FUTURE PROOFING INDIA'S MEDIUM-SIZED CITIES

A village filled with rubbish. *Image credit: Author*

A think piece about 'action planning' garden cities in India.

by **Nicholas Falk**

This think piece sets out findings from recent research and visits to Southern India by the Urbanism Environment Design (URBED) Trust to suggest how medium-sized Indian cities –those with populations currently of around half a million people – might cope with the pressures of future growth. It proposes simple steps drawn from experience in promoting 'new garden cities' in the United Kingdom. It then describes how an experimental project to build some demonstration 'eco-villages' can offer solutions that could be scaled up. The conclusions identify practical ways in which collaboration between experts in the UK and those in India could be supported.

CHALLENGES FOR SUSTAINABLE GROWTH

With a population of over 1.2 billion and one of the highest growth rates in the world (the GNP per head is currently increasing at 7% per annum) Indian cities are undergoing a phase of resurgence. The largest cities, like Chennai, capital of the Southern state of Tamil Nadu, are growing fastest. Only 30% of the population is urbanised, and there is a natural tendency of those leaving their villages to seek opportunities in the biggest cities. This raises at least four challenges if cities are not to erupt in conflict:

Transportation

As cities expand and sprawl, congestion and pollution become intolerable. Half of the 20 most polluted cities in the world are in India, led by New Delhi. The so-called 'garden city' of Bangalore is losing its appeal as a base for IT companies, and a powerful account of how people's lives are changing in Tamil Nadu highlights the impact of the process of transition.[1] As Kapur (2012) points out, on the edge of Chennai 'the farmland has become a fertile terrain for steel-framed and glass office buildings ...an urban sprawl of gated communities and plotted-out fields.'

Buses are over-loaded and have a poor image among the residents of the city. Railways outside the mega cities concentrate on long-distance travellers, with long 20 coach trains trundling across the country from city to city. Auto rickshaws do their best, but most people manage by piling onto motor bikes or scooters. Though electric rickshaws are being trialled, dirty fuels and noisy vehicles predominate. Cycling is in danger of being squeezed out, and pavements that are rare and poorly lit at night put pedestrians at risk. As those who can buy cars and move further out increase in number, the situation only seems to get worse.

Housing

Stopping urban sprawl is difficult where planning powers are weak and when there is so much money that can be made from development. High rise towers may suit people in mega cities, but a different model is needed for medium-sized cities. Unfortunately, as housing becomes ever more unaffordable, as in UK cities, over-crowding worsens, and slums or 'informal settlements' take over land that is not being used, and that lacks services. Where plans for

1 Akash Kapur, India Becoming: a journey through a changing landscape. Penguin Books. 2012

Laurie Baker Centre, Trivandrum. Image credit: Author

sustainable urban extensions have been drawn up, as in the historic French town of Puducherry (formerly Pondicherry), there are problems with implementation. In cities that have a significant urban core from which the larger settlement grew, conflicts over inheritance has led to old buildings being sacrificed. For this and many other reasons such as lack of funding for conservation, India's heritage is disappearing before one's eyes.

Though there are some 'model' alternatives, like the visionary settlement of Auroville, designed to attract people from all over the world, or the inspired low cost buildings of Laurie Baker in neighbouring state, Kerala, they have not scaled up. Furthermore, flats built with garages and air-conditioning cost far more than most can ever contemplate. Alternatives, like the 'custom built' housing so popular in the Netherlands and others parts of Northern Europe, are not to be found because serviced plots are rarely available. The 'Sites and Services' schemes which were rolled out in the 1970s have largely been abandoned without much reason except that the governments have not tried hard enough to provide housing solutions for all. If housing is ever to be built on the scale required, as the UN Habitat conference in Quito called for, then more affordable and sustainable models are required.[2] This forms the basis for the URBED/SCAD (acronym for Social Change and Development)[3] Eco House project. Details of the Eco House project follow in a later section of this piece.

Public health

Despite advances in life expectancy, infant mortality levels are still quite unacceptable. Many children are still under-nourished at a formative age. Space to prepare nutritious food is vital, along with being able to socialise with neighbours. A small plot for growing vegetables or poultry could result in huge nutritional benefits for families. Walkable streets with rows of houses along them can make people feel better and safer, especially if they are lined with trees to keep the sun away. Trees would attract birds, too. Children need places to play, while older people like

2 Laura Petrella et al, Planned City Extensions: analysis for historical examples, UN Habitat, 2015

3 http://www.scad.org.in/

places where they can sit together and talk. Failing monsoons have created widespread water shortages. Large 'tanks' are dry and bore wells bring up saline water. While the long-term answers may lie in 'blue green infrastructure', as a report on applying 'Smart City' principles to two Southern cities points out, there is an urgent need for new approaches on the part of funders, along with some short-term projects that can demonstrate early results.[4] To a visitor, the obvious places to start are dealing with rubbish and old buildings. Piles of uncollected plastic bottles look unsightly. Though monuments and temples are generally well-cared for, the public realm is mostly neglected. There are huge opportunities for a general 'wash and brush up', using greenery and colour to show that places have a future and not just a past.

Community engagement

With very limited municipal resources and national programmes failing to get through to where they are needed, what can make most difference? It is possible that some of the approaches that have worked well in the UK (and European cities) might also apply to some parts of India. First on the list is involving residents/ property owners in the improvement of their streets or blocks. Prime minister Modi's programme for 100 Smart Cities has apparently got lots of people talking about cities and what they want to see in them. The problem of course lies in implementation. Not-for-profit organisations such as the Indian National Trust for Art and Cultural Heritage (INTACH) have produced visible results in the French Quarter of Puducherry (formerly Pondicherry), while Tirunelveli-based SCAD has worked with some 600 villages and 2500 women's groups to tackle common problems. Primary schools, too, may be viewed as excellent channels for action.

Students at SCAD who competed for one of the URBED Awards certainly seemed very proud of their city, its history and current attractions. It would seem an easy step to go from research into publicity, making the most of digital technology. But this requires educational bodies to introduce practical projects as part of the curriculum, and for communities to recognise effort and achievement. The SURGe website[5] can potentially help in sharing such existing efforts and best practices.

FROM VISION TO REALITY

Describing what is wrong or where one would like to be is usually far easier than finding a route for getting there. But our experience over the last 40 years is that progress needs to be made through balanced incremental development with flexible plans but clear measures of success that win general support. The current idea is to promote and test out a 'route to smarter urbanisation'- one where more people have an improved quality of life. This requires development and infrastructure to be in balance. Drawing on the experience from the English university city of Cambridge[6] and surrounding County, the argument put forward is that there are five critical steps:

1. Collaboration

Successful growth and 'smart cities' depend on generating innovation and good jobs. The best examples of transformation in Europe have all involved municipal authorities playing proactive roles, and creating the right climate for long-term investment.[7] But what can be done where local authorities are apathetic or under-resourced? Here examples such as Leipzig in the former Soviet part of Germany or Eindhoven in the Netherlands, which lost its major employer and had to reinvent itself, offer models. The answer lies in showing the outside world that the key players- universities, major employers, the people and the local authorities- all have a 'shared vision' for where they want the city to go. The best models involve 'polycentric cities' that make the most of their existing assets, and that use development to overcome barriers to growth.

2. Connectivity

Across the world, the motor car, which was a major driver of urban growth after the Second World War, is now gradually being attributed with unsustainable patterns of development. Cities that once demolished

4 Atkins with UCL Future Proofing Indian Cities: key findings from applying a future proofing approach to Bangalore and Madurai, March 2015

5 http://www.smarterurbanisation.org/

6 https://www.cambridge.gov.uk/sites/default/files/documents/cambridgeshire_quality_charter_2010.pdf

7 Peter Hall with Nicholas Falk, Good Cities Better Lives: how Europe discovered the lost art of urbanism, Routledge 2013

"Stopping urban sprawl is difficult where planning powers are weak and when there is so much money that can be made from development."

Urban sprawl. *Image credit: Author*

Apartments encroaching on farmland. *Image credit: Author*

buildings to create urban freeways, are now taking steps to 'tame the car', and give priority to pedestrians and cyclists. Indian cities such as Madurai and Pondicherry have also shown the value of prioritizing pedestrians for creating better urban spaces. While only some, like Chennai and Kochi, may be able to justify new overhead or underground Metros, many more can benefit from integrated public transit and managed parking. The railway lines that branch out from junctions such as Tirunelveli offer huge untapped potential for creating a 21st century networked city with denser development around stations. So too is the scope for tapping solar power for recharging electric bikes.

3. Community

Though there can be deep-rooted differences between caste and class, as well as religion, there is also great value as SCAD is showing through its schools and colleges, in bridging the gulfs. Indeed some of the best places to live are where there is a diversity of people, especially in terms of age and wealth. Writers like Akash Kapur and Amartya Sen highlight how the old distinctions are breaking down in modern India, thanks to universal education and enlightened laws. However the relatively slow rate of growth of Auroville also brings out the problems that can arise when the differences are too great. Hence, new settlements need to appeal to groups that have something in common and that share similar values if they are to flourish.

4. Climate-proofing

The challenges of tackling water shortages and periodic flooding, along with energy failures and the need to reduce carbon emissions, tend to lead to plans for mega projects that can take decades to implement. But there are also a range of small-scale projects that can make a visible difference. Thus, students in Tuticorin called for schools to promote the value of saving water, and for water companies to distinguish between different qualities of water. Innovative green technologies such as composting toilets, the use of 12 volt local energy grids, and harvesting industrial hemp (which uses a sixth of the water of cotton, enriches the soil, and reduces carbon dioxide levels from the air) can be combined to produce a better quality of life for those living in rural areas.

5. Character

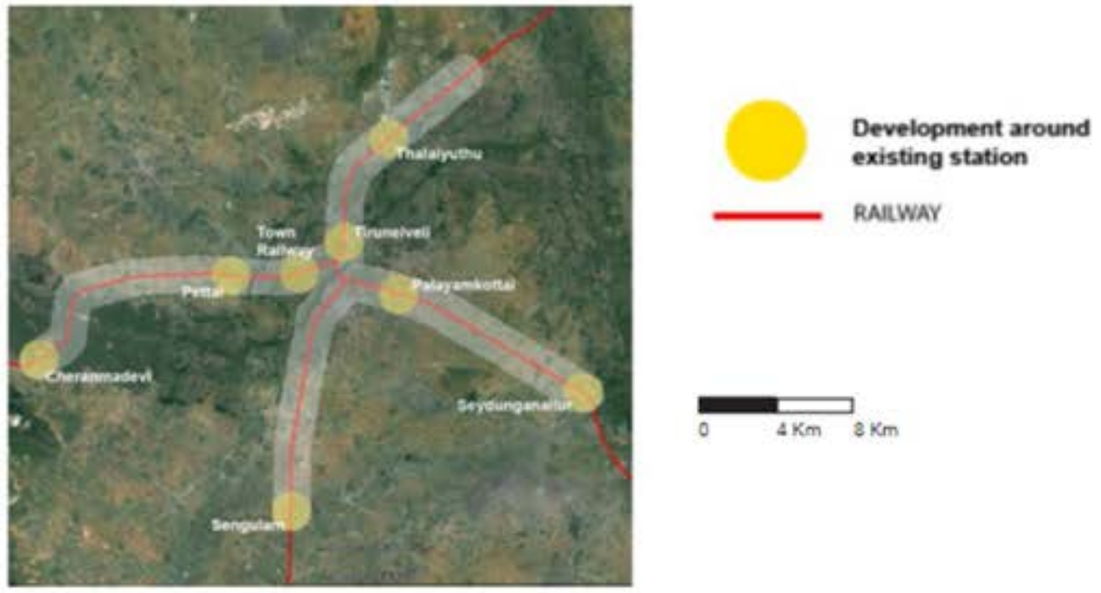
New developments are often criticised for all looking the same, and much of the identity of traditional communities is being lost as cities grow and redevelop old areas and buildings. In the western world, this trend has led to initiatives to promote conservation and adaptive reuse. In the USA, the idea of 'smart growth' is supporting cities that develop around 'Transit Oriented Development', with a mix of uses to cut travel times. In turn, this can result in much more attractive looking places. However possibly the most important measure of all lies in using 'blue and green infrastructure' to enhance fine buildings and places, and bring the best of the country into the town.

ECO-VILLAGE PROJECTS AS A WAY FORWARD?

The SCAD 'eco-villages' project forms a building block in an ambitious proposal to test out the application of 'garden city' principles to the City of Tirunelveli and nearby cities such as Tuticorin, and to develop the skills and job opportunities for staff and students at SCAD. The local authority is competing to become designated in the government's Smart City programme, and hopes to build an exemplary new settlement on the edge as well as to take traffic out of the historic centre. If the city were to double in size by 2050, assuming a growth rate of 2% a year, there is a danger of land being taken away from productive agriculture, and congestion on the roads could become socially and environmentally intolerable. It is therefore vital to have a strategic growth plan that incorporates the surrounding suburbs and villages, and avoids an over-dependency on car use.

The proposals for this project are based on applying best practices from Europe by making better use of land that would not otherwise be developed. With the help of ConnectedCities, a social enterprise based in London, URBEd has identified potential land owned by Indian State Railways close to stations that could be suitable. This is being explored in theTirunelveli case study.[8] It is also important to find ways of reducing carbon emissions and pollution, by minimising the use

8 http://www.connectedcities.co.uk/tirunelveli-india



Areas of research for sites for sustainable development in and around Tirunelveli. *Image credit: Brian Love; Source: www.connectedcities.co.uk*

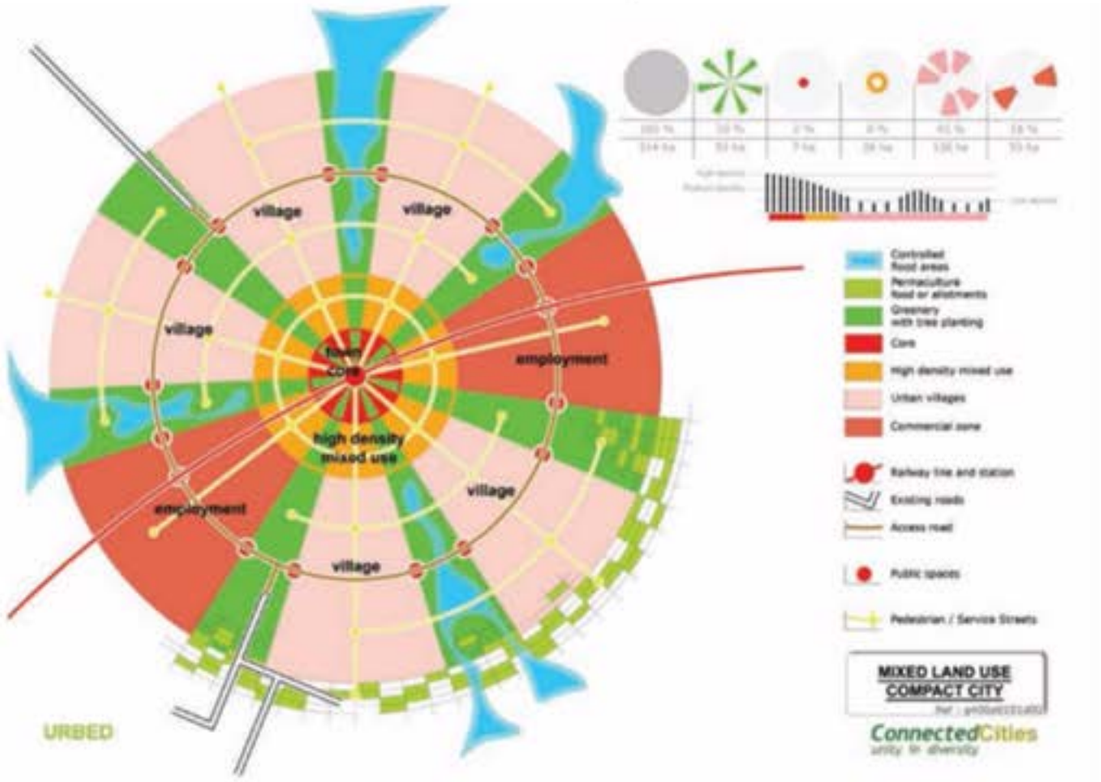
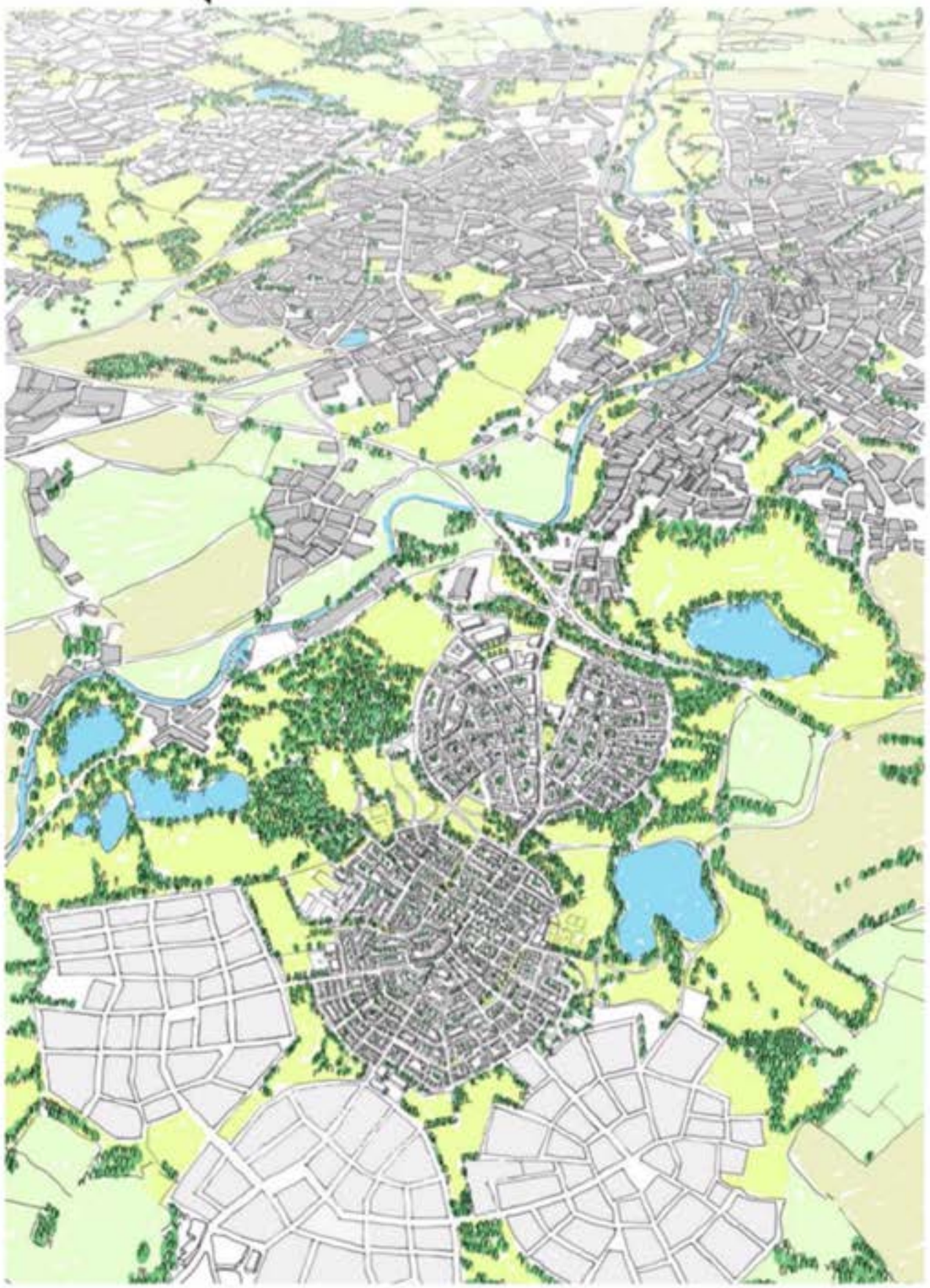
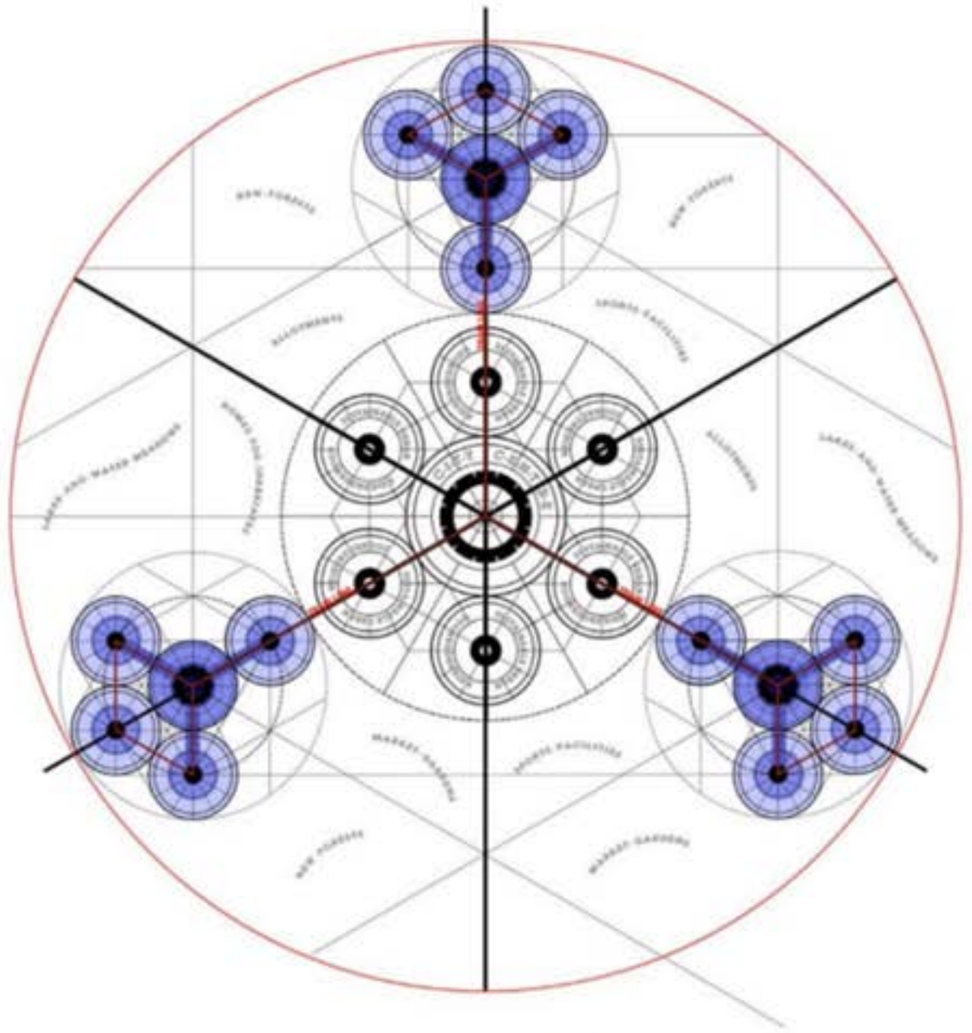


Diagram of typical pedshed. *Image credit: Brian Love; Source: www.connectedcities.co.uk*





Uxcester - Snowflake Diagram. *Image credit: David Rudlin*

Facing page- Uxcester - Aerial Perspective. *Image credit: David Rudlin*

of concrete and using natural materials instead. The new homes need to be affordable to people who rely on agriculture for their primary income and to offer better options than what is currently available. Above all, with erratic monsoon patterns, water must be used more carefully to avoid shortage in times of drought.

The principles applied in the original garden cities and new towns in the UK, and promoted by the Town and Country Planning Association (TCPA), could offer a proven way forward for some mid-sized Indian cities, provided there is a suitable delivery and financing mechanism. The proposals for Uxcester Garden City - the winning entry of the 2014 Wolfson Economic Prize about garden cities- submitted by URBED could also provide some answers.[9] Going back to first principles it is also useful to remember what the TCPA has set out as garden city principles.

9 Nicholas Falk and David Rudlin, Uxcester Garden City, URBED 2014; http://urbed.coop/wolfson-economic-prize

GARDEN CITY PRINCIPLES (TCPA 2012)

A Garden City is a holistically planned new settlement which enhances the natural environment and offers high-quality affordable housing and locally accessible work in beautiful, healthy and sociable communities. The Garden City principles are an indivisible and interlocking framework for their delivery, and include:

1. Strong vision, leadership and community engagement.
2. Land value capture for the benefit of the community.
3. Community ownership of land and long-term stewardship of assets.
4. Mixed-tenure homes that are affordable for ordinary people.
5. A strong local jobs offer in the garden city itself & within easy commuting distance.
6. Imaginatively designed homes with gardens in healthy, vibrant communities.
7. Generous green space linked to the wider natural environment, including allotments.
8. Strong local cultural, recreational and shopping facilities in walkable neighbourhoods;
9. Integrated and accessible low-carbon transport systems.

Source: https://www.tcpa.org.uk/garden-city-principles

INNOVATIVE DESIGN FEATURES

SCAD Eco -villages should aim to innovate in seven main ways as shown in the illustrative drawings that accompany this think-piece:

1. Maximum use of public transport, walking and cycling to help improve air quality and public health by siting the projects on transit corridors or near stations.
2. Sanitation measures to minimise unnecessary water consumption while improving health, for example through drawing water from restored local 'tanks' , and processing waste products.
3. Plots that enable subsequent extensions and improvements, including space for 'kitchen gardens' for healthier living, and lots of trees for natural cooling to avoid the need for air conditioning.
4. Designs that respond to the local vernacular, such as terraced streets that support active communities, but that also provide space for contemporary needs such as storage, toilets and waste disposal or recycling.
5. Construction out of reused and recycled materials. Also, exploring the potential of using natural materials, such as 'rammed earth' or Hempcrete that combines local lime with the stems of industrial hemp that is grown for clothing and motor industries. This would also reduce high carbon emissions from the use of concrete and provide farmers with a cash crop.
6. Use of 12/24 volt electricity from solar panels with mini grids, and natural ventilation and insulation to reduce carbon emissions and dependence on an unreliable electricity grid.
7. ICT links, for example connections with internet or phone lines, to make communication easier and also to facilitate distance learning.

The SCAD Eco-houses illustration *Image credit: Jas Bhalla*

An ideal house interpreted by the students at SCAD. *Image credit: Author*

Water solutions proposed by the students at SCAD. *Image credit: Author*

In short, the new eco-villages aim to minimise the consumption of scarce resources and would enable mid-sized cities such as Tirunelveli to grow without 'costing the earth'. They will appeal to people moving out of villages into homes of their own, as well as to municipalities wanting a more sustainable alternative to urban sprawl. They can be built by small and self-builders, offering a much better alternative to crowded slums, while also creating local employment. Eco-villages will combine the capacity for traditional forms of housing to co-exist happily with the planet, while achieving the levels of aspiration associated with urban life styles and new technologies. A linked project will draw lessons and apply them in training students, for example through awards for group work in producing think-pieces on affordable homes, natural resources or hospitality.

CLOSING NOTE

In summary, the greatest value of the eco-village project will also come from its potential to be extended and to act as a model for other areas in line with garden city principles. The basic challenge in building sustainable homes anywhere is providing advanced infrastructure, such as transportation networks and amenities, which is where the growth of certain European cities offer many lessons. As infrastructure can cost as much as building new housing, it is important to make the most of what already exists. This includes not just transportation but also energy and soft infrastructure such as hospitals and colleges. It is also important to minimise water consumption and waste, and to tap solar power to make new homes independent of unreliable state power sources, and make the most of natural resources. At the very least, the eco-village project is an experiment in learning more about how to take these ideas forward.

About the Author

Dr Nicholas Falk founded URBED in 1976 and is an economist, urbanist and strategic planner with degrees from University College Oxford, Stanford Graduate School of Business, and the London School of Economics. He specialises in helping towns and cities plan and deliver urban regeneration and sustainable growth. He is co-author of URBED's submission on Uxcester Garden City that won the 2014 Wolfson Economics Prize. He has been advising Grosvenor Developments and Oxford City Council on the urban extension to Oxford at Barton Park, and previously devised the Cambridgeshire Quality Charter for Growth.

His many publications on new settlements include Sustainable Urban Neighbourhoods: building the 21st century home with David Rudlin (Architectural Press 2009), Regeneration in European Cities: Making Connections (JRF 2008), and contributions to Sir Peter Hall's last book Good Cities Better Lives: How Europe discovered the lost art of urbanism. (Routledge 2014). As director of the URBED Trust he is working with Oxford Futures and sharing lessons from European good practice with growing cities, including those in Southern India. He is a Fellow of the Royal Society of Arts, an Academician at the Academy of Urbanism, a Visiting Professor at the University of the West of England, and had a Harkness Fellowship to the USA.