



1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



# SUSTAINABLE DEVELOPMENT GOALS REPORT 2022: UNIVERSITY OF ESSEX



# CONTENTS

□	<b>INTRODUCTION</b>	4
□	<b>MEASURING SUSTAINABLE DEVELOPMENT</b>	6
■	<b>GOAL 1 NO POVERTY</b>	8
■	<b>GOAL 2 ZERO HUNGER</b>	10
■	<b>GOAL 3 GOOD HEALTH AND WELL-BEING</b>	12
■	<b>GOAL 4 QUALITY EDUCATION</b>	14
■	<b>GOAL 5 GENDER EQUALITY</b>	16
■	<b>GOAL 6 CLEAN WATER AND SANITATION</b>	18
■	<b>GOAL 7 AFFORDABLE AND CLEAN ENERGY</b>	20
■	<b>GOAL 8 DECENT WORK AND ECONOMIC GROWTH</b>	22
■	<b>GOAL 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b>	24
■	<b>GOAL 10 REDUCED INEQUALITIES</b>	26
■	<b>GOAL 11 SUSTAINABLE CITIES AND COMMUNITIES</b>	28
■	<b>GOAL 12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b>	30
■	<b>GOAL 13 CLIMATE ACTION</b>	32
■	<b>GOAL 14 LIFE BELOW WATER</b>	34
■	<b>GOAL 15 LIFE ON LAND</b>	36
■	<b>GOAL 16 PEACE, JUSTICE AND STRONG INSTITUTIONS</b>	38
■	<b>GOAL 17 PARTNERSHIPS FOR THE GOALS</b>	40

# INTRODUCTION

**At the end of last year, we made our first submission to the Times Higher Education Impact Rankings and I am delighted to report that when the results were announced in April 2022, the University of Essex achieved a world ranking of 76th out of over 1,400 participating universities.**

This is an important milestone for us as a University because it reflects our values, hard work and commitment towards sustainable development and to the seventeen Sustainable Development Goals (SDGs) agreed by all member states of the United Nations in 2015. Essex achieved a top 100 world ranking for 12 of the 17 SDGs, demonstrating breadth in our sustainable development efforts. This included recognition of our world leading contributions towards SDG 12 – Responsible Consumption and Production, SDG 16 – Peace Justice and Strong Institutions, and SDG10 – Reduced Inequalities for which we were ranked 12th, 18th and 24th respectively.

Although our Impact Rankings are very pleasing, I am not complacent about the scale of the challenge and recognise that much more needs to be done. In 2020, the University of Essex declared a climate and ecological emergency accompanied by a detailed action plan, setting out the practical steps we are taking towards becoming carbon net zero by 2035. We take our promise very seriously and are continually acting and making new investments to ensure that not only are we improving the carbon footprint of our campuses but are also developing innovative education and research practices that are sustainable without compromising on excellence.

In this, our second Sustainable Development Report, I am delighted to provide an update of our performance in relation to each of the SDGs which for the first time also incorporates outcomes from our Times Higher Education Impact Rankings. I am also happy to present a selection of examples of activities we have carried out in the last year that have made a positive contribution to each SDG.



Professor Anthony Forster  
Vice-Chancellor



# MEASURING SUSTAINABLE DEVELOPMENT

**The mission of the University of Essex is: “Excellence in Education and Excellence in Research for the benefit of people and communities”.<sup>1</sup>**

This, our second Sustainable Development Report, provides an insight into the contributions made through our education and research activities towards each of the United Nations Sustainable Development Goals. It also offers some examples of how operational practices and cultural norms of the University of Essex have changed and continue to develop in ways that positively impact our progress with the goals. For the first time we have also incorporated the outcomes of our 2022 Times Higher Education Impact Rankings submission.

There are separate sections for each of the 17 Sustainable Development Goals (SDGs), each providing information, data and examples of our work. Measuring the relevance of our research and education is made complicated by the fact that we are a diverse, fairly large and productive university, characteristics that we are, of course, very proud of. Here, we explain the methods we have used in this, our second report, to measure sustainable development at the University of Essex.

## Background

The University of Essex produces almost 1,900 academic research publications per year and has over 3,000 degree programmes. At this scale, manually mapping each of the SDGs against all of our publications and all of our degrees is impractical. To do so is also made more complicated because sustainable development is not necessarily directly mentioned in our publications and courses even though their contents are relevant. For example, many of the publications of our world-renowned Human Rights Centre, although having a positive impact on peace and justice, will not all make explicit reference to SDG 16 – Peace, Justice and Strong Institutions.

Many of our degree course materials, although relevant to the SDGs, similarly will not necessarily directly cross-reference them. The methods we have used have attempted to address the challenge of scale as well as the complications of matching each of the SDGs with the subjects we research and teach.

## Using keywords

For the sake of consistency and objectivity we have measured our progress with the goals by using independently established keyword sets to search our research publications and education materials for relevant content.

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<sup>1</sup> University of Essex Strategic Plan 2019–2025: [www.essex.ac.uk/governance-and-strategy/university-strategy](http://www.essex.ac.uk/governance-and-strategy/university-strategy)



There are two commonly used keyword sets for each of the SDGs. The first set was developed by the Australia, New Zealand and Pacific Network of the Sustainable Development Solutions Network (SDSN)<sup>2</sup> and the other is the Elsevier keyword set<sup>3</sup> which is used by the *Times Higher Education* and is more stringent.

We have provided the search outcomes for both keyword sets because, while it is quite likely the SDSN set returns some articles and courses that are only very vaguely linked with the goals (false positives), the Elsevier set is likely to miss relevant publications and courses (false negatives). Elsevier also does not provide keywords for SDG 17 Partnerships for the Goals.

## SDGs in research

For research we have used the Scopus indexing service to search for Elsevier and SDSN keywords in the title, abstract or keywords of our research outputs published between 2012 and 2022. We have reported: the number of publications returned (all papers and open access); the number of times those papers have been cited; and the H-index, a metric which combines output and impact.

The higher H-index the better. For example, the figure for SDG 1 – No Poverty, is 89 meaning that Essex has published 89 papers in areas relevant to the goal that have each been cited at least 89 times. For SDG 17 – Partnerships for the Goals, our H-index performance at 33 is not as strong meaning that we have produced 33 publications in this area that have each been cited at least 33 times.

## SDGs in education

For our education we have applied the keyword searches to all our current module titles and module content descriptions in order to measure how the content of our degrees reflect the themes underpinning each of the SDG's.

Using this approach, we have been able to count the number of degrees that have relevant content to specific SDGs, and also the number of students that have engaged with the associated modules. While it is possible for a student to be counted in more than one SDG, it is not possible for them to be counted more than once within each SDG.

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<sup>2</sup> Australia, New Zealand & Pacific Network of the Sustainable Development Solutions Network (SDSN) website – Universities and the SDGs: <http://ap-unsdsn.org/regional-initiatives/universities-sdgs/>

<sup>3</sup> Scopus website – Sustainable Development Goals FAQs: [https://service.elsevier.com/app/answers/detail/a\\_id/31662/supporthub/scopuscontent/](https://service.elsevier.com/app/answers/detail/a_id/31662/supporthub/scopuscontent/)

# END POVERTY IN ALL ITS FORMS EVERYWHERE

**1** NO POVERTY



**101st to 200th in THE Impact Rankings 2022**

## Research

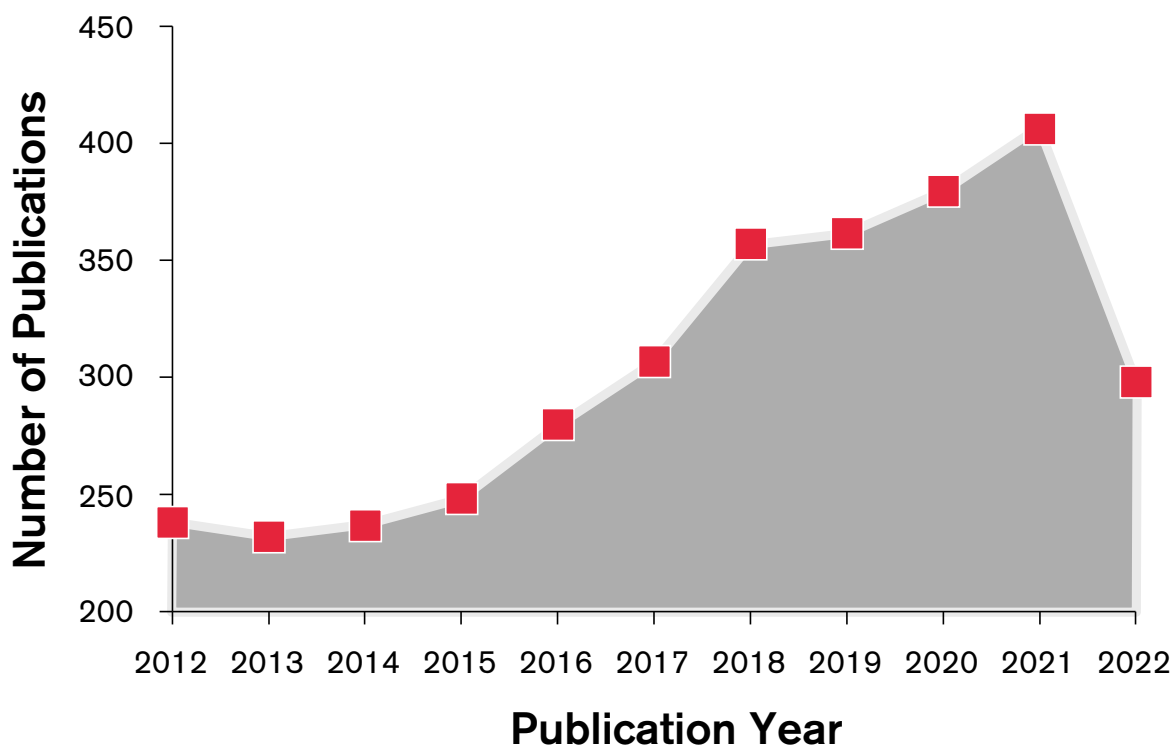
Publication Record	Method SDSN	Method Elsevier
All Articles	3,295	48
Open Access	2,056	26
Citations	53,642	361
H-Index	89	12

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	566	10,636	103	1,008
Taught Postgraduate	238	2,155	34	198
Research Degrees	39	63	0	0
<b>Total</b>	<b>843</b>	<b>12,854</b>	<b>137</b>	<b>1,206</b>

## SDG 1

No Poverty







## Case Study: Action

Poverty is a global issue – one which the University of Essex’s Human Rights Centre has long focused on. The Centre recognises that as well as being a national and international problem, we also need to address the human rights issues on our doorstep.

This year, a new report called *Poverty and Social Rights in Essex* was published. It focused on housing, social security, food banks, child poverty, and access to libraries in Essex, and showed what could be done to ensure that everyone has an adequate standard of living.

It looked at each of these areas from a local and national perspective. It highlighted the need for more affordable housing and for public libraries in Essex to keep their doors open.

The report, produced by Dr Koldo Casla and Lyle Barker from the Human Rights Centre and Essex Law School, is part of a project called Human Rights Local, which aims to make human rights relevant to where they matter the most – close to people’s homes and lives.

Dr Casla said: “By looking at the state of social rights in Essex, this report focuses on the rights that people value the most in their daily lives, and in the place that matters the most to them, in their local community.

“This report shows that human rights are for everyone, and that they are not an abstract notion or a concern only for other people in faraway countries. Public authorities must make use of their available resources to fulfil all human rights for all.”

A shorter version of the report was submitted to the UN Committee on Economic, Social and Cultural Rights for their review of the UK’s compliance with the International Covenant on Economic, Social and Cultural Rights, due to take place between 2022 and 2024.

### Did you know?

Poverty and inequality are key themes for the work of the Institute for Social and Economic Research at Essex. Researchers are developing a clearer picture of the issues from what leads people into it through to the longer term impacts on their lives.

# END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

2 ZERO HUNGER



101st to 200th in THE Impact Rankings 2022

## Research

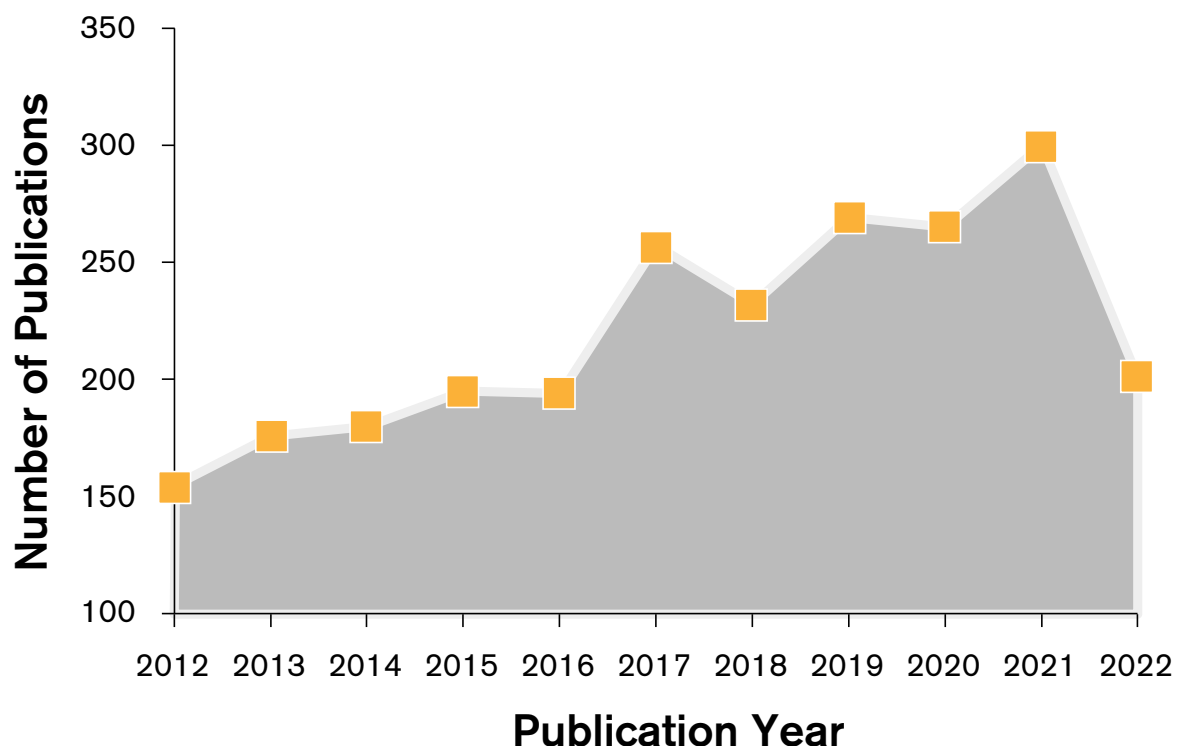
Publication Record	Method SDSN	Method Elsevier
All Articles	2,424	75
Open Access	1,586	49
Citations	51,708	2,132
H-Index	94	21

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	446	7,029	9	33
Taught Postgraduate	203	1,819	1	31
Research Degrees	10	15	0	
<b>Total</b>	<b>659</b>	<b>8,863</b>	<b>10</b>	<b>64</b>

## SDG 2

Zero hunger





## Case Study: Research

World-leading plant productivity research at Essex is to be further enhanced with plans for a new £3.5 million state-of-the-art indoor crop growth facility.

With one of the longest established whole plant physiology and photosynthesis groups in the UK, Essex has long been at the forefront of plant productivity research.

Building on these existing strengths, the £3.5 million Smart Technology Experimental Plant Suite (STEPS) on our Colchester Campus will aim to future-proof crop production in a changing world by providing a unique facility to allow scientists to exploit the latest technologies to improve key plant processes.

The facility will be able to grow plants in a suite of fully automated and adjustable environments, including dynamic tuneable lighting systems capable of replicating natural outdoor environments in real time, with fine-scale regulation of temperature, humidity, water availability and CO<sub>2</sub> concentrations.

This will be underpinned by advanced technology, artificial intelligence, environmental

sensors and water management systems. There will also be an experimental commercial-standard vertical farm involving long-time industry collaborator Innovation Agri-Tech Group (IAG) that will further expand Essex's research, expertise and knowledge in indoor plant growth.

With the expected growth in human population by 2050, a step-change in agricultural productivity, sustainability and resilience is needed to ensure future food security.

The STEPS facility, which is due to be open by late summer 2023, will extend the activities initiated by the Essex Plant Innovation Centre (EPIC), which brings together the research expertise and technologies from Essex's Plant Productivity Group, the School of Computer Science and Electronic Engineering, the Institute for Analytics and Data Science and Essex Business School, to provide an innovative platform to engage industrial partners and stakeholders in addressing the many challenges facing the agricultural and horticultural sector at local, national and international levels.

# TO ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

**3** GOOD HEALTH AND WELL-BEING



**301st to 400th**  
in THE Impact  
Rankings 2022

## Research

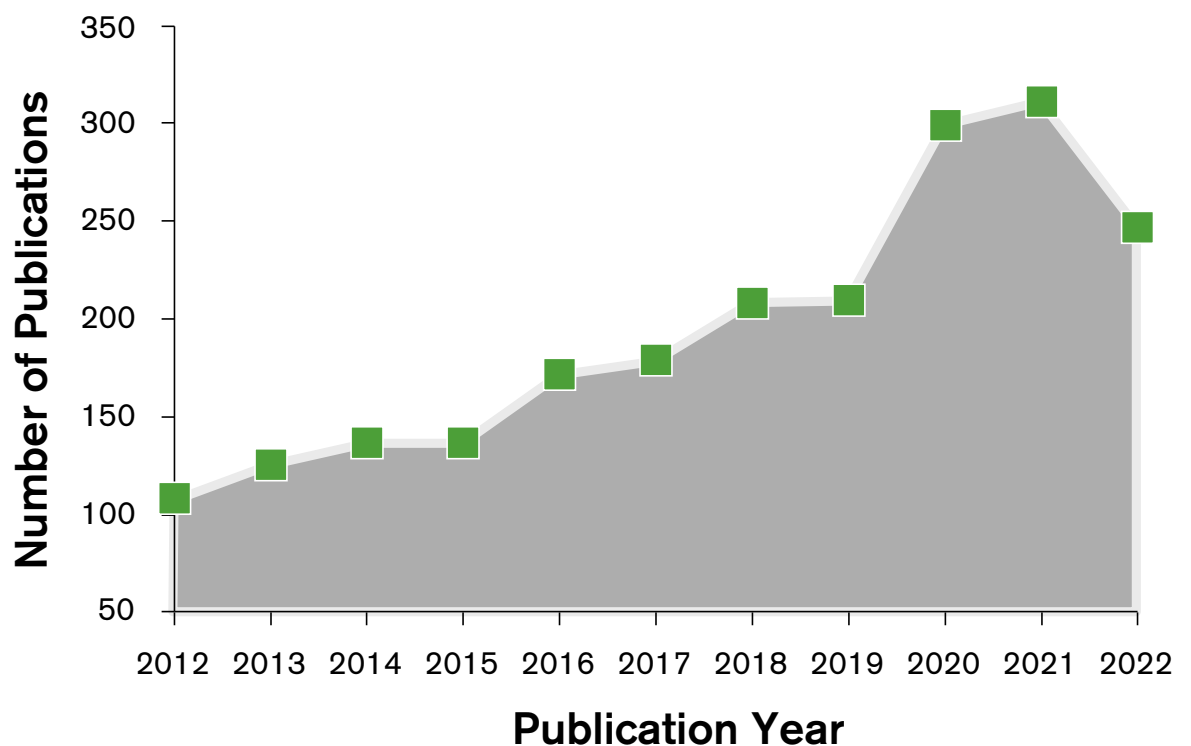
Publication Record	Method SDSN	Method Elsevier
All Articles	2,127	1,525
Open Access	1,514	1,141
Citations	36,615	29,308
H-Index	79	74

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	362	5,125	248	2,939
Taught Postgraduate	118	1,262	58	515
Research Degrees	32	101	21	56
<b>Total</b>	<b>512</b>	<b>6,488</b>	<b>327</b>	<b>3,510</b>

## SDG 3

Good health and well-being





## Case Study: Research

Within months of its launch, our newest research institute signed an international partnership that will help tackle global heart disease, the world's number one cause of death.

The two-year partnership between our Institute of Public Health and Wellbeing (IPHW) and the World Heart Federation (WHF) will support the WHF in collecting and analysing data that could be critical to saving lives.

Essex researchers will support the WHF's new World Heart Observatory, helping to provide the most reliable information related to cardiovascular conditions, risk factors, and interventions.

A new postdoctoral fellow, co-funded by the University and WHF, will support the Observatory's development priorities, reviewing existing sources of data, identifying new sources of data, and contributing to data analysis and research development.

In 2019 cardiovascular disease claimed an estimated 18.6 million lives. Professor Mariachiara Di Cesare, Director of the IPHW, believes better data could help save lives: "Data and information are key to understanding

needs, trends, causes, responses, and prediction in global cardiovascular health.

"WHF's mission to promote heart health and drive change at the local, regional and global level is perfectly aligned with the IPHW's vision of generating evidence and robust research that has a global impact."

The Institute of Public Health and Wellbeing is Essex's fourth flagship research centre. The multi-disciplinary Institute addresses the multiple root causes of ill-health by understanding societies and the inequalities that shape them. It offers an inclusive space for researchers, health professionals and organisations, and communities to work together to shape policy and practice.

### Did you know?

We have research groups across all three faculties focused on promoting and improving healthy living, including the Health, Exercise and Active Lifestyle group, the Health Law cluster, the Protein Structure and Mechanisms Disease Group and the multidisciplinary Smart Health Technologies Group.

# ENSURE INCLUSIVE AND EQUITABLE EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

**4** QUALITY EDUCATION



**201st to 300st in the THE Impact Rankings 2022**

## Research

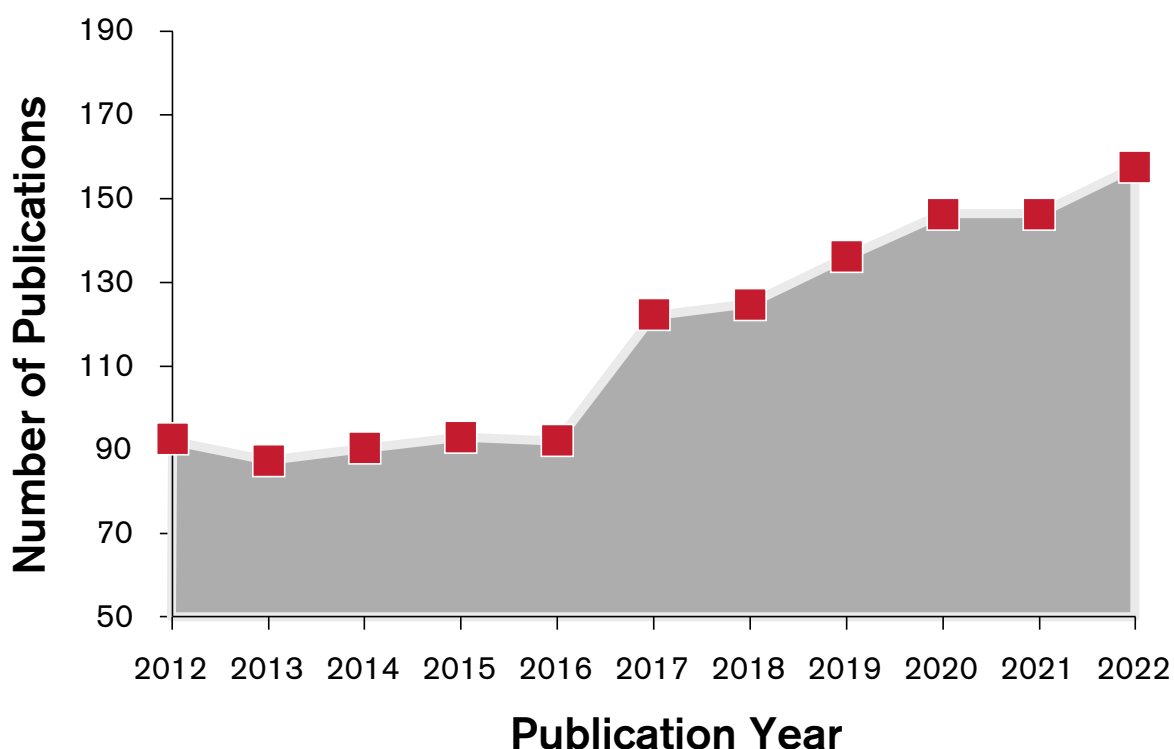
Publication Record	Method SDSN	Method Elsevier
All Articles	1,339	26
Open Access	837	18
Citations	18,531	454
H-Index	54	12

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	420	5,457	24	178
Taught Postgraduate	124	913	4	13
Research Degrees	48	116	0	0
<b>Total</b>	<b>592</b>	<b>6,486</b>	<b>28</b>	<b>191</b>

## SDG 4

Quality education





## Case Study: Action

An award-winning partnership between the University of Essex and schools is changing the lives of young people by delivering educational opportunities and raising aspirations of students.

Sixth form students across five schools can access a greater range of subjects thanks to the VI6 Partnership which received the Silver Pearson National Teaching Award in 2022.

The partnership was set up to support sixth form subjects where there is traditionally low uptake in any one school. With teachers and students teaming up for lessons held at the University, around 180 students are now benefitting from the unique opportunity.

The partnership incorporates Clacton Coastal Academy, Clacton County High School, Philip Morant School and College, The Colne Community School and College, Thurstable School and the University of Essex.

Lucy Murray, Director of Outreach at the University, said: "As a university, we strive to raise the aspirations of young people with the potential to go to university, regardless of what their background is.

"VI6 demonstrates how, by working together and being innovative, we can all support young people to succeed."

Neil Gallagher, executive headteacher at Clacton County High School and the Colne Community School, said: "Crucially the partnership is actively improving access to higher education for all of our students, particularly those from disadvantaged backgrounds, and making them understand that university is a realistic option.

"I know many of our students will be the first in their family to access a university education and their time at the University of Essex has really helped raise their aspirations.

"The VI6 partnership is now an integral part of the post-16 offer of all the partnership schools.

"Not only does it allow us to viably deliver post-16 learning in some 'smaller volume' subjects, delivered by excellent teachers from across our schools, it is opening really exciting school-to-school dialogue about learning and teaching."

# ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

5 GENDER EQUALITY



58th in THE impact Rankings 2022

## Research

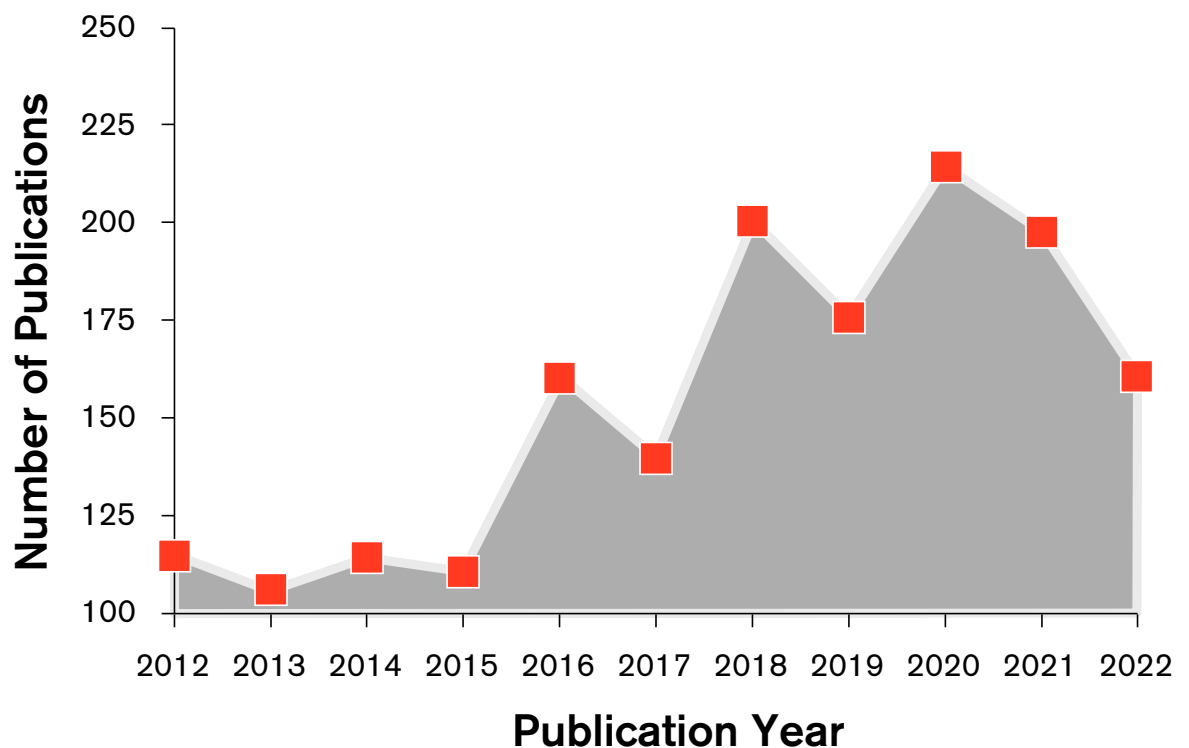
Publication Record	Method SDSN	Method Elsevier
All Articles	1,699	120
Open Access	1,035	84
Citations	21,800	1,079
H-Index	60	18

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	417	6,699	154	874
Taught Postgraduate	144	975	24	111
Research Degrees	13	50	0	0
<b>Total</b>	<b>574</b>	<b>7,724</b>	<b>178</b>	<b>985</b>

## SDG 5

Gender equality







## Case Study: Action

When European universities alliance Young Universities for the Future of Europe (YUFE) was formed, it set out a clear mandate – equality, diversity and inclusivity (ED&I) were to be key values, embedded across all its activities.

As the partner most advanced in ED&I working practices, it was agreed the University of Essex should lead the taskforce charged with furthering equality within YUFE.

Although there was an enthusiasm to embrace the ED&I spirit across the ten partner universities, the taskforce knew this was going to be a far from easy task. Certain ED&I topics were still taboo at some YUFE institutions so change would require having uncomfortable conversations and the courage to challenge the status quo.

However, three years later and the Essex-led taskforce has much to celebrate in ensuring YUFE meets its commitments towards achieving its ED&I vision.

Despite the partnership having a diverse set of cultures and attitudes towards ED&I, the alliance has approved a YUFE D&I Strategy and accompanying action plan – a huge achievement providing a clear roadmap for YUFE to become a leading model of a student-centred, open and inclusive European University.

Many partners have embedded the YUFE D&I Strategy within their own institutional strategy and have used this as leverage for change.

Across the alliance, new ED&I positions and offices have been created and new policies and initiatives have been adopted including gender equality workshops and schemes to encourage new students from disadvantaged backgrounds. Institutions have also held events to raise awareness of ED&I to help build a foundation of knowledge across their communities.

Hundreds of YUFE students across Europe have taken part in ED&I workshops. For many, it was the first time they had engaged in thought-provoking discussions around ED&I and often challenged long-held views. They are now seen as ambassadors for ED&I within the alliance.

### Did you know?

A coalition of experts and organisations including Professor Lorna Woods from the Essex Law School has come together to create a Code of Practice to tackle violence against women and girls online. The guidelines would hold social media companies to account for content on their platforms.

# ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

6 CLEAN WATER AND SANITATION



84th in THE Impact Rankings 2022

## Research

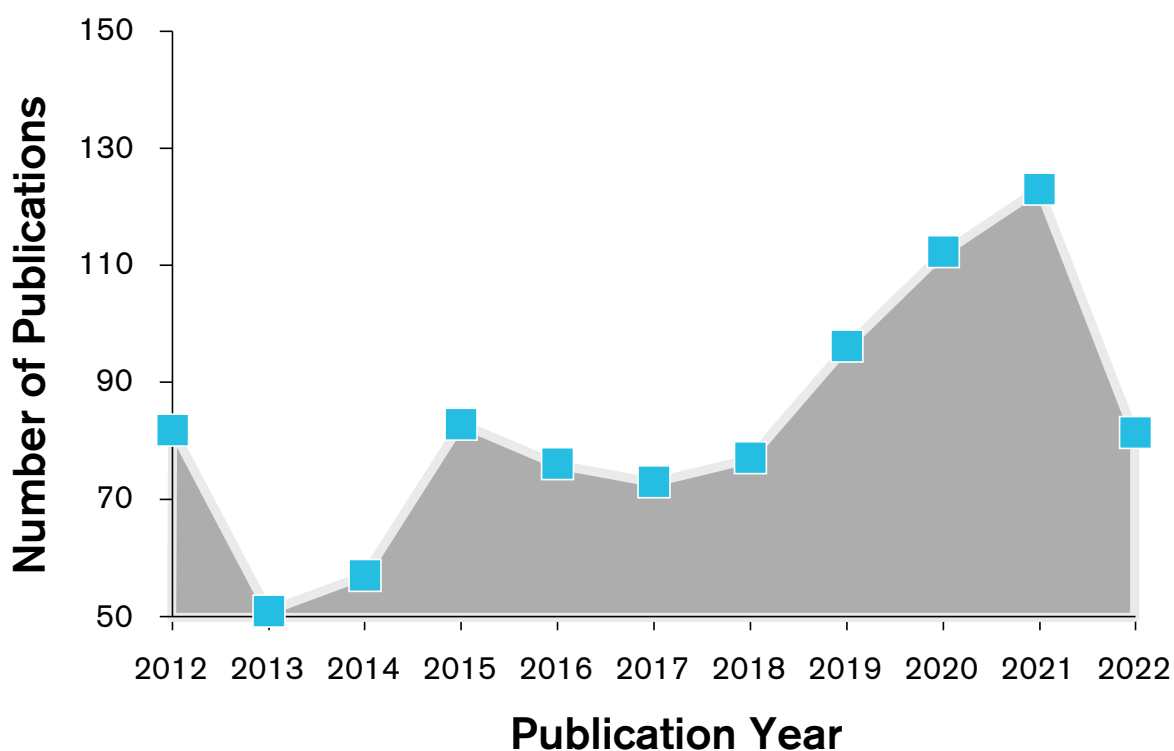
Publication Record	Method SDSN	Method Elsevier
All Articles	911	20
Open Access	547	15
Citations	18,056	248
H-Index	59	9

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	172	1,213	0	0
Taught Postgraduate	62	370	2	32
Research Degrees	0	0	0	0
<b>Total</b>	<b>234</b>	<b>1,583</b>	<b>2</b>	<b>32</b>

## SDG 6

Clean water and sanitation





## Case Study: Research

At Essex multiple research projects are looking at the environmental factors which impact on our seas and waterways, providing insights which will tackle pollution and help us improve water quality in the natural world.

Through our work we have helped protect a range of marine environments and species, improved conservation outcomes and developed new tools and technology to help improve research across the globe.

Our ecologists are working in Iceland to quantify the impact of global warming and nutrient enrichment on rivers and developing predictive models to help better manage those environmental stressors in the future.

Closer to home, our marine biologists are looking at the restoration of salt marshes with Essex Wildlife Trust, and the valuable role they play in climate mitigation. This includes looking at the diversity of plant species in “new” versus established salt marshes, and the balance between carbon uptake and methane release. Importantly, the flooding of new coastal zones provides additional salt marsh areas, which increases the ability of these systems to improve water quality through nutrient cycling and removal of pollutants.

We are also trying to mitigate the global environmental challenge of marine biofouling – unwanted growth such as barnacles and mussels on the hulls of ships.

Fouling causes drag, which causes ships to release substantially more greenhouse gas emissions. However, to combat this, the global shipping industry uses toxic, antifouling paints. Our research is developing an understanding of adhesion by fouling organisms that can help paint manufacturers develop more environmentally harmonious non-stick hull coatings.

Our microbial ecologists are also using cutting edge data science approaches to understand and predict the impact of environmental change on our rivers.

Technological developments in DNA sequencing and statistical methods means that we can now generate enormous quantities of genomic data to better understand the make-up of these microbial communities to provide valuable information about the health of our rivers which can help inform the management of these ecosystems.

# ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

**7** AFFORDABLE AND CLEAN ENERGY



**86th in THE Impact Rankings 2022**

## Research

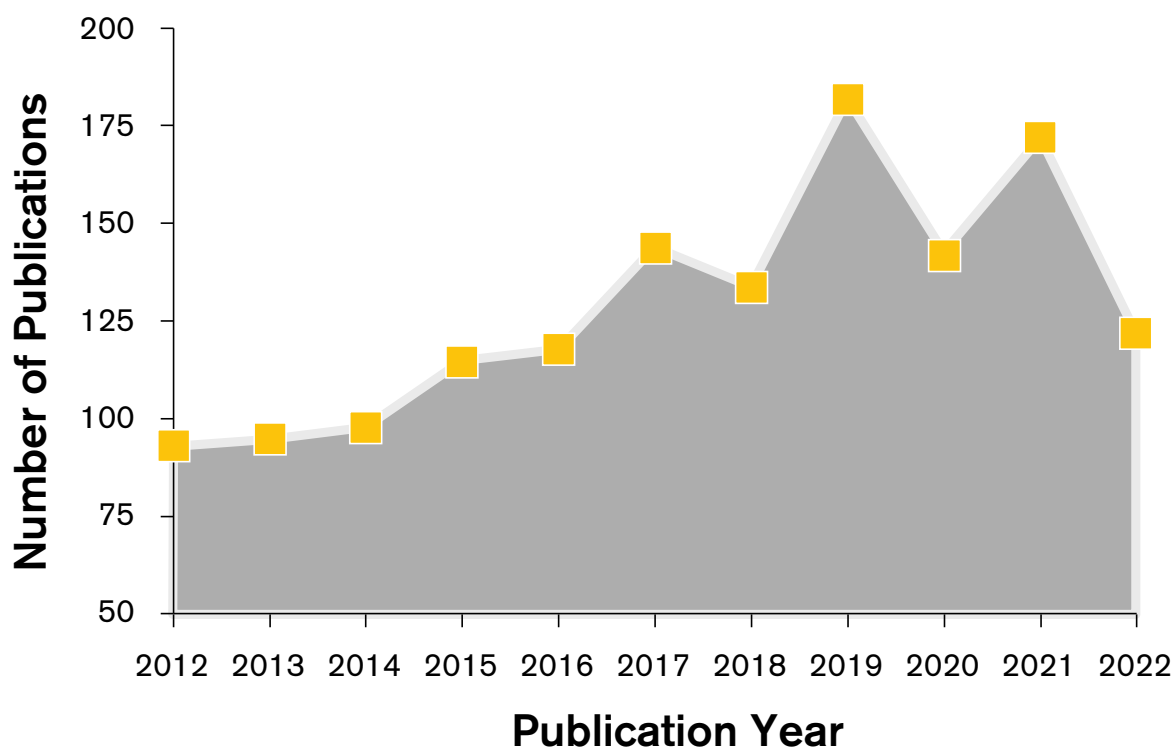
Publication Record	Method SDSN	Method Elsevier
All Articles	1,416	268
Open Access	879	138
Citations	26,917	4,697
H-Index	70	34

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	148	1,127	19	30
Taught Postgraduate	35	170	1	15
Research Degrees	7	7	0	0
<b>Total</b>	<b>190</b>	<b>1,304</b>	<b>20</b>	<b>45</b>

## SDG 7

Affordable and clean energy





## Case Study: Research

A partnership between University of Essex researchers and global solar inspection and data analysis company Above is improving services to solar farms across the world.

Above moved to a new, larger base at Parkside on the University's Knowledge Gateway research and technology park in 2022 as it grows its service for solar farms across Europe, Asia, Australia and the Pacific.

Thanks to three different Knowledge Transfer partnerships with the University, Above has refined its data analytics capabilities to provide detailed health reports for solar energy companies which pinpoint anomalies within Solar PV cells and allow targeted maintenance to improve reliability.

Above's Founder and CEO Will Hitchcock explained: "Our cloud-based SolarGain platform is already extremely efficient at revealing defects, but we continue to develop the use of artificial intelligence.

"This will move us towards using fully autonomous drones which will be able to fly closer to the panels and auto-analyse the data.

"Our current KTP with the University's School of Computer Science and Electronic Engineering aims to maintain our position as a market leader, creating new insights through data analysis which will help us deliver predictive solar plant maintenance strategies."

Above was founded in 2016, originally conducting aerial inspections of solar farms using drones. It moved to Parkside two years later as its software development started to revolutionise inspection and monitoring across the solar sector.

Above's new larger base adjoining the University's Colchester Campus sees it continuing to forge relationships with academics to innovate and collaborate together on further research and development.

Above's expansion into a global operation has been enhanced by several rounds of venture capital funding, including from the Clean Growth Fund, which supports low carbon innovators.

Being based at the Knowledge Gateway connects the Above team to seminars, events and networking plus funding advice.

# PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

**8** DECENT WORK AND ECONOMIC GROWTH



**99th in THE Impact Rankings 2022**

## Research

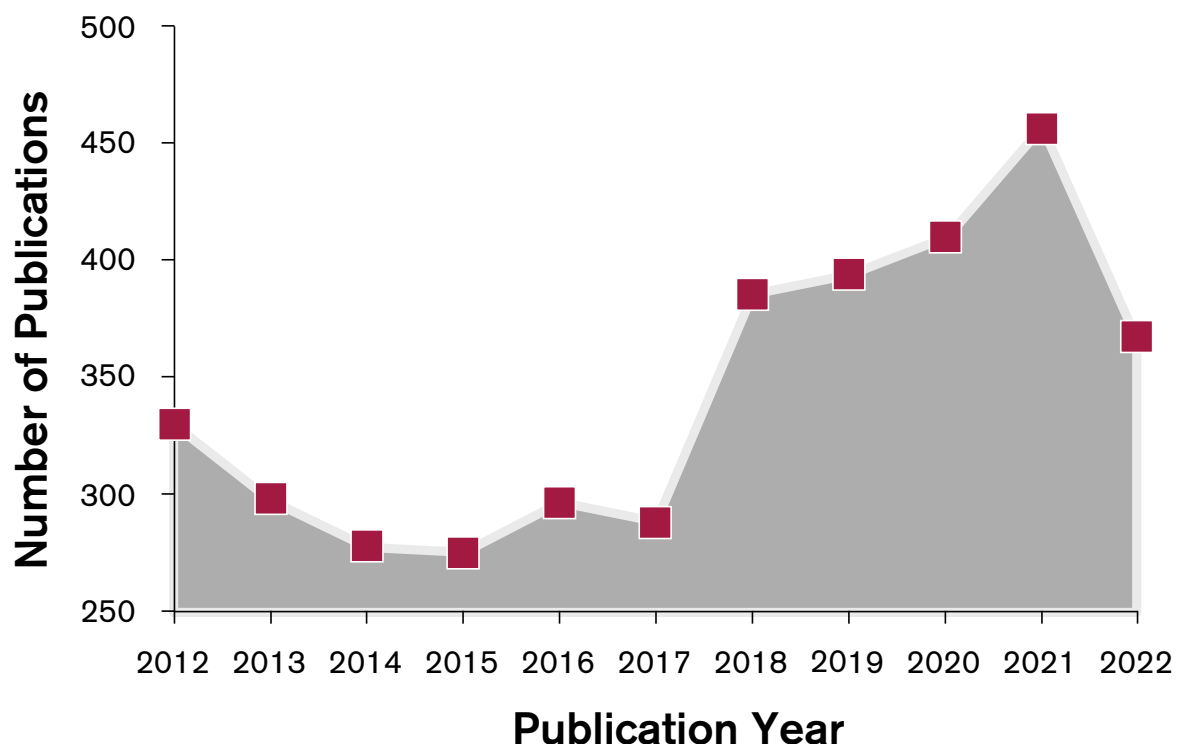
Publication Record	Method SDSN	Method Elsevier
All Articles	3,784	223
Open Access	2,209	135
Citations	55,116	3,350
H-Index	88	29

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	608	13,168	149	1,350
Taught Postgraduate	276	3,201	40	165
Research Degrees	52	168	2	8
<b>Total</b>	<b>936</b>	<b>16,537</b>	<b>191</b>	<b>1,523</b>

## SDG 8

Decent work and economic growth





## Case Study: Research

The University of Essex has been recognised for its outstanding work to support businesses through Knowledge Transfer Partnerships (KTPs) at the Innovate UK KTP Awards.

KTPs connect businesses to expertise in UK universities to develop new products and services with projects led by talented graduates based in the company.

Dr Faiyaz Doctor from the School of Computer Science and Electronic Engineering picked up the national KTP Academic of the Year Award for his work with shipping giant Mediterranean Shipping Company (MSC) to use AI to improve its operations.

Professor Berthold Lausen from the Department of Mathematical Sciences was also shortlisted in the same category and Essex's KTP team was nominated for the Best Knowledge Base KTP Support Team Award.

The partnership with MSC was named Best Partnership (Large company) at the University's own Celebration of Innovation.

Essex's KTP team at Essex has grown the University's KTP portfolio from eight projects in 2017 to over 40 projects in 2022 and the number of projects is continuing to grow. This has seen Essex become the number one institution in the UK for active KTPs.

Pro-Vice-Chancellor, Research, Professor Chris Greer said: "Our partnerships are absolutely vital to support innovation and economic growth and we are at the forefront of applying world-class research to real-world business challenges."

### Did you know?

A major £10.7m office development will be completed at Parkside on the Knowledge Gateway research and technology park in 2023. The new building will be a base for the Institute of Public Health and Wellbeing alongside offering more opportunities for businesses wanting to move to the University's Colchester Campus to take advantage of links to the research community, graduate and student talent pool, campus facilities and business networks.

# BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALISATION AND FOSTER INNOVATION

**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



**401st to 600th  
in THE Impact  
Rankings 2022**

## Research

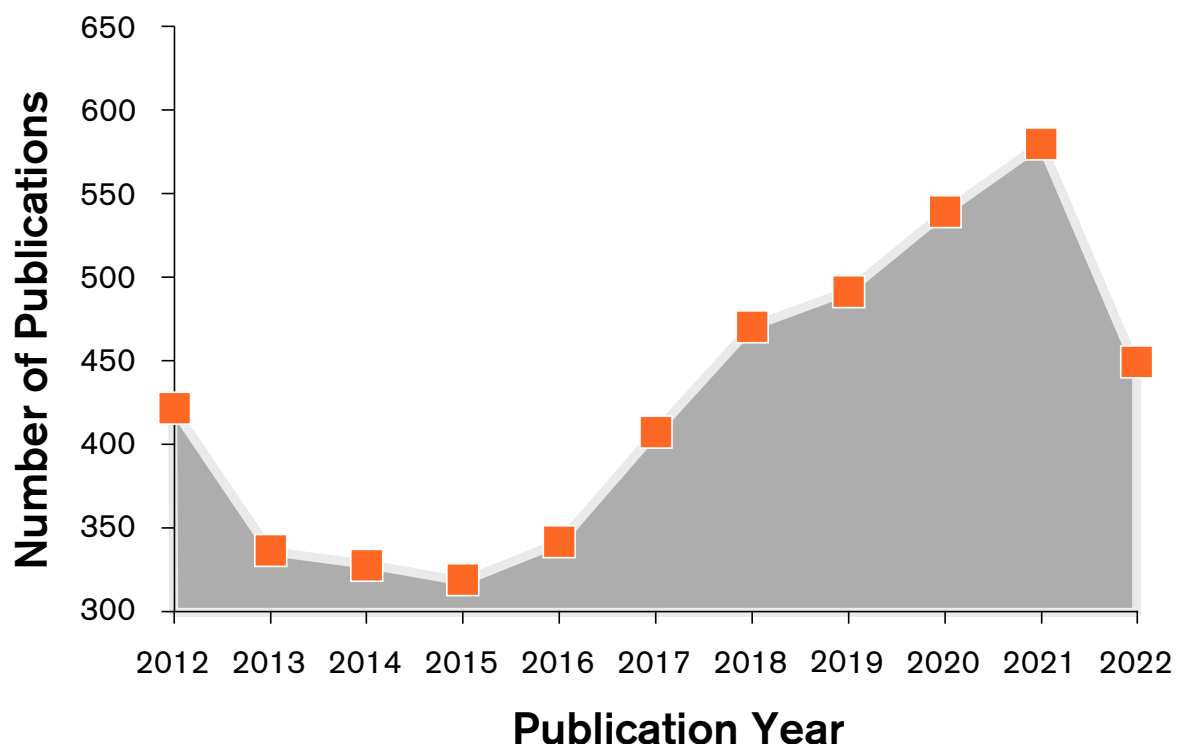
Publication Record	Method SDSN	Method Elsevier
All Articles	4,673	60
Open Access	2,815	38
Citations	76,382	2,398
H-Index	103	22

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	584	12,001	2	4
Taught Postgraduate	274	2,883	17	44
Research Degrees	302	977	0	0
<b>Total</b>	<b>1,160</b>	<b>15,861</b>	<b>19</b>	<b>48</b>

## SDG 9

Industry,  
innovation and  
infrastructure







## Case Study: Action

The University of Essex has launched an inclusive and sector-leading investment fund to drive innovation and spin-off companies.

Angels@Essex, based at the Innovation Centre, Knowledge Gateway has secured £19.6m for 38 different start-ups in just over two years – with 70 per cent of applicants receiving funding.

Supporting world-changing state-of-the-art tech the platform is helping start-ups find the funding to grow and many emerging businesses are focused on being more sustainable.

Whether that be orchard management, solar power, low-carbon travel or robotics for farms Angels@Essex is involved.

Among the bleeding-edge businesses supported is Outfield, which uses machine learning and drone technology to help predict and forecast fruit yield. The business aims to make farms more efficient, more profitable and more sustainable.

Fox Robotics was also linked to vital cash by the dedicated Angels@Essex team – based in the Innovation Centre, on the Colchester Campus.

The firm has developed a robot to safely help human pickers on soft fruit farms – to ensure vital resources are not wasted and crops are not grown in vain.

By using AI it improves productivity and saves vital produce from being thrown away, which enables firms to save cash to invest in sustainable technology.

Angels@Essex is dedicated to helping start-ups and innovators – whatever their background. As part of this the Angels@Essex launched the Female Founders and Investors network, helping more than 130 businesswomen launch disruptive tech companies in under a year. Business Support Manager John Stenhouse said: “Raising investment for early seed stage innovative ideas is never easy, when they are led by female entrepreneurs there is an unconscious bias from investors.

“We aim to break that mould and challenge current thinking with our radical approach to matching investors with opportunities using our free Angels@Essex platform, having facilitated over £19m equity investment – we are making a difference.”

# REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

**10** REDUCED INEQUALITIES



**24th in THE Impact Rankings 2022**

## Research

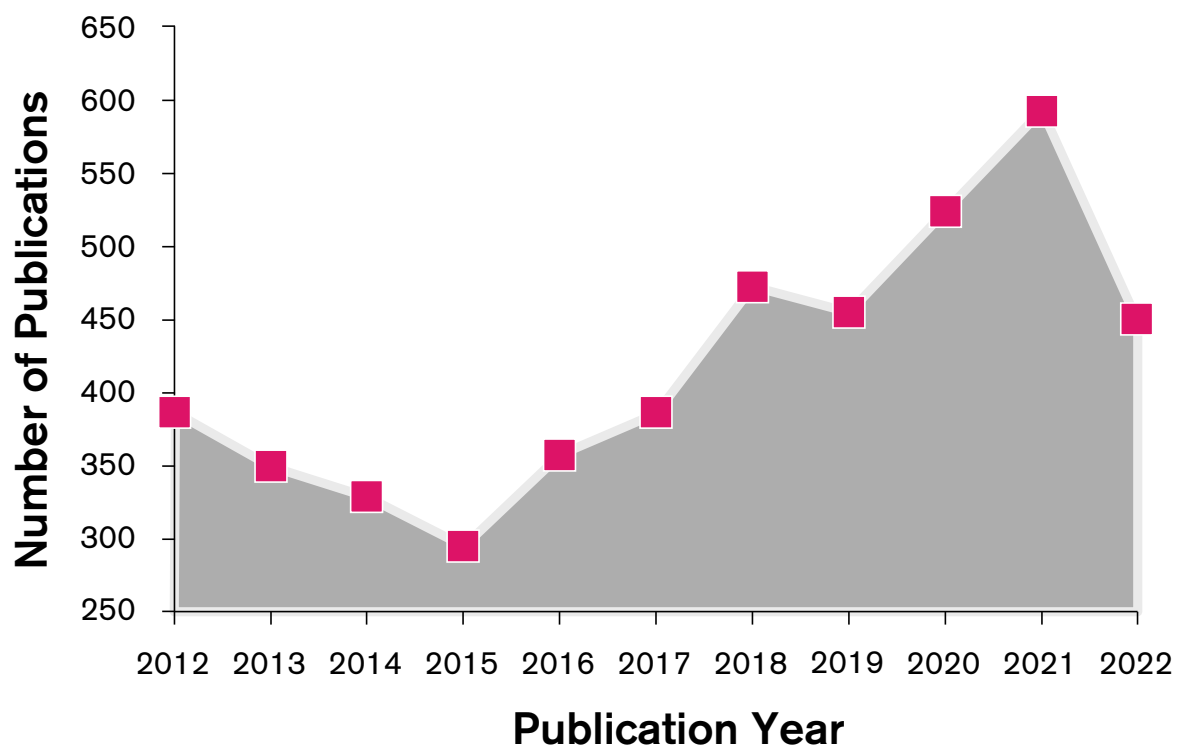
Publication Record	Method SDSN	Method Elsevier
All Articles	4,589	252
Open Access	2,869	160
Citations	66,592	4,039
H-Index	94	33

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	614	13,671	111	869
Taught Postgraduate	279	3,320	59	256
Research Degrees	97	281	0	0
<b>Total</b>	<b>990</b>	<b>17,272</b>	<b>170</b>	<b>1,125</b>

## SDG 10

Reduced inequalities





© James Datway, the Endless Journey

## Case Study: Research and Action

Breaking the damaging cycle of gender-based violence and poor mental health amongst migrants is the focus of a major new international study and global health research group led by the University of Essex.

The £2.56 million project will be studying the link between these two global health challenges which, although widely acknowledged, is poorly understood. Current interventions generally focus on either gender-based violence or poor mental health amongst migrants – ignoring the vicious cycle where one leads to, and escalates, the other.

The four-year GEMMS research group will bring together global experts in mental health, migration and gender-based violence to improve the knowledge around this subject which will feed into co-designing new training and public health solutions that will tackle these issues head-on and improve migrants' wellbeing.

Leading the GEMMS research group is global health expert Professor Anuj Kapilashrami, from Essex's School of Health and Social Care.

Dr Maria Hudson, from Essex Business School, is helping combat inequalities in

the workplace by identifying strategies to improve the use of staff race networks. She completed an important report for workplace experts Acas which showed staff race networks can help tackle systemic barriers to recruitment and progression in the workplace. She highlighted that senior management support, clarity of purpose, adequate resourcing and staff participation all help networks deal with inequality.

Essex is also aiming to break down barriers and support the next generation of Black researchers from undergraduate through to postgraduate level.

The ground breaking project is supported by Research England – part of UK Research and Innovation (UKRI) – and the Office for Students with match-funding from the University.

The project will see Essex work with partners to create a model for others to follow including a digital platform, training for students and staff, funding, mentoring, career and professional development opportunities. The impact will be evaluated to inform future strategies.

# MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

11 SUSTAINABLE CITIES AND COMMUNITIES



101st to 200th in THE Impact Rankings 2022

## Research

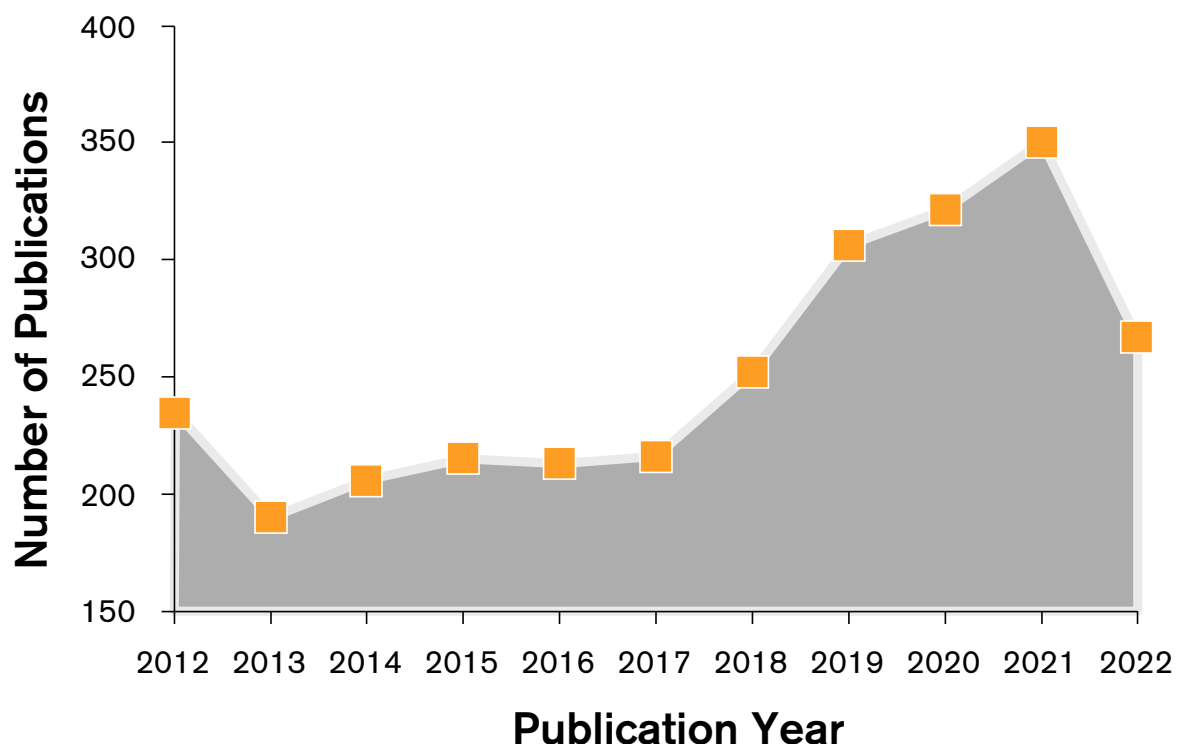
Publication Record	Method SDSN	Method Elsevier
All Articles	2,770	113
Open Access	1,737	69
Citations	52,068	1,568
H-Index	95	21

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	411	7,182	70	391
Taught Postgraduate	155	1,387	4	47
Research Degrees	2	45	0	0
<b>Total</b>	<b>568</b>	<b>8,614</b>	<b>74</b>	<b>438</b>

## SDG 11

Sustainable cities and communities





## Case Study: Action

Researchers at Essex Business School and the Department of Government are partnering with

Our Colchester and Colchester Borough Council to raise awareness of plastic pollution and explore ways to reduce single use plastics.

They are working in the Colchester area to create new ways of working for local businesses which cuts plastic waste.

Dr Debashree De said: “Plastics pollution affects our everyday life in multiple ways. Reducing the use of plastics will help improve our quality of life significantly.

“We are excited to be working with Colchester businesses in this project and help improve sustainability.”

The project focuses on what we can gain from new technologies that are available in the UK as alternatives to single-use plastics. The team is investigating the production of more sustainable and compostable packaging materials in the Colchester area, aiming to provide businesses with a cost-effective and environmentally friendly alternative to single-use plastics.

The research team has been conducting a benchmarking exercise to examine what other councils and organisations are already doing to successfully reduce plastic-use from which Colchester can learn.

Potential actions being proposed include offering more public fountains for refillable containers, public engagement tools like ‘bubble bins’ that burp and blow bubbles when given bottles, and encourage people to consciously take a break from products which use plastics.

Working with the Business Improvement District Manager for Our Colchester, the research team is identifying key barriers for businesses to shift away from single-use plastics, and aims to draw the projects efforts together into a single event called a “plastics holiday”. The plastics holiday will support businesses in eliminating certain plastic products during and reward them for doing so by drawing public attention to their efforts and offering other incentives like bulk-purchasing of replacement products.

The research is supported by a grant from the Economic and Social Research Council.

# TO ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**16th in THE Impact Rankings 2022**

## Research

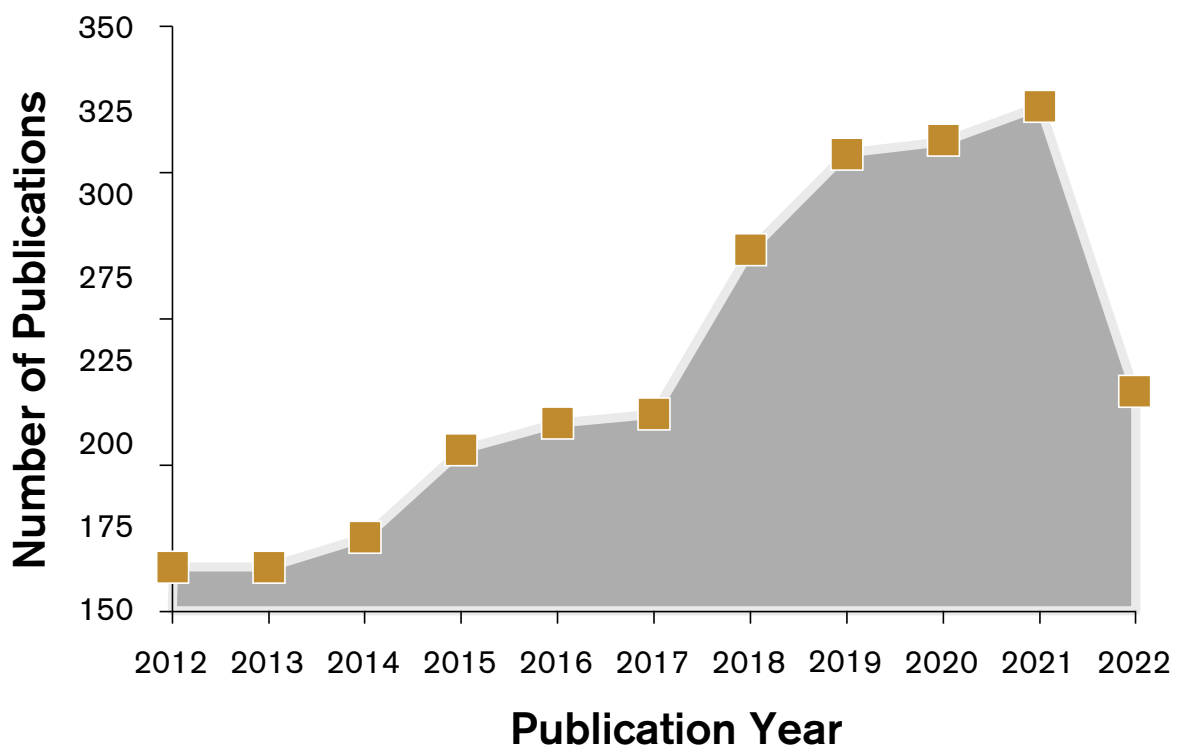
Publication Record	Method SDSN	Method Elsevier
All Articles	2,576	100
Open Access	1,643	63
Citations	47,000	1,821
H-Index	87	23

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	369	4,387	71	1,297
Taught Postgraduate	142	1,358	27	182
Research Degrees	3	6	0	0
<b>Total</b>	<b>514</b>	<b>5,751</b>	<b>98</b>	<b>1,479</b>

## SDG 12

Responsible consumption and production





## Case Study: Research

An international project aimed at tackling food waste across Europe is being led by an Essex academic.

Professor Ramakrishnan Ramanathan, from the Strategy, Operations and Entrepreneurship Group within Essex Business School, is leading the REAMIT project, which is coordinated by the University of Bedfordshire.

The project is funded by the Interreg North West Europe (NWE) programme and aims to reduce food waste by adapting and applying existing Internet of Things and big data technologies to food supply chains.

Currently, 88 million tonnes of food are wasted every year in North-Western Europe, and of that, approximately a third has rotted, or become otherwise inedible while in transit. Fruit, vegetables, meat and fish are all lost in vast quantities on the roads of Europe heading from the farms to the supermarkets, which not only costs money but also increases CO<sub>2</sub> emissions.

Sensors fitted to the inside of trucks and in other locations in the food supply chains, backed up by supporting technology, are used to determine

if food is in danger of rotting, allowing the driver to divert to a supermarket or food bank closer to them than their planned destination.

The project is supported by seven universities, five small and mid-size enterprises (SMEs), and a large food logistics provider. It focuses on Ireland, Germany, France, UK, and the Netherlands due to the amount of interconnected food supply chains and food waste in these countries.

Professor Ram Ramanathan said: "It is hoped the project will prevent the loss of 1.8 million tonnes of food a year in North-Western Europe and avoid 5.5 million tonnes a year of unnecessary CO<sub>2</sub> emissions. Once the project is complete and the technology has been tested, our plan is to roll out the detection system more widely and reduce the amount of food waste over the long term."

### Did you know?

Essex researchers are working to recycle oyster shells to protect our coast. Waste shells will be collected from restaurants and repurposed to support the development of "microhabitats" for oysters. These will hopefully act as natural storm barriers.

# TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

13 CLIMATE ACTION



40th in THE Impact Rankings 2022

## Research

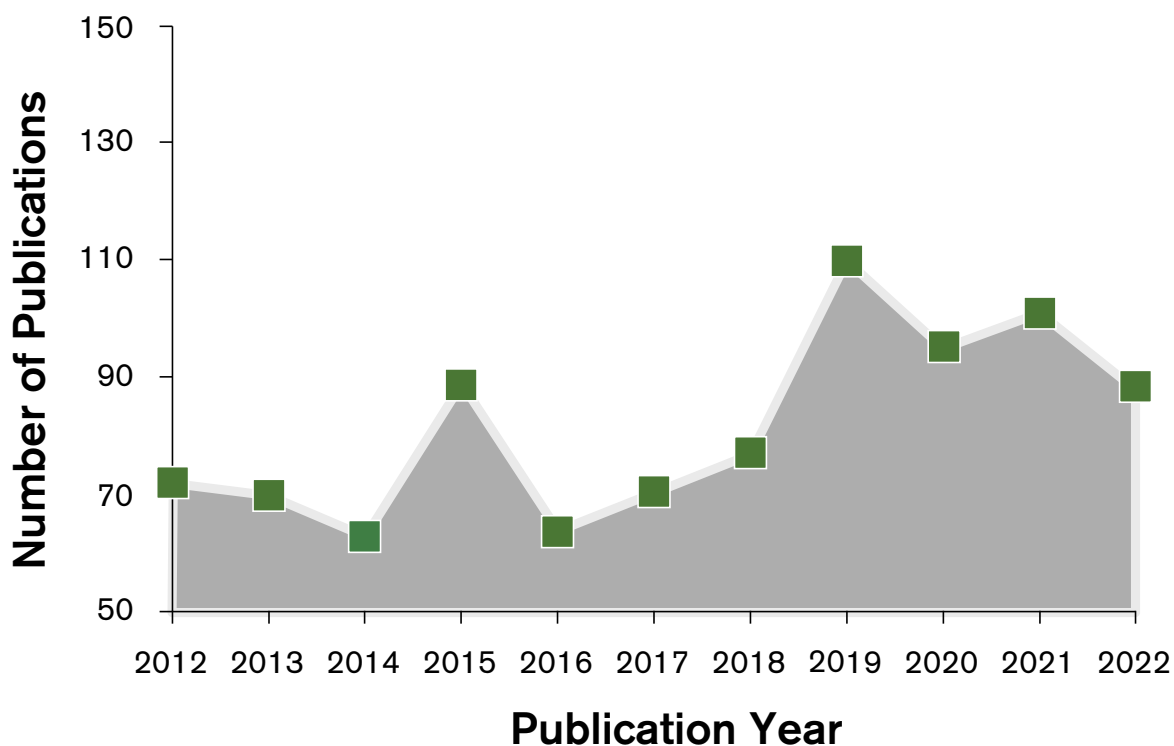
Publication Record	Method SDSN	Method Elsevier
All Articles	900	221
Open Access	587	145
Citations	20,324	5,274
H-Index	64	35

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	150	1,239	81	805
Taught Postgraduate	48	232	39	170
Research Degrees	2	2	1	1
<b>Total</b>	<b>200</b>	<b>1,473</b>	<b>121</b>	<b>976</b>

## SDG 13

Climate action







## Case Study: Action

Delivering real change is the aim of the University of Essex Climate and Ecological Emergency Advisory Group which brings people together from across the university community to oversee work on climate and environmental action.

Formed in 2020, the Group was initially responsible for coordinating the University's declaration of a climate and ecological emergency, which was made in December that year, as well as proposing the University's commitment to reach net zero carbon emissions by 2035.

Since then, the group's focus has been the development of the University's Sustainability Sub-Strategy and Climate Action Plan 2021-26 and undertaking its delivery. The Sub-Strategy sets out our vision for an environmentally sustainable university and the steps we will take on that journey up to 2026.

The Group brings together representatives from every aspect of the University's operations, covering education, research, Finance, Estates and Campus Services, Sustainability, and People and Culture, as well as the Students' Union and our trades

unions. This spread of involvement ensures that action on the climate and ecological emergency is shared by those who are able to influence their areas of work expertise, and ensures that sustainability is embedded across the whole University.

The Sub-Strategy now covers 13 priority areas that are critical to supporting climate action, and each is led by colleagues who are best placed to lead change. These are: Scope 1 and 2 carbon emissions; Scope 3 carbon emissions; Education; Research; Biodiversity and grounds; Water management; Waste and recycling; Travel and transport; Food and drink; Sustainable buildings; Space use; Finance and procurement; and Our community (communications and engagement).

The Group meets monthly to discuss key actions in the Sub-Strategy, or challenges to overcome in its delivery, creating an environment of collaboration and collective problem-solving. Updates on progress are shared quarterly with our institution's leadership team so they can oversee and support the delivery of the our sustainability goals and ensure strong governance.

# CONSERVE AND SUSTAINABLY USE THE OCEANS, SEA AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT



45th in THE Impact Rankings 2022

## Research

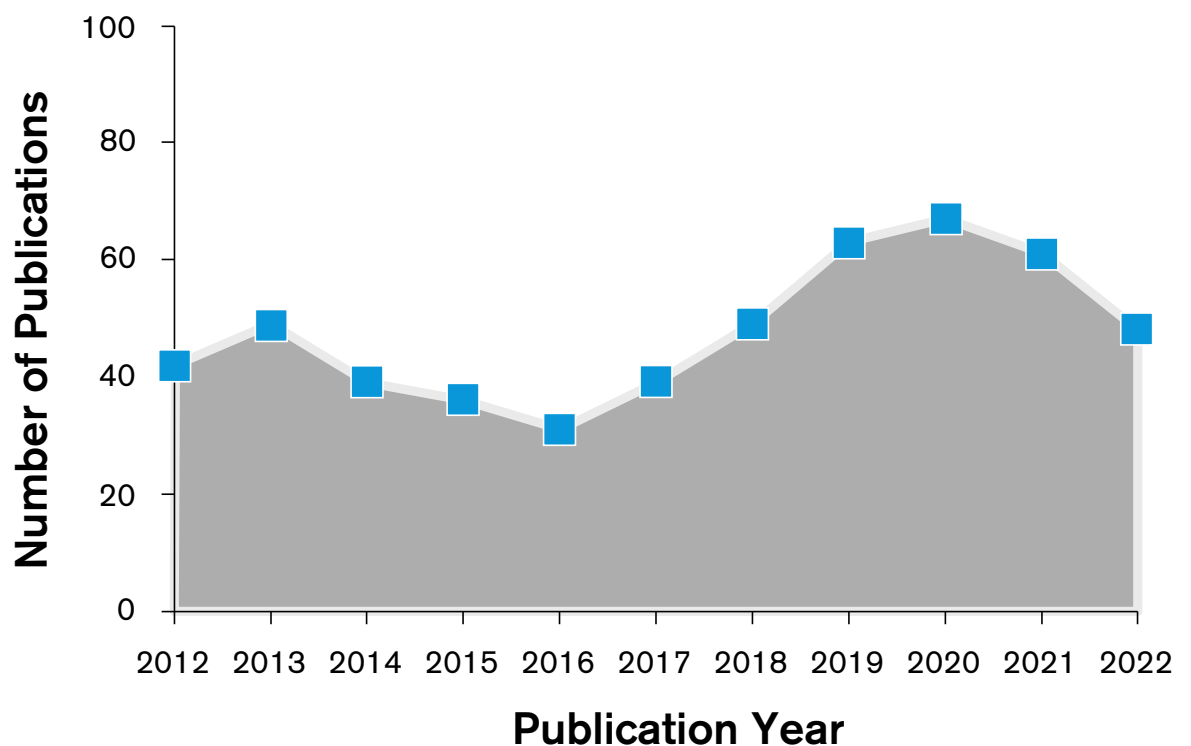
Publication Record	Method SDSN	Method Elsevier
All Articles	524	175
Open Access	366	123
Citations	14,143	4,269
H-Index	54	31

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	164	1,914	43	237
Taught Postgraduate	24	215	9	66
Research Degrees	0	0	0	0
<b>Total</b>	<b>188</b>	<b>2,129</b>	<b>52</b>	<b>303</b>

## SDG 14

Life below water





## Case Study: Research

A key collaboration between our world-leading academics and the UK Government will help tackle the global challenges faced by the marine environment.

The Government's Centre for Environment, Fisheries and Aquaculture Science (Cefas) is working in partnership with Essex scientists to promote marine and freshwater science research and education.

The agreement provides a framework for collaboration between the two organisations for the next five years. Cefas, home to the government's marine and freshwater science experts, will work with the School of Life Sciences on visits, training, and collaborative research projects.

With plans afoot to share facilities and expertise to offer consultation and advice with the goal of improving the use of technology and best practice.

Professor Terry McGenity said: "This agreement, which coincides with the start of the United Nations Decade of Ocean Science for Sustainable Development, signals the willingness to develop

stronger links across research and education, particularly in tackling global challenges faced by the marine environment."

The Memorandum of Understanding will draw on Essex expertise in research and education which covers a large range of areas from environmental microbiology and biodegradation to molecular ecology and food webs.

Dr Stephen Dye, Cefas Science Lead, said: "I look forward to seeing our collective science impact in action, further developing our international footprint, for example by expanding our work on environmental DNA and biomonitoring, whether around overseas territories in the Southern Ocean or oil platforms in the North Sea."

### Did you know?

Essex marine biologist Dr Michelle Taylor is President of the Deep-Sea Biology Society, a leading research charity dedicated to deep-sea research.

Dr Taylor, from our School of Life Sciences, specialises in deep-sea environments.

# PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECO-SYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS



88th in THE Impact Rankings 2022

## Research

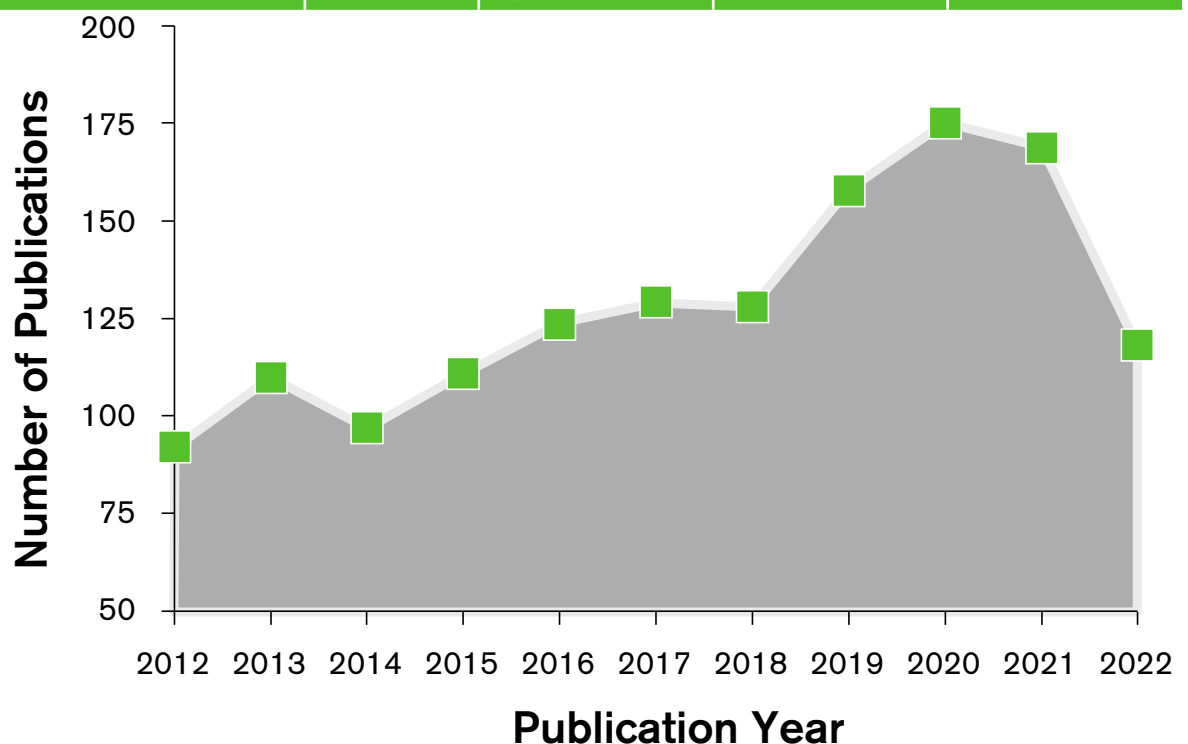
Publication Record	Method SDSN	Method Elsevier
All Articles	1,411	75
Open Access	1,000	56
Citations	33,563	2,448
H-Index	78	27

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	226	1,872	18	176
Taught Postgraduate	50	194	6	13
Research Degrees	0	0	0	0
<b>Total</b>	<b>276</b>	<b>2,066</b>	<b>24</b>	<b>189</b>

## SDG 15

Life on land





## Case Study: Action

Essex Law School's Brontie Ansell is setting an example for others to follow after becoming the first representative for Nature on a company management board.

The precedent-setting move gives nature a vote on key business decisions at Faith in Nature, the award-winning producer of natural hair and skin care products. This means the future direction of the business, which operates in 40 countries, will be shaped with flora and fauna in mind.

As the first representative of Nature on the Faith in Nature board, Brontie will be legally bound to speak and vote on behalf of the natural world.

This decision extends a growing legal precedent around environmental personhood – the attribution of legal rights to non-human entities – and presents a fresh opportunity for businesses wanting to reduce their environmental impact.

By changing its governance structure, the Faith in Nature directors have made sure they are legally accountable, and hope other businesses will follow suit.

Their vision has been realised by lawyers that helped pioneer the concept of environmental personhood – Paul Powlesland and Brontie, from Lawyers for Nature, and Grant Wilson from Earth Law Centre.

In what will be a rotating position, Brontie will be the first board representative for nature. Brontie said: "This will hopefully spark a big change in how the business world perceives and acts on its responsibility to the natural world. For too long Nature has been seen purely as an expendable resource: this kind of thinking has led us to the brink of ecological collapse."

The board representative will work in concert with a committee of environmental experts, to make Nature's case on all major board decisions. Faith In Nature has decided to open-source the legal process to allow other companies to follow its lead.

### Did you know?

Essex graduate Nagima Ayubayeva was shortlisted in the Science and Sustainability category of the Study UK Alumni Awards 2022 for promoting 'green finance'.

# PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

**16** PEACE, JUSTICE AND STRONG INSTITUTIONS



18th in THE Impact Rankings 2022

## Research

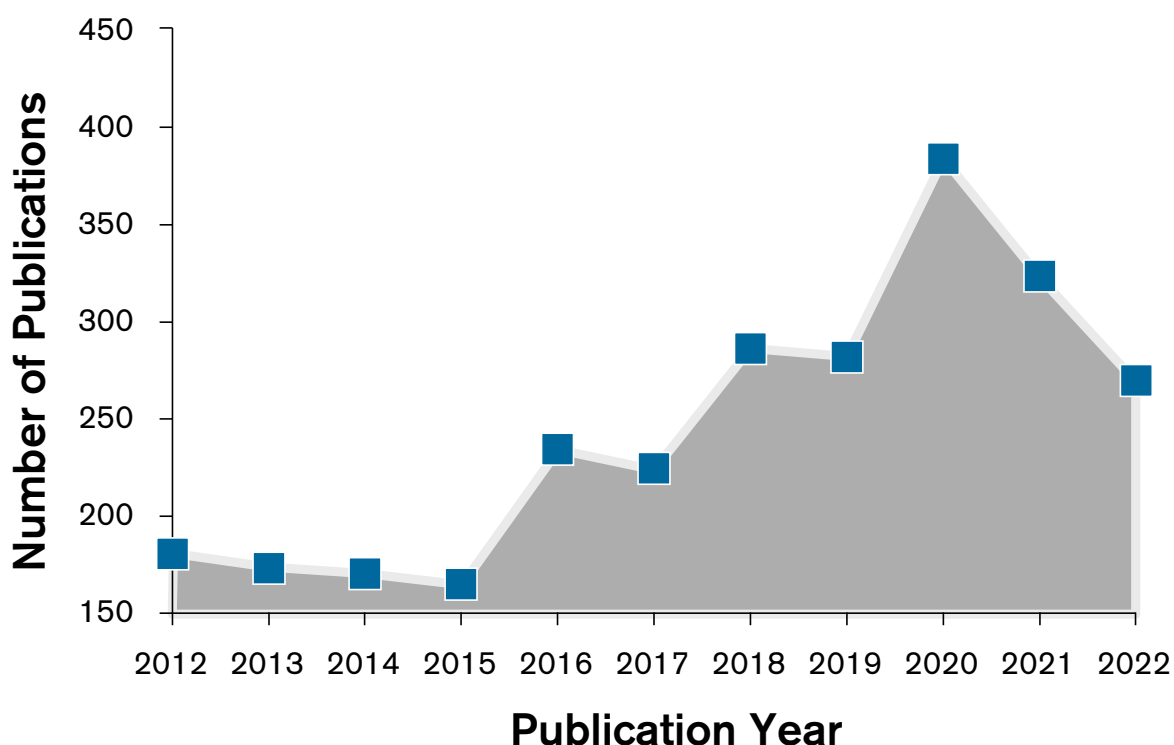
Publication Record	Method SDSN	Method Elsevier
All Articles	2,611	679
Open Access	1,546	355
Citations	31,705	7,374
H-Index	68	40

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	435	7,156	233	2,967
Taught Postgraduate	172	1,422	79	435
Research Degrees	7	19	3	5
<b>Total</b>	<b>614</b>	<b>8,597</b>	<b>315</b>	<b>3,407</b>

## SDG 16

Peace, justice and strong institutions





## Case Study: Research

Insights from Essex researchers help develop peaceful and inclusive societies while improving the accountability of governments and institutions across the world.

Dr Sara Polo, from the Department of Government, has won the Medal for the best publication in Peace Science from the European Peace Science Society and PhD researcher Blair Welsh received the Stuart A Bremer Award for the most outstanding graduate paper.

Dr Polo co-wrote the article 'Trojan Horse, Copycat, or Scapegoat? Unpacking the Refugees-Terrorism Nexus' with Professor Julian Wucherpfennig from the Centre for International Security.

Dr Polo said: "Popular debate often connects refugees to an increased threat to national security. The article argues otherwise. It finds no causal link between hosting refugees and an increase in terrorist attacks from foreign groups, including terrorist groups based in refugee origin countries. It shows that the only form of terrorism that increases in host nations in the developed world is right-wing violence against refugees and migrants, perpetrated by

citizens of those countries who falsely view refugees as a security threat.

"These findings suggest fears of refugees are not only unjustified but also counterproductive. They subject refugees to a double victimisation in developed countries: by limiting refugees in their ability to gain shelter; and by inflicting further violence on those granted refuge by developed countries."

Blair's research uses new data on hostage victims in Iraq to determine the conditions under which the Islamic State might kill hostages. This research is part of his PhD thesis on terrorist violence in civil war.

Blair said: "I'm inspired by the work my colleagues are doing to drive the discipline forward."

### Did you know?

The University of Essex is the only UK university to be awarded a Regius Professorship in political science. The role is held by Professor Kristian Gleditsch an expert in the study of conflict resolution, democratisation and political change.

# STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALISE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

17 PARTNERSHIPS FOR THE GOALS



86th in THE Impact Rankings 2022

## Research

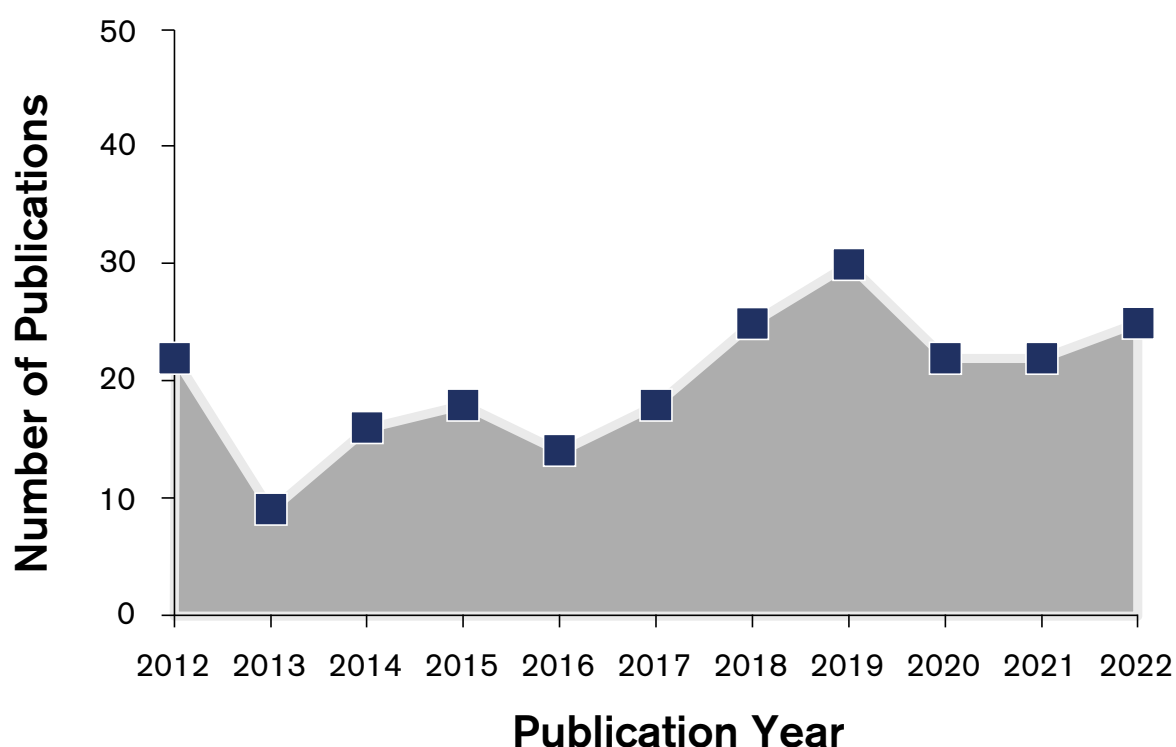
Publication Record	Method SDSN	Method Elsevier
All Articles	221	N/A
Open Access	111	N/A
Citations	3,785	N/A
H-Index	33	N/A

## Education

Programme Type	SDSN Relevant Degrees	SDSN Student Engagements	Elsevier Relevant Degrees	Elsevier Student Engagements
Undergraduate	140	820	N/A	N/A
Taught Postgraduate	26	171	N/A	N/A
Research Degrees	0	0	N/A	N/A
<b>Total</b>	<b>166</b>	<b>991</b>	<b>N/A</b>	<b>N/A</b>

## SDG 17

Partnerships for the goals







## Case Study: Action

As one of the most international universities in the world, building global partnerships to promote excellence in research and education is at the heart of our work.

We have established a new partnership with charity Lepra to help people affected by leprosy and other vulnerable groups throughout the world. The new collaboration will focus on projects and academic research where Lepra and the University share common interests, providing opportunities for both organisations to advance the fields of public and global health.

Professor David O'Mahony, the University of Essex's Dean of Partnerships (Research), said: "Together we will be able to work and cooperate on the important work that Lepra delivers across the world."

In Brazil, we're helping improve opportunities and support for women in science careers through a partnership with two Brazilian universities.

Essex's School of Computer Science and Electronic Engineering secured funding from the British Council for the Women in Science: UK-Brazil Gender Equality Partnership –

a one-year project dedicated to helping women in STEM (science, technology, engineering and maths) careers.

Through the Young European Research University Network (YERUN) we work with more than 20 universities in Europe to promote inclusive, responsible, open and innovative research. Since 2021, YERUN has been promoting the exchange of best practice to integrate the Sustainable Development Goals into educational and research activities.

We're also part of the Young Universities for the Future of Europe (YUFE) Alliance which is a partnership of ten dynamic, young, student-centred research-based universities and four non-academic partners who are working to create one of the first true European Universities.

YUFE promotes active European citizenship and encourages collaboration between staff, students, citizens, businesses and government and policy makers to address European and global challenges. This includes encouraging student and staff mobility plus social action by students.

# SUSTAINABLE DEVELOPMENT GOALS

**Find out more about our work on sustainability and our response to the climate and ecological emergency on our website at: [www.essex.ac.uk/sustainability](http://www.essex.ac.uk/sustainability)**