6 CLEAN WATER AND SANITATION

Ensure access to water and sanitation for all

Photo: Calvin Ouko, University of Nairobi. Kenya

Making groundwater a safe source of drinking water in urban Africa

A multidisciplinary team of UCL researchers is working with universities, water companies and government ministries in Africa to improve and sustain access to safe drinking water.

Underlying Africa hides one of the continent's most precious resources: groundwater flowing within aquifers underground, where researchers have estimated many countries have 100 times more water than in rivers and lakes on the surface. Yet less than 50% of rural communities in many sub-Saharan African countries have access to safe water.

"Groundwater is the most strategic and low-cost way to provide safe water to people in Africa," explains Professor Richard Taylor (UCL Geography), who co-leads the AfriWatSan project.

The UCL team is working with its local counterparts in impoverished areas of a town (Lukaya, Uganda), city (Kisumu, Kenya) and megacity (Dakar, Senegal), to map underground aquifers, assess aquifer renewability, and sustain conjunctive use of the subsurface to supply safe water and to contain faecal waste using low-cost sanitation systems and local sanitation facilities, such as pit latrines and septic tanks.

"Groundwater is the most strategic and low-cost way to provide safe water to people in Africa."

Professor Richard Taylor (UCL Geography)

Helping to achieve **Target 6.1**

Helping to achieve **Target 6.2**

Helping to achieve **Target 6.B**

Reducing water waste

UCL runs an ongoing campaign to raise awareness of dripping taps to save water on campus and promote conscious water usage. Students and staff are encouraged to report drips online.

Helping to achieve **Target 6.4**

Improving our water efficiency on campus

An ongoing programme of construction and refurbishment to improve UCL's buildings is providing the opportunity to consider how the university can reduce water consumption, both during building work and future operations.

UCL's standard target for new buildings is a 40% reduction in water consumption compared to the standard industry baseline, as defined by BREEAM, the environmental assessment method for buildings. ▸

New developments typically achieve this through specifying efficient sanitary fittings, as well as monitoring ongoing water usage. The UCL Student Centre uses low-flush toilets and water-efficient shower facilities, contributing to a projected 55% reduction in water consumption.

Where practical, UCL's buildings also reduce the potable water supply with rainwater harvesting and greywater recycling.

Helping to achieve **Target 6.4**

Investing in sanitation to help reach the SDGs

A cross-disciplinary team at UCL has linked the need for safe sanitation to all 17 SDGs, demonstrating the far-reaching benefits of investing in sanitation infrastructure that go beyond better health.

"More than half the world's population lack access to safely managed sanitation, and in 2017 approximately two billion people were still living without even the most basic sanitation," explains Dr Priti Parikh, Director of the UCL Engineering for International Development Centre. "This increases morbidity rates, healthcare costs and reduces productivity."

"In 2017 approximately two billion people were still living without even the most basic sanitation."

Dr Priti Parikh (UCL Centre for Engineering for International Development)

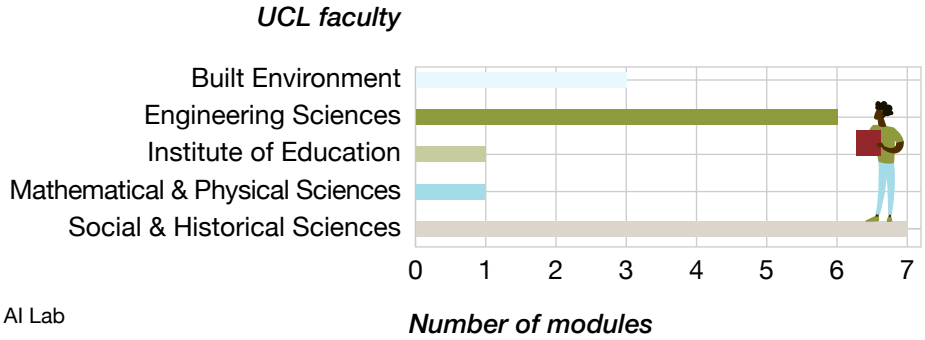
To ensure everything possible is done to address this lack of basic human rights, Dr Parikh is drawing attention to the importance of sanitation infrastructure and management by reviewing its impact across all the other SDGs.

The review has identified synergies between sanitation and two thirds (130) of the 169 Targets and trade-offs for a third of them, across all 17 SDGs, demonstrating the far-reaching benefits that can be unlocked from investment in sanitation, which extend beyond health.

Dr Parikh hopes the team's approach will provide vital evidence for policymakers and practitioners to support new cross-disciplinary interventions to deliver improved sanitation for all by 2030.

Helping to achieve **Target 6.2**

Taught modules at UCL supporting SDG6 in 2021–22



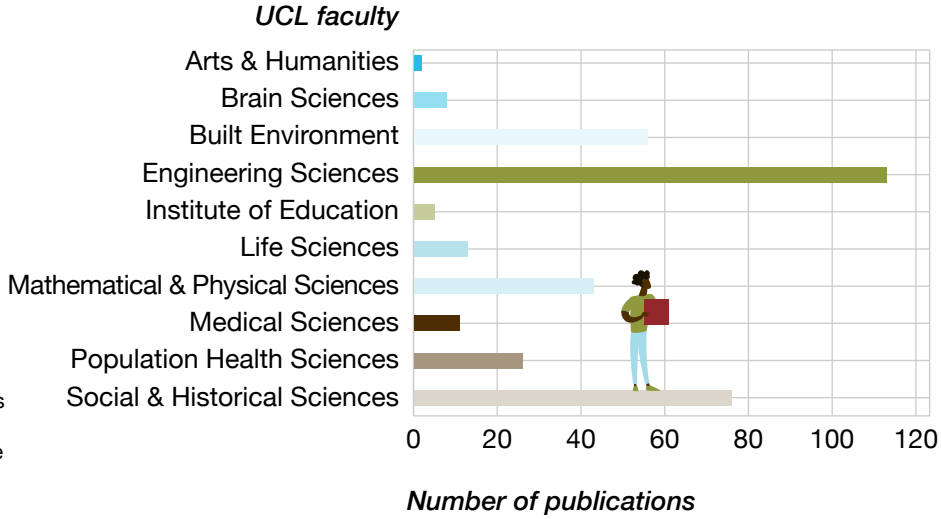
Source: PPMI, a partner in the UN AI Lab – more details in the methodology

418

SDG6-related policy citations in 2016–20

Source: Overton – see methodology

Number of UCL's research publications supporting SDG6 by faculty in 2016–20



Graph based on keywords searches of publication databases using a set of SDG keywords developed by Elsevier. Read more about the methodology used on the SDGs Initiative website

Learning from nature to revolutionise water treatment

Clean water is a vital resource but one that is becoming rapidly scarce for much of the global population. The need for innovative technologies that convert seawater to drinking water or remove impurities from wastewater is becoming increasingly important.

"Designing and implementing innovative ways to purify and desalinate water is essential if we

are to conserve resources and provide drinking water for the world's growing population," says Professor Marc-Olivier Coppens, Director of the UCL Centre for Nature-Inspired Engineering (CNIE).

Over time, the artificial membranes currently used in water treatment become damaged by unwanted material that accumulates on their surface.

CNIE's researchers are taking a different approach: learning from biological membranes, such as cell membranes or kidney blood vessels, to develop more efficient, durable membranes.

Helping to achieve **Target 6.3**

20.4%

of UCL's SDG6-related publications are in the top 10% most cited for all research of similar papers in 2016–20

Source: Scopus and Clarivate – see methodology

72.8%

of UCL's SDG6-related research publications are international collaborations, 2016–20

Source: Scopus and Clarivate – see methodology

DISCOVER MORE

Read more on these activities and other examples of how UCL is helping to achieve SDG6 are on the UCL SDGs Initiative website.