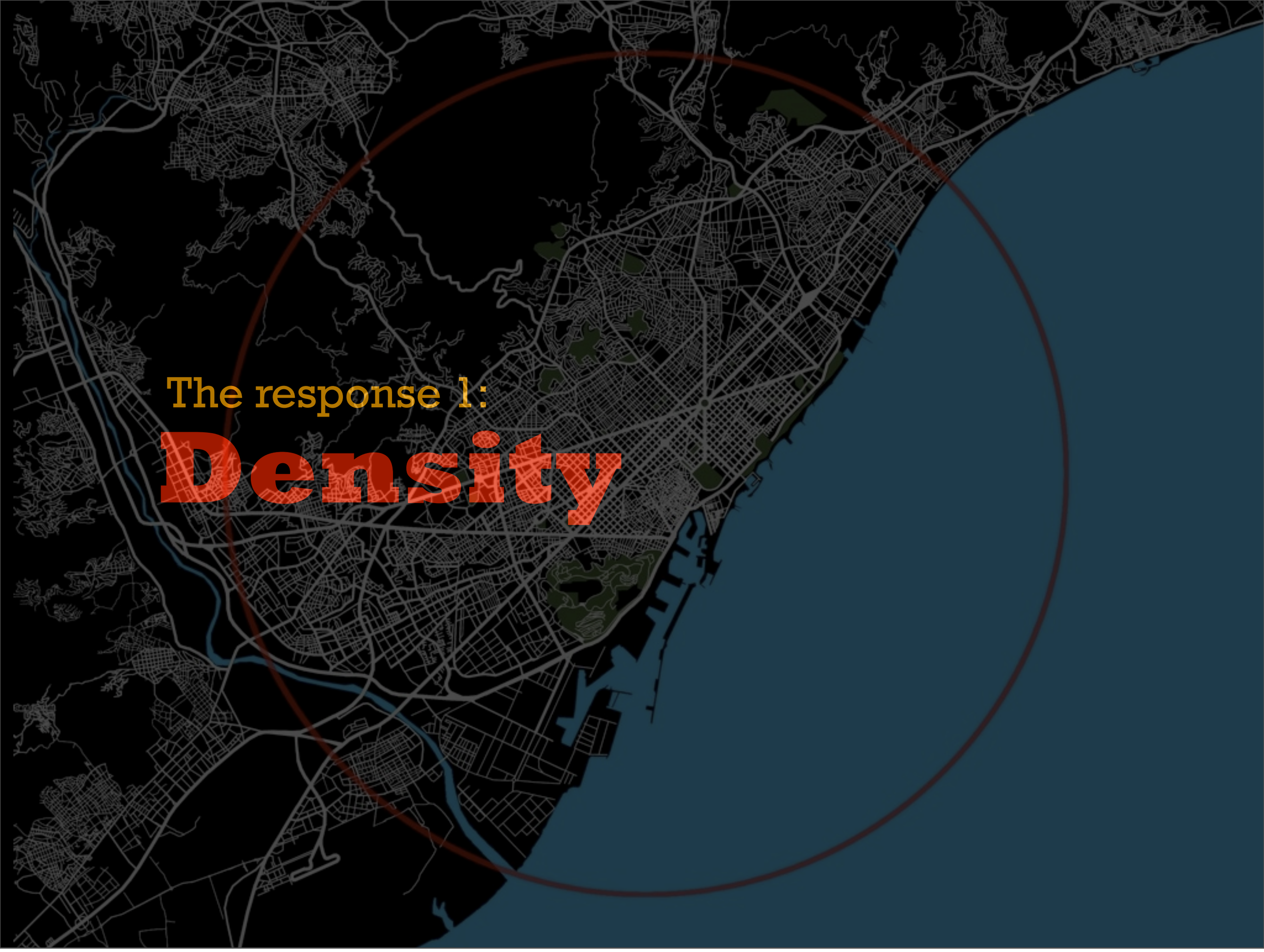
Part 4

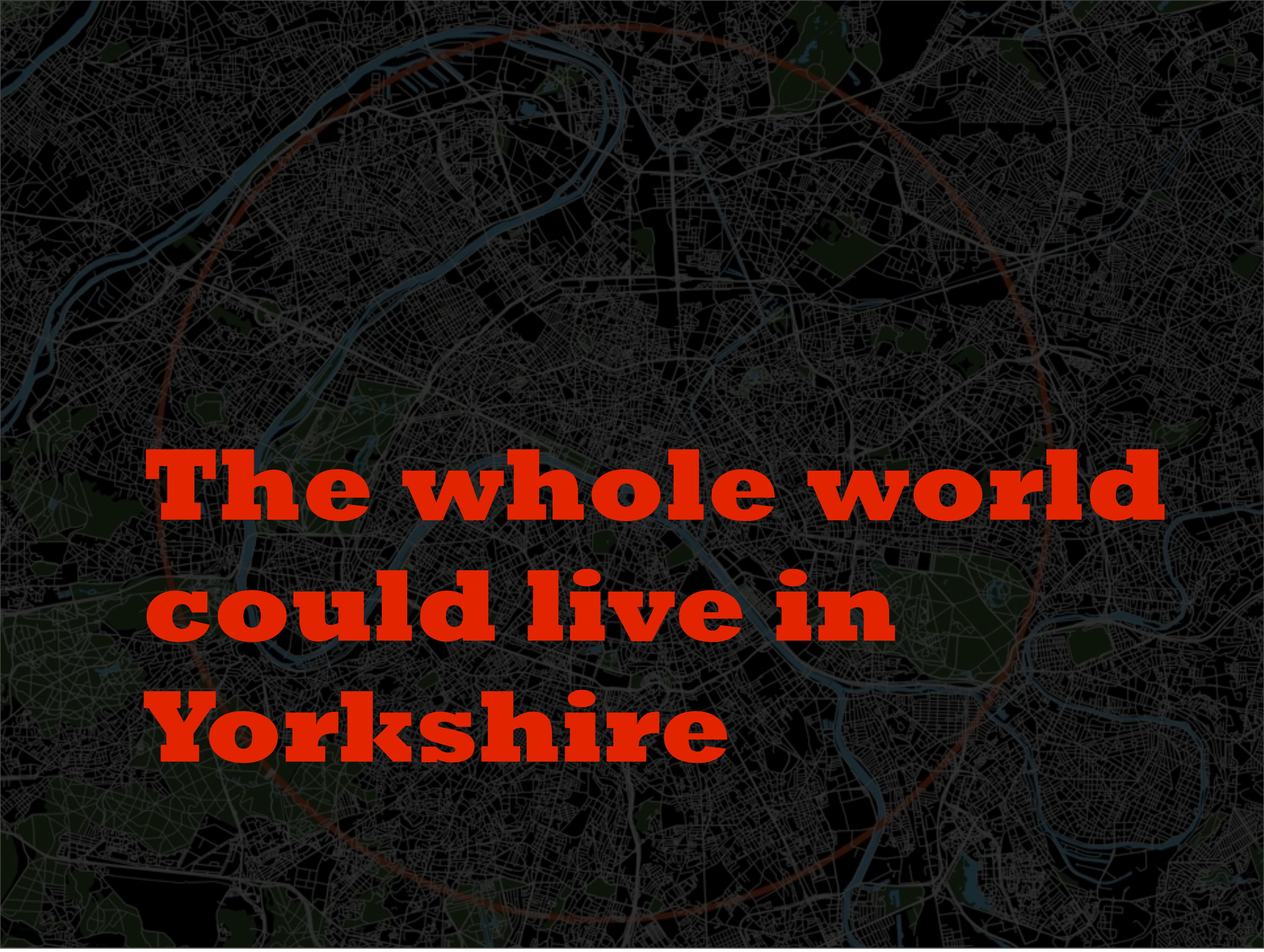
The Urban Response

So whats to be done? This is not a counsel for doing nothing because its all too difficult, or because the impact will make no difference. It is an argument for doing everything: - reducing energy use and emissions, using technology, and harnessing the efficiencies of urban areas. But in each case doing only as much as you are able without harming the efficiency of the other two. My belief is that the three together have a potentially far greater impact than any one alone, however much they are optimised.

In this last section I want to outline some of the things that cities can do to achieve this.



The first issue relates to the density of population...



The whole world could live in Yorkshire

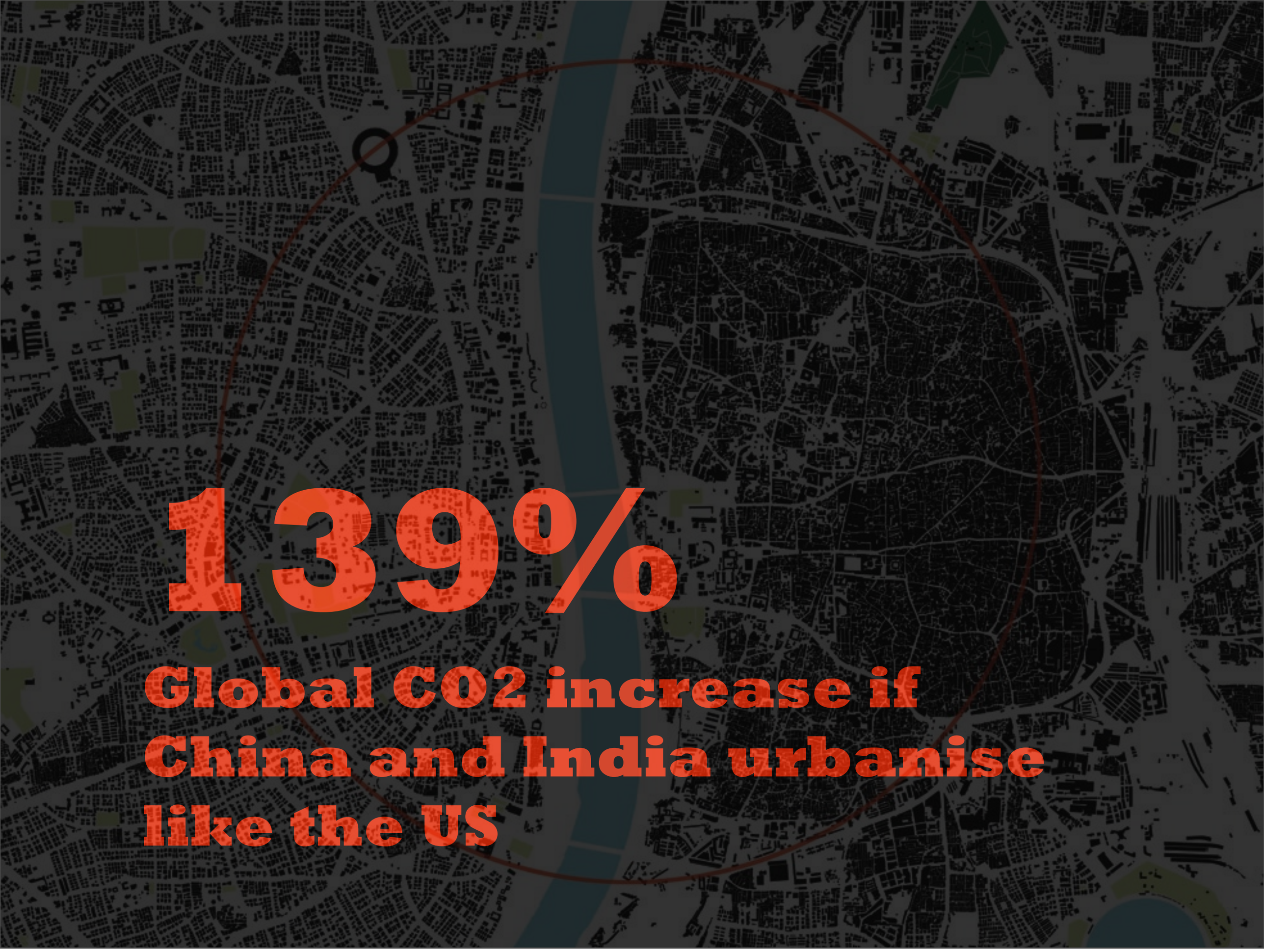
Because the world is actually a very big place. I was listening to a Radio 4 listener which asked whether the whole of the world's population could fit onto the Isle of Mann – which it couldn't. But as Glaser points out we could all live quite comfortably in Texas or at slightly higher densities in a city the size of Yorkshire.

This is important because density is a major determinant of per-capita CO2 emissions. This is because transport distances are decreased, public transport usage increases while car use drops, building heating and cooling uses less energy because of shelter and shading, recycling is more efficient, distribution costs are lower etc... This is no longer supposition and there are many studies that have established the relationship between density of population, energy use and CO2 emissions.

This map of Barcelona and the map on the following page of Manchester makes the point that these higher densities been not be detrimental to our quality of life. Greater Manchester and Barcelona have about the same population yet Greater Manchester covers a vastly larger land area and it in turn would be far more efficient than a comparable US City. Central Paris has four times the population density of central London yet feels no more crowded.

The first thing that cities must do is therefore to increase their densities.

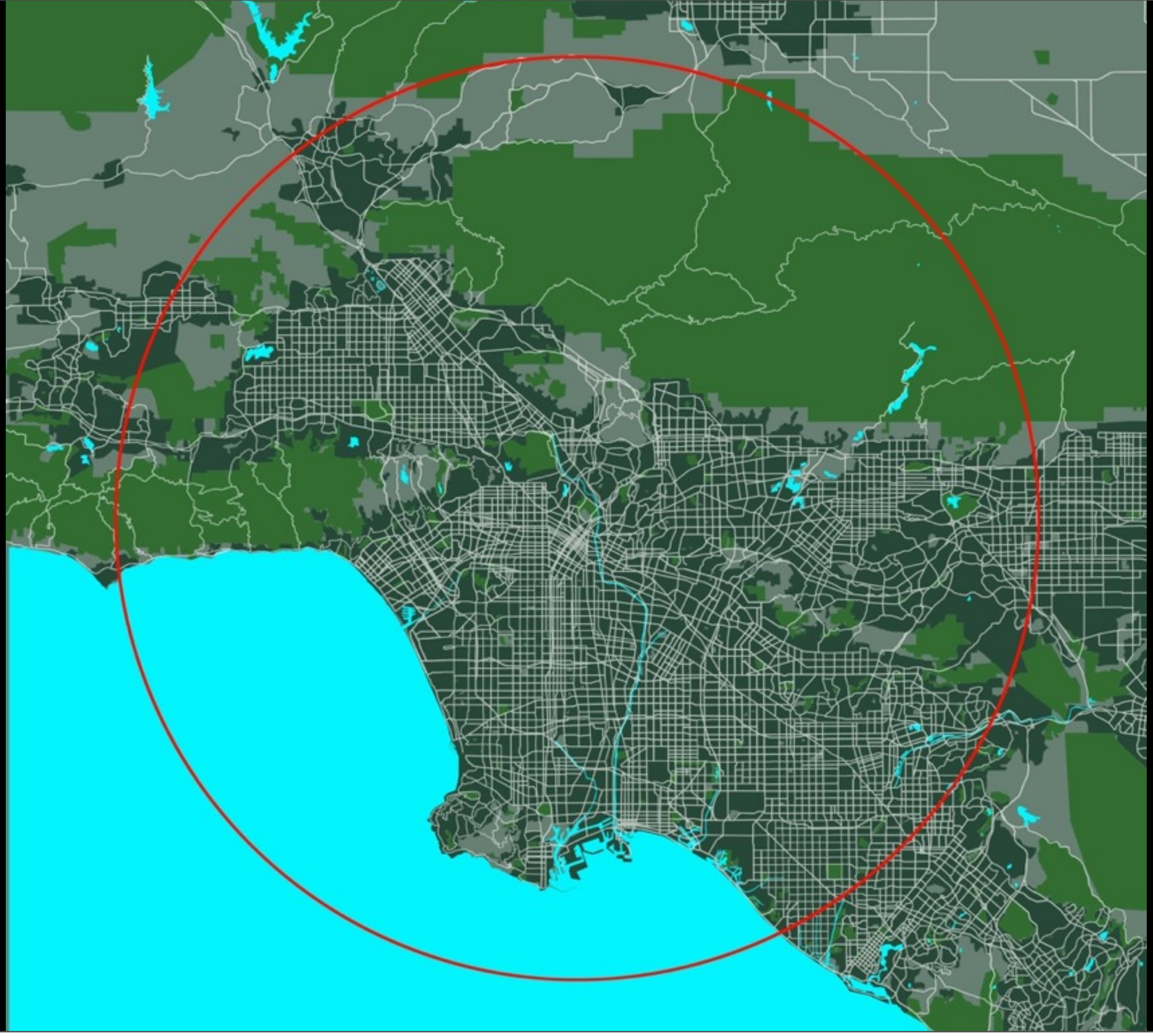
This is particularly true in the developing world. This is Ahmedabad in India which, as the map on the following page shows, is split between the dense old town on the eastern bank of the river and the post colonial suburbs to the west. While much of India is developing at very high densities there is also a strong impetus to redevelop the slums and relocate people to the urban fringe. The new development is built to high densities by western standards but are nevertheless reducing the density of cities, increasing transport distances and emissions. Shruti Hemani who produced these plans is researching this process and argues that it is not just slums that are being removed by traditional urban areas, and this distruction is also undermining the social cohesion of these cities.



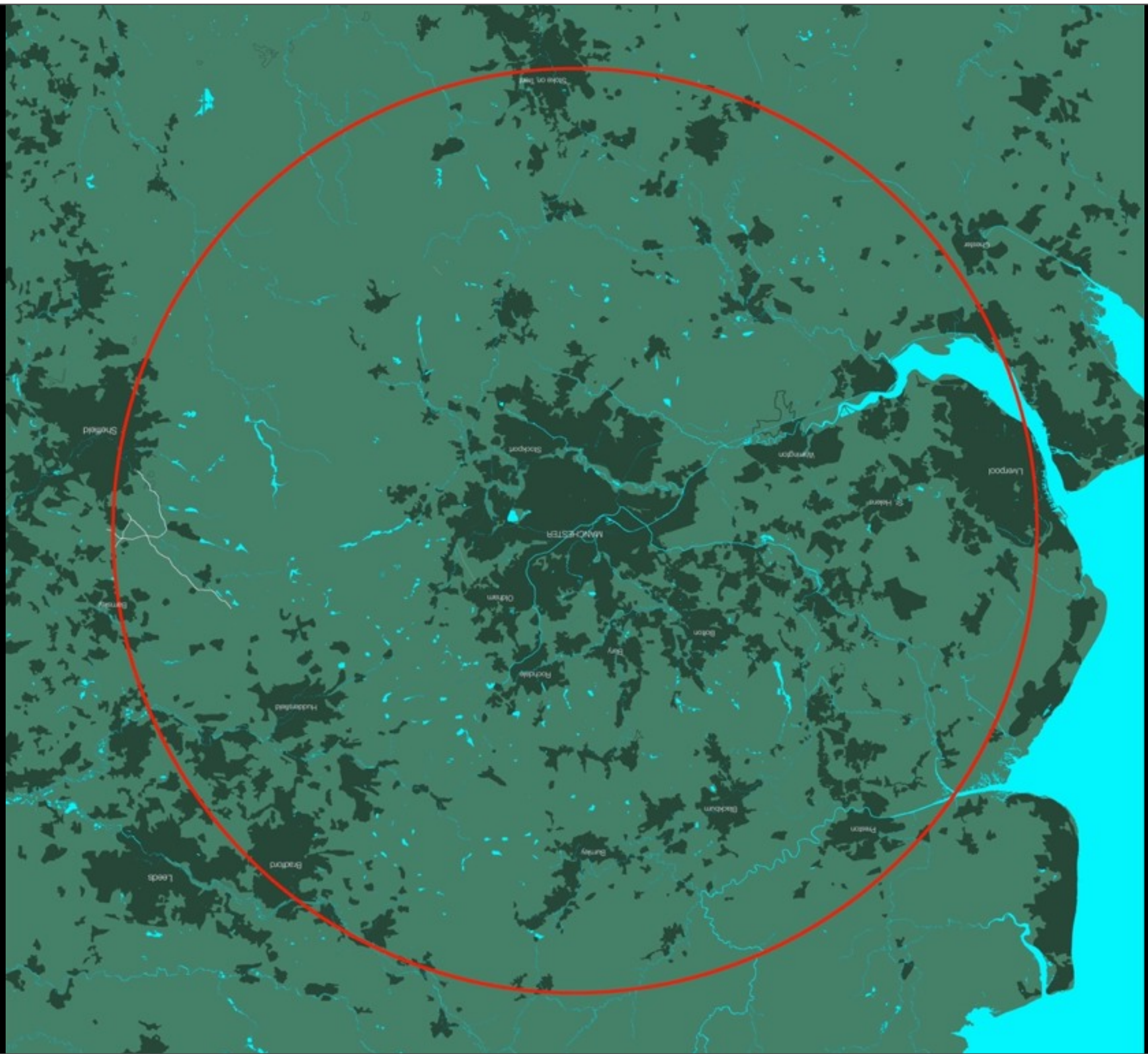
This matters because the planet cannot cope if India and China were to urbanise on the US model...

Whereas we might just make it if they were to urbanise like France.

Travel is a connected issue because the carbon benefits of higher densities are largely related to travel. However to recoup these savings a city must invest in its transport system. This means efficient public transport, that is attractive to the whole population (not just the poor), promotion of walking and cycling and restrictions on private car use and parking. Great progress has been made on this in recent years. There has been a renaissance of tram systems across Europe and in in Northern Europe and Scandinavia in to use of cycles. In the UK the leading city is London which escaped the privatisation of its busses and has seen increased ridership and a significant reduction in traffic via the congestion charge.



The great case study of the effect of transport on city form is the Los Angeles of the 1920s. The city had started to develop a street car system but the city fathers, under pressure from the owners of the orange groves around the city decided in the 1920s to invest in roads instead. As a result the city sprawled evenly in all directions (as opposed to the radial, polycentric structure of a public transport city). The plan above is the same scale as the plan on the following page of Greater Manchester. The 50km circle above fails to contain the sprawl of Los Angeles, where as the circle around Manchester passes through the centre of Leeds, Liverpool and Sheffield.

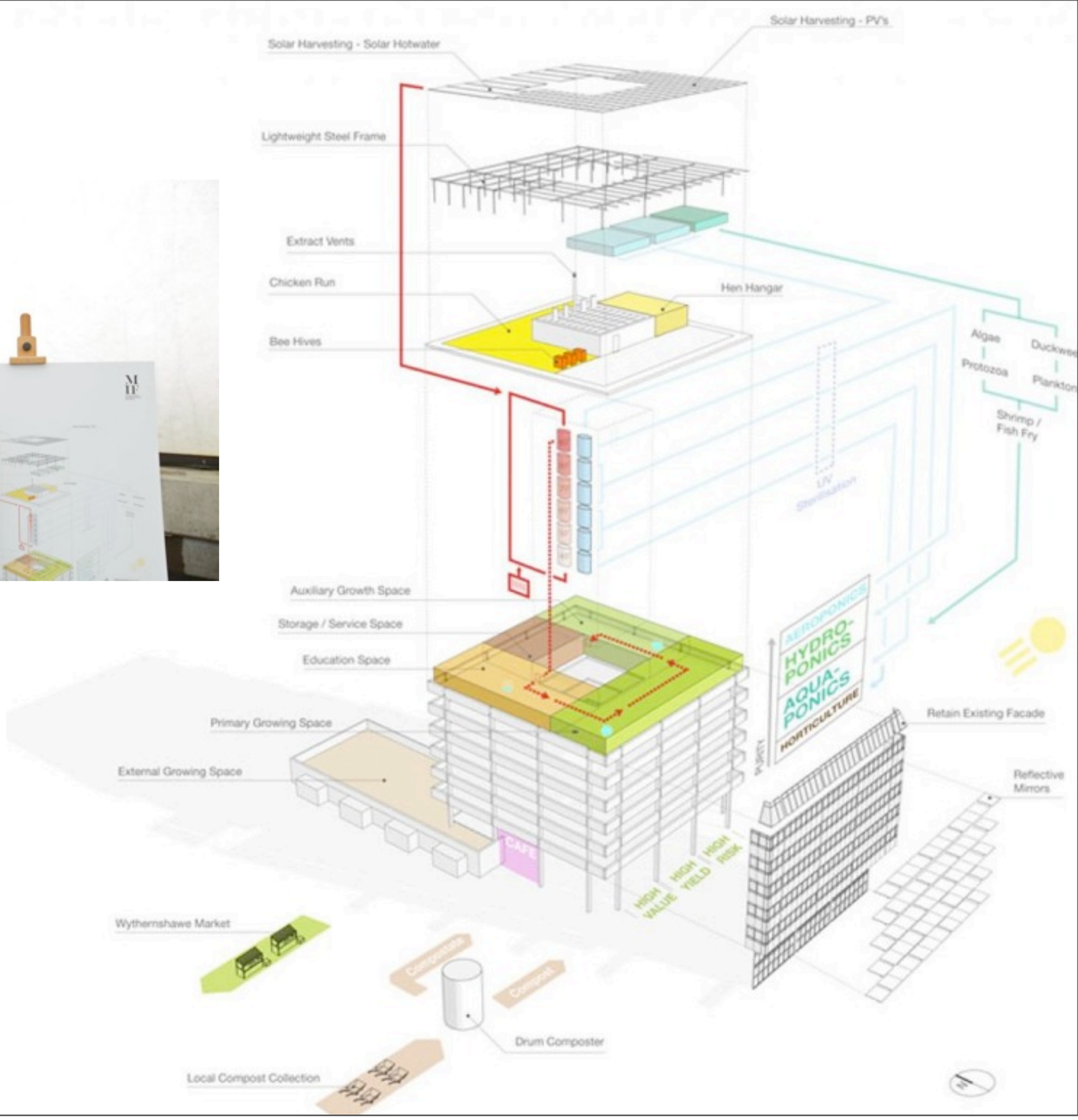

Stoke on Trent
Stockport
MANCHESTER
Oldham
Rochdale
Bury
Bolton
Wigan
Liverpool
St Helens
Chester
Salford
Trafford
Huddersfield
Bradford
Leeds
Barnsley
Doncaster
Rotherham
Sheffield

The response 3:
Economies

This brings us to the issue of urban economies. As Jane Jacobs argued in her book the Economy of Cities, city economies use resources as well as reusing and recycling waste more efficiently. She talks about urban mines where in the future we will mine the waste streams from cities for raw materials. This includes not just official recycling activity but activities like scrap yards, bric-a-brack shops, second hand book shops, charity shops etc...

Jacobs also talks about 'impossible cities' and the way that large cities operate just beyond the point where their systems should be able to work. This brinkmanship is the impetus for innovation which leads to technological and economic development. This is just the type of innovation needed to address global warming and it can only come from cities with there concentration of people, resources and knowhow.

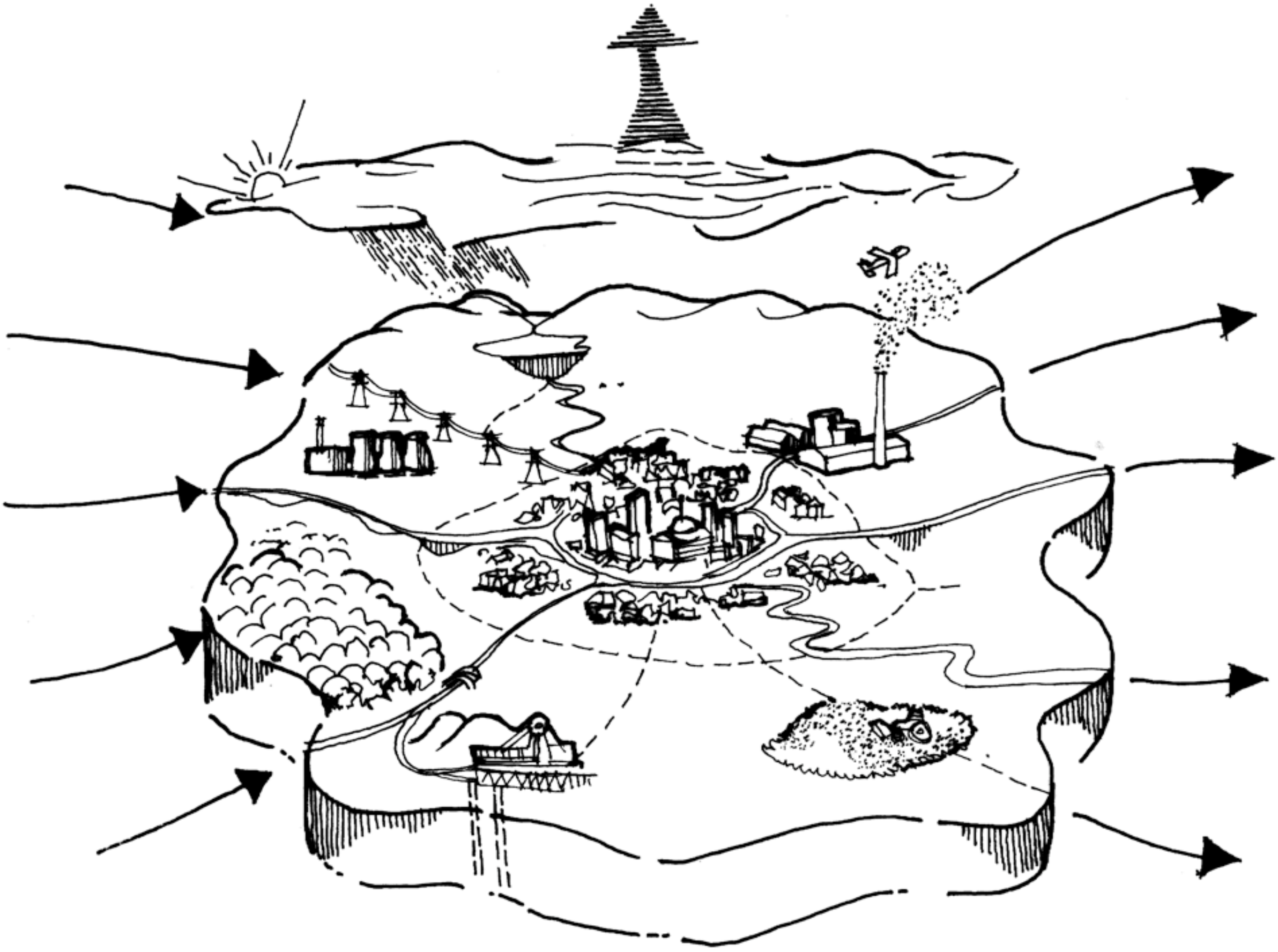
Which brings us to the issue of food. The quote from Roger Levett that we use in our book is that ‘pretty much everything except food growing can be done more greenly within cities’. This however is an important exception and my Colleague Nick Dodd when he worked with us at URBED was very keen that we should consider urban food growing as part of our sustainability work.



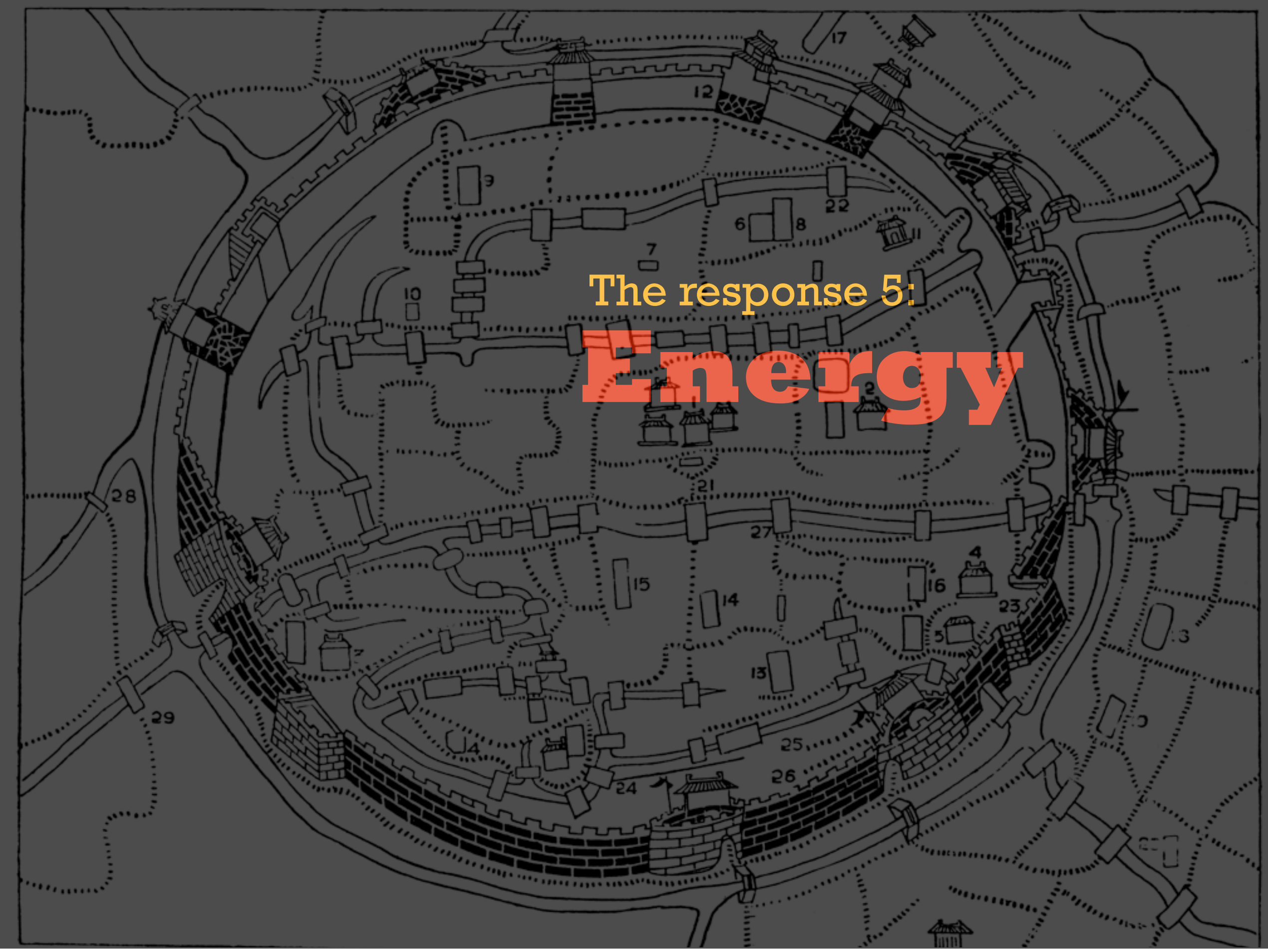
This is Dickon Despommier, the American guru of Vertical farming, who spoke at the Manchester Festival in 2011. The drawing is a project by URBED commissioned by the Festival to explore a possible urban farm in the city. All being well, the aim is to have an operational demonstration project by the time of the next festival in 2013.

It has become a fashionable idea and there are those like Carolyne Steel, author of the Hungry City, who see it as a gimmick that can't be scaled to meet a city's food needs. However there is scope to make much greater use of roof space and intensive growing systems as part of an overall package of food production. This package will also include greater use of the urban periphery (as is being explored by Joe Ravetz at Manchester University (next slide) for market gardening, along with the reduction of food miles, greater seasonality of food availability etc...

What is certainly true is that sustainable urbanism will need to devote much more energy to urban food systems than has been the case in the past.



An image from Joe Ravetz's Manchester 2020 study which has fed into his current work on the urban periphery.



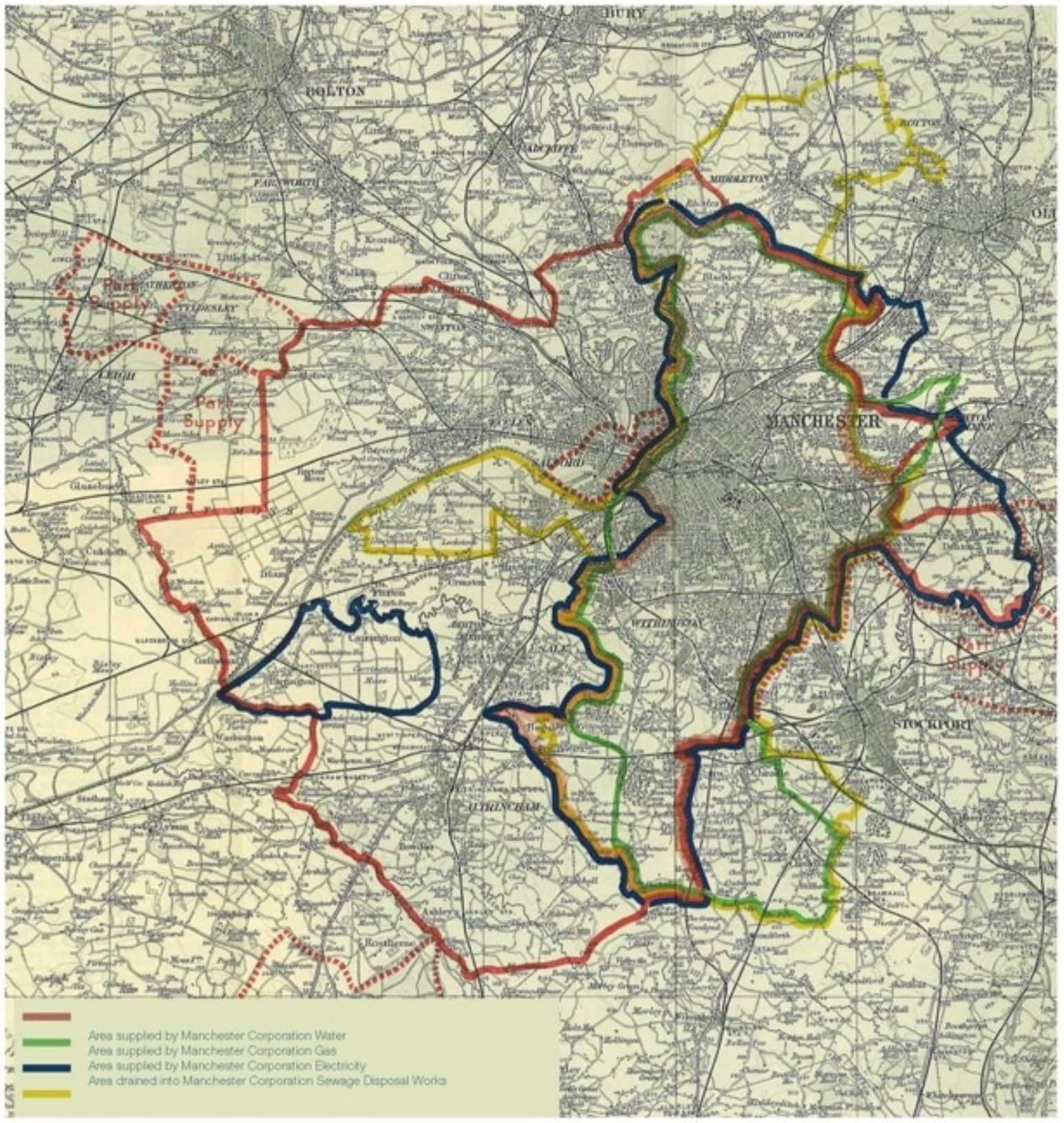
The response 5: Energy

Which brings us to energy. In the UK the focus has been on energy efficiency although it is interesting when I gave this peper in France that the summer energy load for cooling has already exceeded the winter load for heating. We also need to consider energy use for appliances, which of course are multiplying.

It is therefore right that we would focus on radically improving the efficiency of the existing housing stock and new build. However this is only part of a wider picture and with electricity use we will probably do better to focus on decarbonising supply rather than fighting a losing battle to reduce demand.

The City

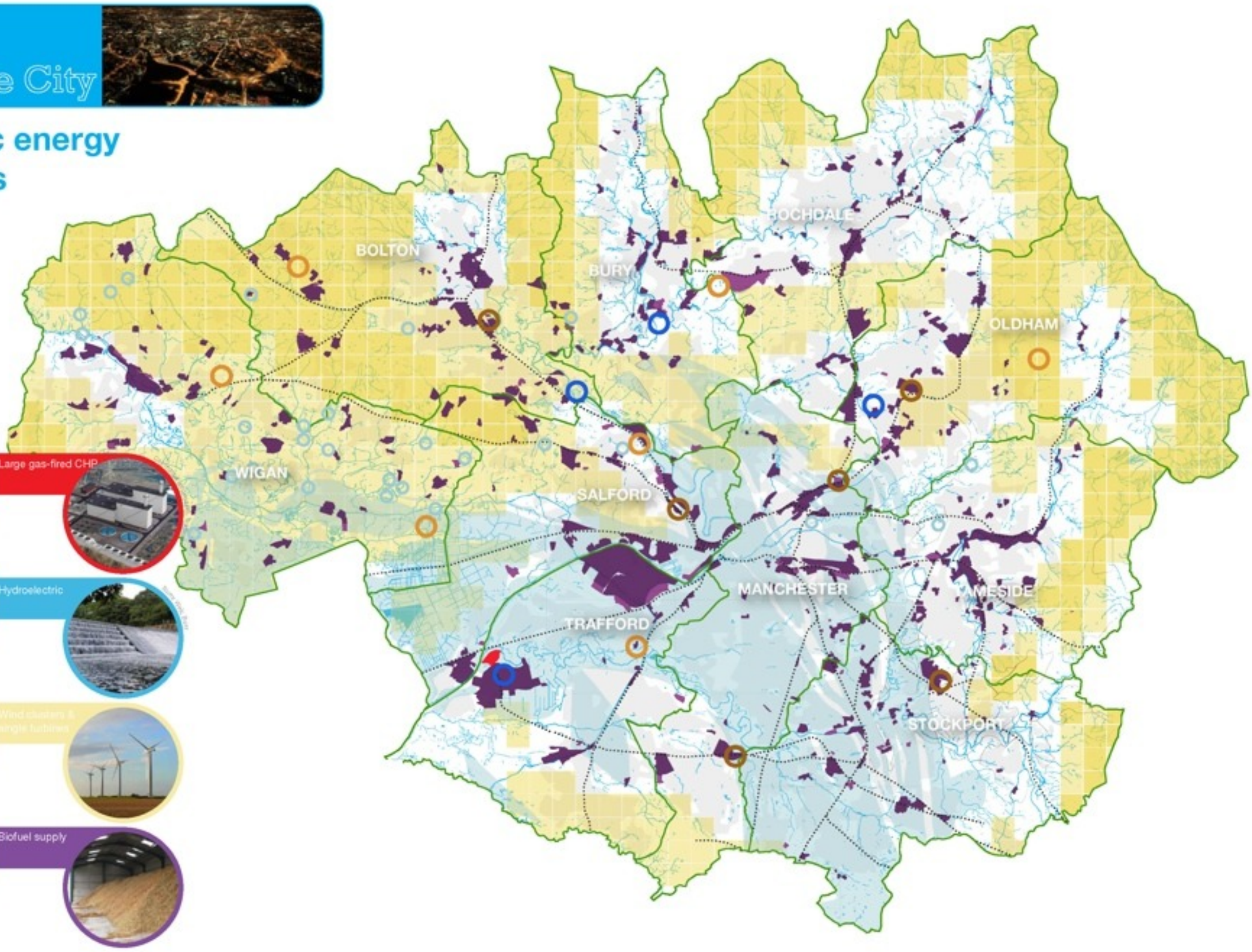
Bloom Street power station, one of the world's first CHP plants.



Part of the answer to low carbon energy lies at the national level. Dealing with Drax power station which produces 7% of the UK's energy supply would have a huge impact. However energy supply also has an urban dimension. The plan above shows the boundaries of the local utilities owned by Manchester City Council in the 1930s, reminding us of a time when generation was locally controlled. The Bloom Street Power Station in Manchester was built to power the city centre warehouses and it's hot water was pumped along the canal to heat those same warehouses.

The City

The strategic energy opportunities



This plan is from work that we did for the Association of Greater Manchester Authorities looking that looked at energy resources in the city and explored how local supply systems could be developed to exploit these sources and make use of waste heat. This of course is happening on a large scale in Sheffield with the Sheffield Heat and power system that incinerates waste to generate electricity and provide heat to a large number of city centre buildings. This goes back to Jane Jacobs‘ urban mines and envisages a future where cities will use their waste streams, biomass, and naturally available wind, hydro and ground source energy sources to power efficient local energy systems that are responsive to demand and are able to reuse the heat produced.

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The argument that i have tried to set out in this presentation is that cities are the most sustainable form of Human settlement. This is an argument that we have been making for years. At one time it seemed counter intuitive and was subject to a lot of debate but it has now become widely accepted.

Cities alone do not hold the whole of the answer to global warming of course and there is still a huge question about whether the human race can get its act together sufficiently to prevent the planet reaching a tipping point. This may be the most important question that we face today but that does not mean that we should abandon common sense. No one initiative be it energy efficiency, transport, or renewable energy will solve the problem alone. So it makes no sense to optimise these issues to the point where they impact on other things that we need to do and indeed impact on the success of urban areas.