

Growth versus global warming

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(PhysOrg.com) -- Houses on stilts, small scale energy generation and recycling our dishwater are just some of the measures that are being proposed to prepare our cities for the effects of global warming.

A three-year project led by Newcastle University for the Tyndall Centre for Climate Change Research has outlined how our major cities must respond if they are to continue to grow in the face of climate change.

Using the new UK Climate Predictions '09 data for weather patterns over the next century, the research looks at the impact of predicted rises in temperature - particularly in urban areas - increased flooding in winter and less water availability in summer.

The report "How can cities grow whilst reducing emissions and vulnerability" focuses on the particular challenges facing London but can be used as a model for other UK cities on how policy-makers, businesses and the public must work together to prepare for climate change.

As well as protecting our homes and buildings against the increased threat of flooding from rising sea levels, the report emphasizes the need to reduce our [carbon emissions](#), reduce our [water usage](#) and move towards cleaner, greener transport.

Newcastle University's Dr Richard Dawson, one of the report's authors, said: "There's not one simple solution to this problem. Instead we need a portfolio of measures that work together to minimize the impact of climate change while allowing for our cities to grow."

“Most importantly we have to cut our [carbon dioxide](#) emissions but at the same time we need to prepare for the extremes of weather - heat waves, droughts and flooding - which we are already starting to experience.

“The difficulty is balancing one risk against another while allowing for the expected population and employment growth and that is what our work attempts to address.”

Led by Newcastle University’s Professor Jim Hall, the project is the result of three years’ work to decide how our cities should respond to the threats of climate change.

Promoting the development of cycleways and public transport, low-carbon energy and water recycling it also shows how solving one problem can exacerbate another.

Dr Dawson explains: “Heat waves like the ones being predicted to occur more frequently in future are extremely serious, particularly for the eldest members of our population.

“To combat the problem we often resort to switching on the air conditioning. This is not only energy intensive (and therefore has potential to raise carbon dioxide emissions that drive climate change) but works by cooling the inside of the building and expelling hot air outside, raising the overall air temperature in the city as well.

“This can amplify what is known as the ‘urban heat island’.”

To reduce this problem, the authors show that one option might be to stimulate growth along the Thames flood plain as the water helps to keep the overall temperature lower.

“The problem then is that you are building in the flood plain so you have to prepare for a whole different set of challenges,” explains Dr Dawson. “Houses built on stilts, flood resilient wiring where the sockets and wires are raised above flood level, and water resistant building materials are going to have to be incorporated into our building plans.

"Good planning is the key - we have shown that land use planning influences how much people travel and how they heat and cool their buildings, and hence the carbon dioxide emissions.

“Land use also determines how vulnerable people will be to the impacts of climate change. Our research enables policy makers to explore these many issues on the basis of evidence about the possible future changes and to analyse the effectiveness of a range of innovative responses, so they can better understand and prepare for [climate change](#).”

Provided by Newcastle University

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