainable water management:

- Using the infographic, provide an explanation of what sustainable water management means for you.
- What were the Millennium Development Goals for water?
- What were the criticisms of these Goals and how were they addressed?

**Step two.** Link this to academic practice by exploring 'review' papers in an international peer-reviewed journal that include 'sustainable water' in the title. Explain how authors use the concept of sustainability in their work in relation to water.



# Sustainability themes: sustainable food



[https://eatforum.org/content/uploads/2019/07/EAT-Lancet\\_Commission\\_Summary\\_Report.pdf](https://eatforum.org/content/uploads/2019/07/EAT-Lancet_Commission_Summary_Report.pdf)

Half fruit, half veg plus whole grains, unsaturated plant oils and plant-sourced proteins.  
One portion of dairy a day and one serving of meat a week



<https://interactive.carbonbrief.org/what-is-the-climate-impact-of-eating-meat-and-dairy/>

- Students read EAT-Lancet summary report on 'Diets for Planetary Health'
- They think about their diet for the last week and compare to the recommendations of the report.
- They read the interactive Carbon Brief to understand impact of eating meat and dairy on greenhouse gas emissions



# Green London



A series of fieldwork activities for our new students in and near the campus


- To inspire ideas and expose students to various research methods
- To enable students to understand how humans and non-humans co-exist in green and urban spaces

Includes thematic walking tours, sites visits, presentations from guest speakers, small group research tasks



# Could we link with Estates (catering) to deliver a Green London activity related to sustainable food?

- For example.....
- Students visit catering sites on campus
- Assess how menus on offer could help meet requirements of 'planetary health diet'
- Make recommendations as to improvements that could be made to better inform students about choices related to:
  - Planetary health diet
  - Greenhouse emissions
  - Source of food and food miles



Second year students in  
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# Living Laboratory concept



Using the university campus to:

- bring together industry, academia and public sector to test sustainability solutions
- give students hands-on experience of practical sustainability engagement and solutions; and
- enable students from different disciplines to work together on environmental solutions

Practised at Harvard, Yale, [Cambridge](#) , [Edinburgh](#)  
Recognised within the principles of [The International Sustainable Campus Network](#)

Dimi Sopisz has been working to bring together Estates and academics to discuss monitoring and evaluation of new green spaces on campus which embraces the concept of our QMUL campus as a Living Laboratory

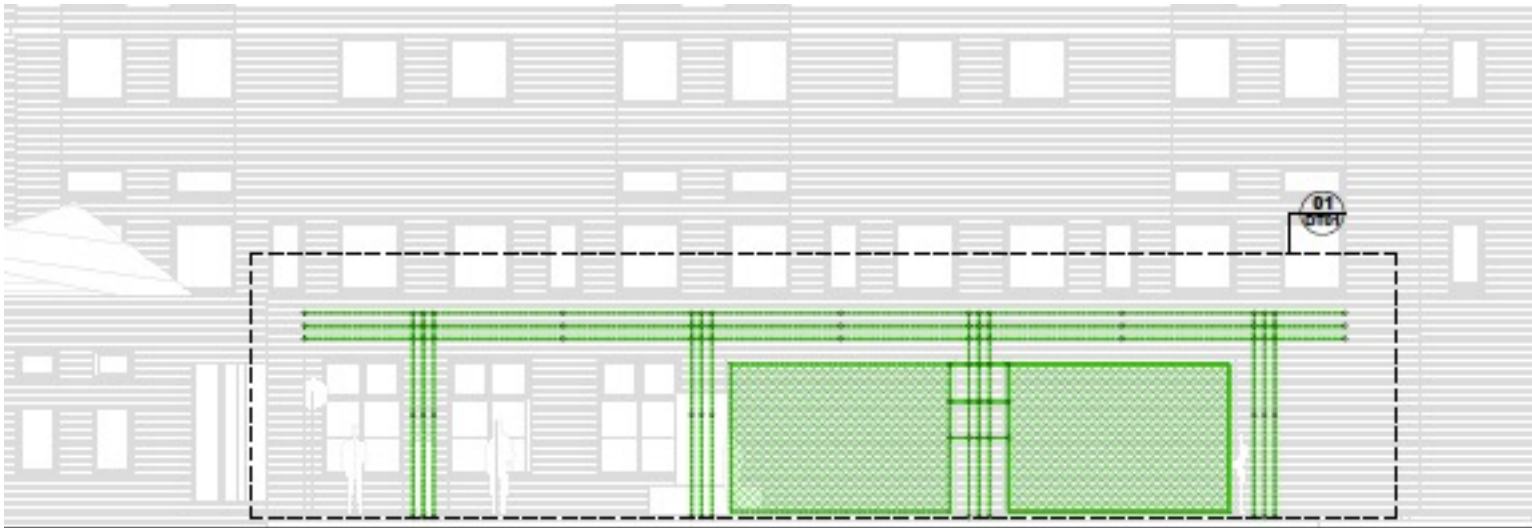




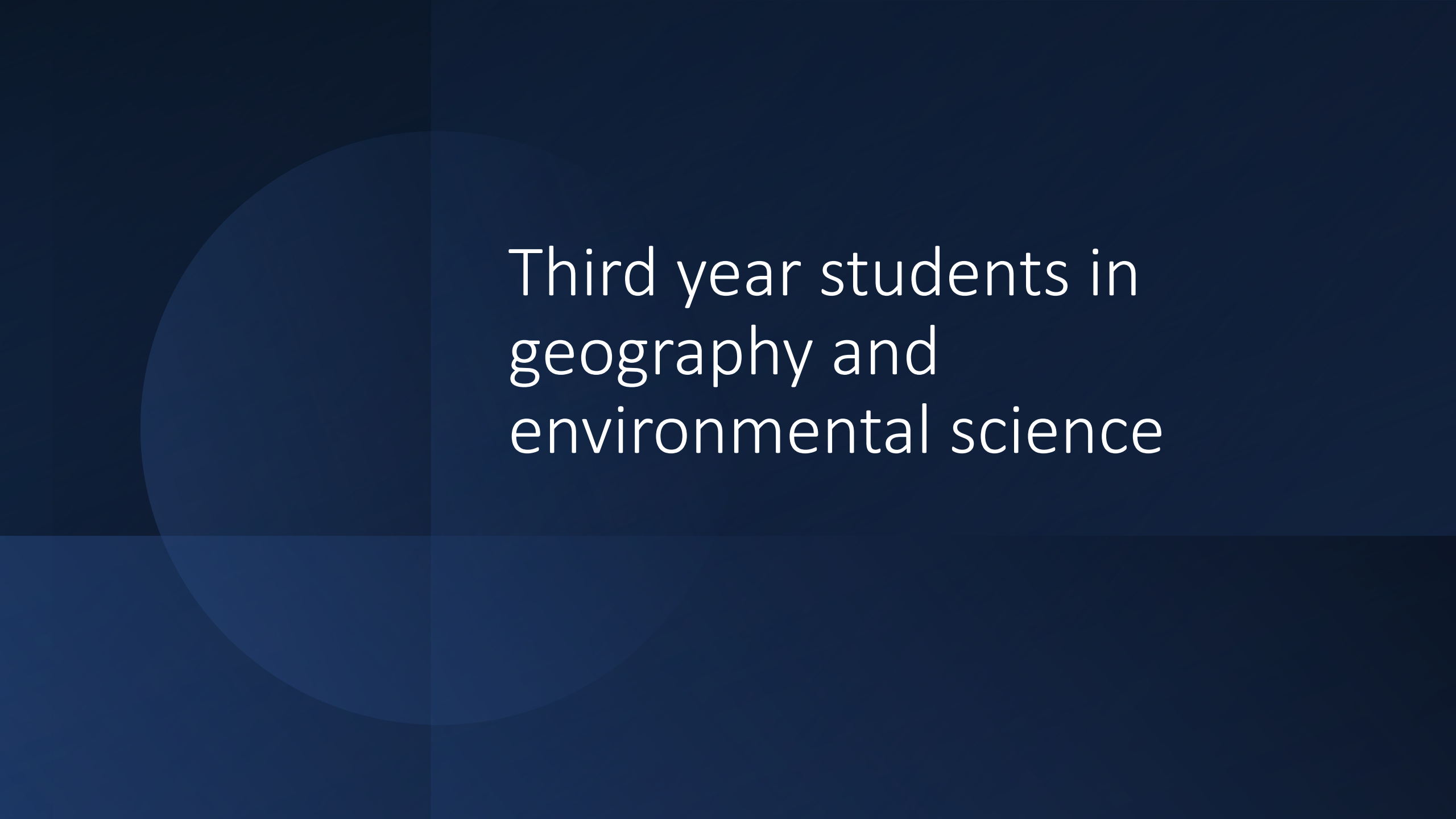


# Monitoring changes to air temperature and humidity associated with living walls

*Library extension: an opportunity to test the living laboratory concept?*



Real-time sensors with telemetry displaying data in library of unshaded vs. shaded walls  
Work with EECS, SBCS, mathematics and others to consider novel sensors, biodiversity gains and opportunities for students to learn time series analysis  
Subject of Westfield Trust application for 31 August deadline?

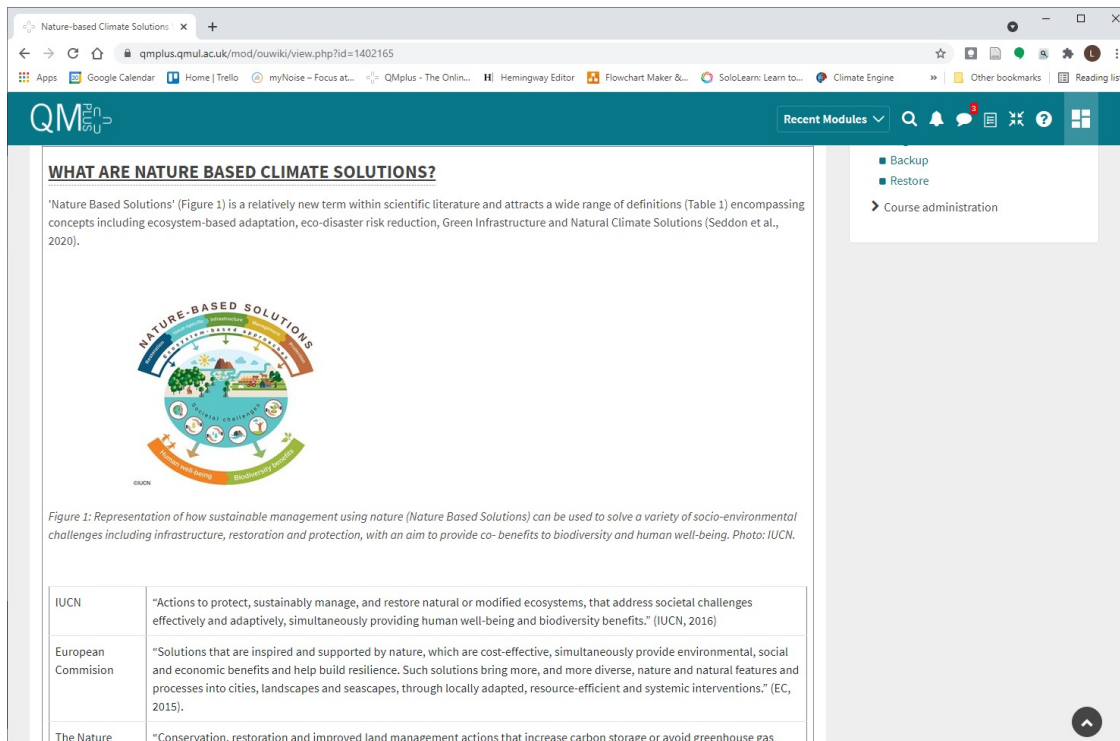


Third year students in  
geography and  
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# GEG6232 Nature-based Climate Solutions

*To what extent can climate change be mitigated by improved stewardship of terrestrial and aquatic ecosystems? In this module, we examine how conservation, restoration and improved management of ecosystems can increase carbon storage and/or avoid greenhouse gas emissions. We evaluate a range of “natural climate solutions” (NCS) for their feasibility, cost-effectiveness, environmental co-benefits and climate mitigation potential.*

## Assessment 1: Group wiki



The screenshot shows a QMplus wiki page with the following content:

### WHAT ARE NATURE BASED CLIMATE SOLUTIONS?

"Nature Based Solutions" (Figure 1) is a relatively new term within scientific literature and attracts a wide range of definitions (Table 1) encompassing concepts including ecosystem-based adaptation, eco-disaster risk reduction, Green Infrastructure and Natural Climate Solutions (Seddon et al., 2020).




Figure 1: Representation of how sustainable management using nature (Nature Based Solutions) can be used to solve a variety of socio-environmental challenges including infrastructure, restoration and protection, with an aim to provide co-benefits to biodiversity and human well-being. Photo: IUCN.

IUCN	"Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits." (IUCN, 2016)
European Commission	"Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions." (EC, 2015).
The Nature	"Conservation, restoration and improved land management actions that increase carbon storage or avoid greenhouse gas

## Assessment 2: POSTNote briefing paper

### Using nature to help achieve net zero emissions



There is increasing support for using natural solutions to mitigate climate change, and in the UK they could aid sustainable progress towards the 2050 net-zero greenhouse gas emissions goal. This POSTnote summaries the barriers to progress for new and existing climate policy, and outlines how natural solutions might be implemented and evaluated in light of this.

#### Background

The UK Committee on Climate Change (CCC) recently advised on a revised target to reach 100%

#### Overview

- Most progress towards the UK's legally binding net-zero target has been achieved through decarbonising the energy sector, but the UK is not on track to meet upcoming carbon budgets.
- Nature-based initiatives could supplement existing climate mitigation schemes to sustainably reduce greenhouse gas emissions and capture atmospheric carbon, whilst also providing important co-benefits for biodiversity and ecosystem services.
- Funding, collaboration between multiple stakeholders, uncertain outcomes, and the timescales of projects are all implementation challenges of natural solutions.
- Restoration projects like the Nature Recovery Network and citizen science schemes such as Heartwood Forest and Cairngorms Connect provide opportunities to support long-term carbon storage and enhanced public engagement, which will be vital for a climate-positive Covid-19 recovery in the UK.

an estimated 115-154 billion tonnes of carbon



# GEG6226 Environmental Pollution

*The module aims to provide students with a detailed understanding of current and emerging issues of agricultural and urban pollution, with a particular focus on pathways and processes by which chemicals (including plastics) can pollute our surface and groundwaters.*

**Identify the activity and the possible pollutant(s). Might this activity give rise to diffuse or point source pollution?**



**What is the pollutant source? What is likely pollutant pathway through the environment?  
Source-pathway-receptor approach to pollution prevention**

Students develop a pollution management plan for the River Chess using resources developed in part from a grant funded by QMUL Centre for Public Engagement & NERC

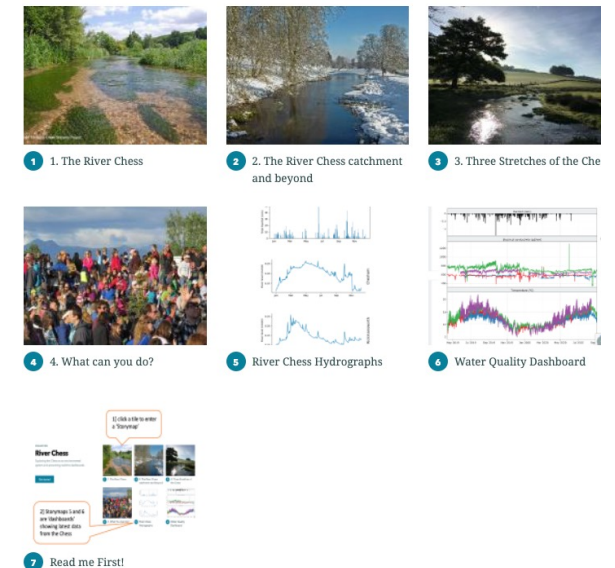
COLLECTION

## River Chess

Exploring the Chess as an environmental system and presenting realtime dashboards

Get started

<https://storymaps.arcgis.com/collections/49dc7c8778214b66a086abc982339ae7>





# GEG6212 Final year dissertation

Five undergraduate dissertation projects focused on QMUL sustainability issues in 2021/22:

- Analysing QMULs carbon footprint and developing consumption-based reduction strategies to achieve the UK 'Net Zero' emissions target by 2050. *Akshithaa Sellvarajah*
- Quantifying the greenhouse gas emissions arising from QMUL international study. *Isabella Molloy*
- 'A spoonful of sugar makes the medicine go down'. Why the method of teaching sustainable activities is so important. *Maisie Flight*
- The possibility of green walls for a more sustainable future at Queen Mary. *Eleanor Teig*
- Ensuring sustainable water usage in Queen Mary University of London. *Zara Bharuchi*