



UN Environment at Work

The weight of cities

How the International Resource Panel is working to lighten the load on the planet.

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How do we prepare for the doubling of the global urban population by 2050? By dramatically rethinking urbanism and its governance. That means designing cities for people, not cars; allowing everyone access to urban opportunities; investing in resource-efficient buildings, transport, energy, water and waste systems; and enabling cities to experiment and to learn from each other.

These are among the conclusions of an upcoming report from the International Resource Panel, the most authoritative scientific forum for scientists and experts working on natural resource management. UN Environment hosts the secretariat of the Panel, which was launched in 2007 to build and share the knowledge needed to improve the use of resources worldwide.

In *The Weight of Cities*, experts from the Panel assess the infrastructure, technology

and spatial patterns as well as the governance arrangements needed to shift to socially inclusive, resource efficient and sustainable modes of urban development.

With the portion of the population living in cities set to rise from 54 per cent in 2015 to 66 per cent in 2050, there will likely be another 2.4 billion urban dwellers worldwide. The bulk of urban growth will happen across the global South, for instance in China, India and Nigeria.

As existing cities expand and new ones emerge, material consumption is predicted to grow even faster, presenting a huge challenge in the face of scarce resources and intensifying environmental problems including pollution and climate change.

The report uses the concept of “urban metabolism” to frame thinking about how cities can improve citizens’ access to

essential services while managing their resources wisely and producing minimal waste.

Cities should be encouraged to innovate and experiment, and to learn from one another in order to hasten this transition.

Earlier modelling of resource consumption in 2050 has indicated a sustainable range of between 6 and 8 tons per person per year. Unless things change, the real-world figure will rise to 8-17 tons by 2050, the new report calculates. However, cities that become more resource efficient in three sectors – transport, commercial buildings, and building heating/cooling – could achieve reductions of 46-67 per cent, it estimates, suggesting that an overall 50 per cent improvement in efficiency is possible.

Restructuring the morphology of cities is key to pursuing that goal as well as achieving greater social inclusion. Denser, better connected cities designed to be more open to the elements could improve well-being along with social and economic exchanges while economizing on all the asphalt, concrete, electricity and water currently consumed in sprawling contemporary urban centres.

The report promotes an alternative urban model featuring networks of “high density nodes” with a mix of housing, jobs and amenities at the neighbourhood level; ‘soft’ mobility such as walking and cycling; passive heating and cooling of buildings; and more intensive use of public spaces.

The report builds on case studies from Minneapolis, in the United States; Beijing and the highly industrial northern city of Kaifeng, China; and the Indian cities of Ahmedabad and Delhi.

It finds that Minneapolis, for instance, could achieve a 33 per cent reduction in greenhouse gas emissions and a 62 per cent saving in mineral construction materials by 2050 with interventions including a switch to nuclear and renewable energy, district energy systems and advanced timber construction. Fast-growing Beijing and Kaifeng could achieve significant resource efficiencies over just 5 years with interventions in areas including industrial efficiency, energy efficient buildings and using waste to generate energy. This suggests that rapid urbanization can also offer rapid gains in resource efficiency.

Accelerating urban productivity by restructuring neighbourhoods, investing in city-wide transit systems, building inclusive renewable energy grids and energy efficient buildings, reducing wastes to zero and resource sharing will depend on the emergence of appropriate modes of urban governance.

Cities should be encouraged to innovate and experiment, and also to learn from one

another in order to hasten this transition, for instance through “twin town” initiatives or city networks. Moreover, the report says it will be necessary to replace a “competitive cities” governance approach to urban economies with a “well-grounded cities” approach that serves the interests of all citizens.

That will influence how the estimated \$90 trillion that will be invested in urban infrastructure through 2050 is spent: either it reinforces the paradigm of the car-oriented city, or promotes solutions that given residents a good quality of life while keeping

greenhouse gases and resource consumption sustainable.

The task ahead is to “rethink the city for the era without cheap fossil fuels,” the authors write. Moving away from fossil fuels and current consumption rates will create “a spike of sustainability-oriented innovations. If done well, sustainability will become an aspirational good in itself.”

The International Resource Panel will present the report at the World Urban Forum in Kuala Lumpur, Malaysia in February 2018. It will be available on the Panel’s website.▲



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