

Correspondence

Five principles for making cities climate-resilient

The recent catastrophic floods in China, Belgium and Germany underscore the importance of building climate-resilient cities. We represent a consortium that has proposed a comprehensive climate-adaptation programme to help guide urban decision-making and governance to better prepare for future climate-related events (see go.nature.com/3ctpwau).

Such efforts hinge on five principles learnt from earlier disasters. The world must improve early-warning systems and strengthen flood barriers and civil protection, in particular for smaller watersheds; develop 'sponge' cities and landscapes that harness nature-based flood-risk mitigation; carry out climate-risk assessments of crucial infrastructure such as hospitals, transport and freshwater supply; climate-proof exposed buildings; and reinforce action with strong political cooperation and solidarity, particularly with the most vulnerable groups of people.

We have the scientific knowledge to develop climate-resilient cities (see, for example, X. Bai *et al.* *Nature* **555**, 23–25; 2018). However, political will and bold decisions will be essential for implementing the solutions and the necessary societal transformations.

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First authors: how equal is co-equal?

'Equal' distribution of co-first authors on research papers should be a win-win concept – not just for those authors, but also for multi-disciplinary science. Yet some seek to reshuffle their respective positions on CVs for career purposes. How can we ensure that co-equal means genuinely equal?

Principal investigators and trainees must use the term responsibly, with endorsement by all of the project's participants. Besides trainees who work side-by-side on a shared project, co-first authorship might be justified if one trainee supplies information that strengthens a crucial conclusion or spends months revising a paper abandoned by another trainee, for example.

My recent tweet (see go.nature.com/3sek93o) prompted suggestions for improving recognition of co-first authorship, such as by using an expanded citation format of 'X, Y, Z *et al.*', and by highlighting each as a first author with EndNotes in papers and on PubMed or Google Scholar. This would make it easier for faculty members to recognize participants' equal contributions when evaluating them for promotion and tenure, irrespective of name order.

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Could Europe become the first climate-neutral continent?

Two scientific reports released in June indicate what it would take for Europe to become the first climate-neutral continent. As the lead author of the Group of Chief Scientific Advisors to the European Commission and co-chair of the energy project of Science Advice for Policy by European Academies, respectively, we contributed to these reports, advising policymakers on how to accelerate the transition from fossil fuels to renewable energy (see go.nature.com/3k5f6i7 and go.nature.com/3yw4pjjg).

Central to the transition is immediate adoption of innovative technologies that are backed by regulatory and market measures, along with social and behavioural changes to incentivize and support low-carbon energy choices. Investment must be stepped up to hasten development of flexible, efficient and resilient energy systems that rely on electrification and hydrogen.

A coordinated combination of policies, measures and instruments, including carbon pricing as a driving force, will shape an effective, consistent and just regulatory system. For example, this could extend current emissions-trading arrangements and introduce a border carbon-tax adjustment.

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Home laboratory: interactive science from the kitchen

The COVID-19 pandemic has compromised laboratory training and scientists' access to the latest experimental tools. Digital technology has helped hugely, but it cannot offer the essential hands-on learning experience of a lab. This shortfall in experimental know-how is hindering scientists from generating and using new data, particularly in disadvantaged countries.

Our own training in the latest advances in RNA biology by international experts at a 2020 workshop was brought to a halt as India hurtled towards two successive COVID-19 waves. Our monthly outreach events for schoolchildren also stalled.

To provide these children with an immersive research experience, even though they were confined to their homes, we transformed our lab into a live online classroom. Teaching staff were masked up and safely distanced. The children watched on their digital devices as we isolated DNA, and they reproduced the protocol in their kitchens using reagents from a kit that we mailed to them in advance. They discussed the methods and scientific principles with our graduate students at the same time.

The challenges of these interactive classes offered these schoolchildren a stimulating and fulfilling learning experience.

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Correction

The Correspondence article entitled 'Could Europe become the first climate-neutral continent?' erroneously designated one of the authors (P.D.L.) as chair of the energy project of Science Advice for Policy by European Academies. In fact, he was co-chair.