Study takes novel 'back-casting' approach to transform cities for healthier lives

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Researchers at four of the country's leading universities are embarking on a low carbon engineering project that could transform the way cities are built, as well as the way we live in them, by taking a novel 'back-casting' approach to their study.

Led by Professor Chris Rogers, at the University of Birmingham's School of Engineering, the study will create visions of an alternative urban future with drastically reduced CO2 emissions then develop realistic and radical engineering solutions to achieve them in a socially acceptable way. Research will closely link people's social aspirations and wellbeing with the engineering of cities.

The UK government is committed to meeting its 2050 climate change target to reduce greenhouse gas emissions by 80 per cent from 1990 levels.

Professor Rogers said: "Engineering of our cities has traditionally been a 'top-down' exercise, mainly because it's so very difficult to create a 'bottom-up' approach: solutions are created and society must either learn to work and live with them or choose to resist them.

"Our research is novel in that we start by imagining the future that we want for our cities, for example what does an 80 per cent carbon reduced Lancaster look like? We then work backwards to find out what combinations of engineering solutions, behavioural changes and technological developments are needed to make these alternative futures

possible, while at the same time ensuring that the planet can still provide us with the resources we need. The ambition of our research programme is necessary to deal with the global challenges that we face."

Professor Rogers' research experience encompasses the Mapping the Underworld project to create a prototype multi-sensor device to detect and map the pipes that lie beneath our cities' streets without the need for excavation. Such technical advances will make utility service provision and streetworks more sustainable.

As the world undergoes the largest wave of urban growth in history, research that can provide visions of an alternative economically viable future for low carbon, sustainable development is crucial.

In 2008, for the first time in history, more than half the world's population was living in towns and cities. The UK was the first country in the world in which this happened. By the time of the 2001 census almost 80 per cent of the UK population was living in cities, today this figure has risen to 90 per cent.

By using focus groups, case studies, a city analysis methodology and other approaches in pioneering futures research, the researchers will create a roadmap that aims to drive future engineering thinking for decades to come. Its goal is to influence policy and be used by urban designers in the UK with the potential to be applied anywhere in the world.

The study has been made possible by a £6 million programme grant from the Engineering and Physical Sciences Research Council (EPSRC). Programme grants are flexible grants made available to world-leading research teams aiming to address major research challenges.

Lancaster University, University College London and the University of

Southampton are part of the five-year multidisciplinary research team.

Commercial partners include power and gas company E-ON, global engineering consultancy Halcrow, international engineering and construction company Costain, and the UK's rail operator Network Rail.

Provided by Engineering and Physical Sciences Research Council