

## **Will the smart people live in smart cities?**

Rural self-sufficiency, or high-density urban living – two possible future scenarios. As one of those present at the Environmental Footprint Group meeting on 17 November pointed out, those who write about responding to climate change tend to envisage one or other of these alternatives. The meeting focused on the latter, which seems the more likely of the two. In developing countries there is already an ongoing trend for people to move to the cities, and rising sea levels and increasing desertification will reduce the areas of land where people can live. Jørgen Randers forecasts that wilderness areas will disappear, and advises us not to teach our children to love wide open spaces, but if most people live in cities this might actually preserve wilderness areas. And urban living is not necessarily bad news for our quality of life. Our main speaker for the evening, Gerry Muscat, talked about initiatives to make cities not only more efficient and sustainable but also more pleasant places to live in. Gerry, an urban specialist working for the EIB, has first-hand experience of many new urban developments, and showed us some of the ways in which town planners are designing cities to meet the challenges of climate change and growing populations.

These initiatives are generally known by the shorthand term 'smart cities', and seek to protect the environment and be resource efficient, socially inclusive and adaptable to climate change. They can be found all over the world, but we focused particularly on European ones – there are 49 in Spain alone. The main stated aim of most of them is not specifically to benefit the environment, but to make their city the kind of place where people want to live and businesses want to establish themselves. The focus is on sustainability through efficient public services and careful husbanding of resources, which will automatically bring environmental benefits. From a number of EU initiatives, such as the 2007 Leipzig Charter on Sustainable European Cities, and other city visions being developed, a consensus is emerging on what makes a smart city: integrated urban development, high quality public spaces, modernised infrastructure, sustainable transport, energy efficiency, environmental protection, social inclusion with special attention paid to deprived neighbourhoods, and a focus on knowledge, innovation and education. Partnerships are now being created between cities, universities and technology to harness the potential of smart city technologies. Multi-level governance is also important, with city councils able to make decisions about their own budgets without being heavily dependent on central government.

With regard to environmental benefits, a graph of major cities worldwide showed a clear correlation between high urban density and low transport energy consumption. Hong Kong, with a density of 300 people per hectare, has the lowest transport energy consumption and Houston, with about 20 people per hectare, has the highest. However, what is striking is the amount of variation between the cities with low to medium population density. Most of the cities covered by this study have a density of about 25 to 100 people per hectare, but their transport energy consumption varies from around 10 gigajoules per person per year (Copenhagen, Amsterdam, Tokyo), with London, Paris, Rome and Brussels just a little above that, to over 40 for New York and Chicago and nearly 70 for Denver and Detroit. This shows that lower energy consumption does not automatically follow from higher density; there has to be a policy decision; a policy of affordable, efficient public transport can save a considerable amount of energy.

The smart city of the future will have induction charging points for electric buses when they stop at traffic lights, solar-energy-powered street lighting that switches on only when there are people around, public waste bins which send a signal to the relevant municipal department when they need emptying, geothermal systems for district heating, excess heat from swimming pools or computer installations used for domestic heating, monitoring of air and water quality, with air quality sensors mounted on buses, and sensors in car parks to provide information on available parking spaces. Many of these innovations are already in use, and some cities have introduced phone apps to facilitate interaction between a city's administration and its residents. As we saw with Simon

Norcross's presentation on solar panels a few weeks ago, these are now being made thinner and more flexible so they can be incorporated into building materials and used in many different ways. Some other innovations do not depend on technology, such as cooperation between businesses on the same industrial estate to share services, bicycle hire schemes and car-sharing clubs.

For a city to be a pleasant place to live it is not just a matter of technology. As so often in these discussions on different aspects of how to live well, inequality is a major issue. As we have seen in other contexts, inequality is a bad thing for everyone, not just those at the bottom of the heap. Cities in more equal societies, such as in Scandinavia, tend to have more public green spaces and other facilities that everyone can enjoy, and less crime. The reverse can be seen in Beirut, where the public beach is being gradually sold off to private owners, reducing the amenity available to inhabitants of the densely-packed centre. Cities in very unequal countries also tend to have large numbers of SUVs on their streets and gated communities that may be a response to a fear of crime.

Gerry had given us a list of questions to focus discussion, such as how we feel about living in high densities with a diverse social mix, how this fits in with safeguarding the environment, and the role of new technology, particularly in relation to an ageing society. Although we ran out of time to tackle all these questions in depth, the key, as so often, seemed to lie in tackling inequality and promoting diversity; most European urban regeneration projects now incorporate a requirement for a social mix via a mix of housing types; some British schemes stipulate a certain proportion of affordable houses to be made available to those in jobs like nursing, teaching and bus driving. A mix of residents in an area, including young, old, singles, families, employed, unemployed and self-employed, means that some people will be around all the time, which can discourage crime and promote small businesses such as shops and cafés, starting a virtuous circle that makes the area more attractive to live in.