



Indian Urban Futures 4

Affordable and Sustainable Homes

Report of the 4th Symposium

12th October 2021



AFFORDABLE AND SUSTAINABLE HOMES: Where could India and England collaborate?

The fourth in the series of *Indian Urban Futures* events took place on October 12th 2021, the second day of the [Bristol Housing Festival](#). The expert group of 14 panellists were based in Hong Kong and Mumbai, Tirunelveli and Chennai in Tamilnadu, Southern India, Bristol, London and Newcastle.¹ The video recordings are available [here](#).

SCAD is a group of social enterprises who work with over 600 villages and nearly 4,000 Women's Groups in the Southern Indian State of Tamilnadu, providing a range of services as well as running colleges, schools and hospitals. Drawing on inspiration and advice from the [Centre for Alternative Technology](#) in Mid Wales, SCAD are setting up a centre for sustainable development to help share expertise in tackling climate change. The three sets of presentations considered the issues of how to make housing both affordable and sustainable, where to build new housing to minimise environmental impacts, and what could be done to create effective partnerships with investors. Both Bristol and Tirunelveli are both expanding university towns with high levels of housing demand. Three conclusions emerged to guide further action:

1. The technologies already exist in India and the UK to build 'eco homes' that cut environmental impacts and cost no more than conventional methods. The challenge for scaling-up is to make 'green homes' and neighbourhoods sufficiently aspirational to create mass markets that would attract private finance to supplement public investment.
2. Land needs to be mobilised in locations that are already well-served by public transport and where there are already community facilities such as schools and services. The best place to start is by developing under-used land that is already in public ownership, and by working with communities to draw up planning briefs that meet local needs.
3. Development could be speeded up by sharing experience of what works, utilising local technical colleges to develop the necessary skills and behaviour. The work SCAD does in empowering local Women's Groups might well be replicated in the disadvantaged parts of the UK.

Also

- Establishing a Centre For Sustainable Development at one of SCAD's campus in Tirunelveli
- Find partners for scaling up the EcoHouse pilot project with a series of sustainable neighbourhoods in Bristol and/or Tamilnadu.

¹ Special thanks must go to Buro Happold, the eminent firm of engineers, who started in Bath, which adjoins Bristol, and now have offices round the world. Over the last few months several of the consultants in their Urban Lab have been working with the URBED Trust on an ambitious project with [SCAD](#) (Social Change and Development).

Background to the event

The *Indian Urban Futures* action research project started in 2016. Dr Nicholas Falk, the founder of URBED and executive director of The [URBED Trust](#), had first visited India as a guest of the British Council for a conference on Eurocities, where he saw the need to share experience between cities of how to save environmental resources and tackle inequality. The first two events took place in London and were sponsored by the Urban Design Group. Well-attended conferences were subsequently held in 2019 in Tirunelveli and Chennai in Tamilnadu, on *building eco-neighbourhoods in mid-sized cities*.

Short presentations and round table workshops have been used to draw up shared visions. The event at Hindustan University in Chennai, thanks to the [Urban Design Collective](#), came up with four principles and associated action points. The themes were:

1. Better public health including water planning
2. Smarter travel through sustainable transport
3. Stronger communities through capacity building
4. Affordable neighbourhoods through smarter housing design.

The fourth event used Zoom to link fourteen experts in different countries and cities on how to produce housing that is both affordable and sustainable. The main points are summarised below and the three sets of presentations can be accessed on [Smarter Urbanisation](#) website.

The futures of mid-sized cities are key to sustainable development

The first part of the event dealt with the need for ‘eco houses’ that use net zero carbon to build and run. *Dr Nicholas Falk*, Executive Director of the URBED Trust, led the session. Though 5,000 miles separate England and India, the spread of COVID is making us realise that we live on One Planet, where no one is safe until everyone is safe. Something similar applies to climate change, with upsets in weather patterns leading to extreme heat, water shortages, and occasional flooding, calling for innovative responses. How cities in faster growing economies such as India or China handle urbanisation and carbon emissions will be crucial.

Construction and transport are major causes of pollution and need to change. India now has more cities of over a million population than the whole of Europe. Not only are their populations much larger, with a rapidly rising middle class with increasing spending power, but cities there are expanding at eight times the rate in the UK. Only 30% of the population are urbanised. Air quality in the big cities is already intolerable due largely to motor vehicles and energy generation from coal. The slums in the biggest Indian cities are notorious. The government is proposing to build another ten million homes, of which a fifth may be classed as affordable. Though some *100 Smart Cities* have been designated, one of which is Tirunelveli, it is still far from clear how to improve their governance so that investment redresses imbalances in housing and income.

Research has shown that ‘*urban form contributes significantly to the ecological footprint of a city*’.² In both India and the UK there are pockets of under-used land in mid-sized cities, which are often where the most innovative people live and work. These have the potential to become the main source of new jobs. Cities like Bristol and Tirunelveli have space around them, their futures are not yet set in concrete, and they have exceptional assets in terms of

² Sustainable Urban Form for Indian Cities, National Institute of Urban Affairs, March 2011

transport links and educational facilities. They are the places where people with most choice want to live or work. However, unless growth is planned the consequences are unaffordable housing, congestion on the roads, and worse public health caused by air pollution. Innovative construction and transport methods could cut costs as well as pollution.

Tirunelveli and Bristol are both similar sized university cities of around half a million-population, made up of many neighbourhoods, with congested centres and a legacy of under-used railway lines and stations serving a rural hinterland. Furthermore, English is widely spoken as a second language in India thanks to a common history over several centuries. Many of the institutions are similar, and there are excellent opportunities for two-way learning and further trade, provided connections are made. However, with many competing priorities and limited financial and professional capacity, it will be hard to change direction at the speed required unless we change our models for housing delivery.

New housing models are needed

Some may ask why build new houses when the world faces other challenges such as migration and climate change? The short answer is that building housing is one of the most practical ways of tackling inequality and generating jobs. Housing is most people's main asset, and in recent years has become unaffordable to the mass of people not on the 'housing ladder'. With the right design and location new housing can also help tackle the impacts of climate change, improve public health, create stronger communities or neighbourhoods, and generate good jobs that raise family incomes.

Thanks to the UN Climate Change Summit COP 26 happening in Glasgow in November 2021, there will be an abundance of articles about the problems the world faces if nations fail to cut emissions, combined with ambitions of meeting higher standards. National resources may already be over-committed, making it hard to fund the higher standards that will be needed. One solution is for rapidly growing towns and cities, where housing is in high demand, to change direction, to make themselves more resilient and fairer, both by upgrading existing neighbourhoods and also by building sustainable urban extensions.

In both the UK and India there are major obstacles to obtaining land in the right places. Sites are needed to create neighbourhoods where a mix of people can live together happily without having to depend on cars to get to work or to access services. This is going to require not only scaling up current initiatives and building different kinds of settlement, but also changing the way housing is financed and managed. A different business model is called for that takes account of longer-term impacts and benefits and that will appeal to investors and landowners as well as designers and planners.

Model neighbourhoods can show the way

In England the Post-War New Towns and Garden Cities, helped take the pressures off the big cities, and reconciled the best of town and country. The key to their economic success was tapping the uplift in land values from development. This was used to fund infrastructure such as roads and schools so that development was self-sustaining without subsidy. In future it could be used to build housing that is both affordable and sustainable. The basic building block is the neighbourhood, or what is sometimes called an *eco village*.³

³ *Nicholas Falk* and David Rudlin won the 2014 Wolfson Economic Prize for showing how to build *Garden Cities* that were visionary, viable and popular. This followed on from their book *Sustainable Urban Neighbourhood: Building the 21st century home*

On a visit to Southern India, Nicholas was fortunate to meet up with Dr Cletus Babu, who has built up a truly impressive group of social enterprises called [SCAD](#) (Social Change and Development) in the South Indian state of Tamilnadu. SCAD were working effectively to train young people and empower women's groups in villages. In a report Nicholas proposed that SCAD pursued their interest in sustainable development, and he subsequently funded the building of a prototype eco house on a site next to SCAD's huge bio digestion plant, near the entrance to their original campus at Cheranmahadevi.



The pilot SCAD/URBED eco home merits being scaled up

Girish Visvanathan of [Earthonomics](#), green building certification consultants, undertook the evaluation of the pilot eco house against criteria set by the Indian Green Building Council. These assess all aspects of a house's performance, which were first tested on a computerised model. The pilot eco house was built from local materials, primarily sun-dried bricks with large window openings for natural cooling. Important innovations were the use of surrounding trees and white ceramic roof tiles to reduce the heat inside the building, which made air conditioning unnecessary.



Water use was cut in half, and rain falling on the roof was stored to be used to grow food. The SCAD/URBED eco house won the premier Platinum Award from the *Indian Green Building Council (IGBC)* and is being promoted as a model.



A separate [viability study](#) by architect Dinesh Jeyachandran established that the eco house cost no more than a conventional house built out of concrete, and the costs would fall if a more were built at the same time. *Dr Richard Simmons*, who led the project on behalf of the URBED Trust, drew on reactions from people who had visited the house to raise several concerns. First was finding the market and overcoming potential customer concerns to aspire to an apartment in a concrete block, with air conditioning. A second issue was raising the finance for an innovative project, in the context of doubts among builders and engineers that the light-weight roof of the building would stand up.



Finally, there is a shortage of building skills, which becomes acute when a sufficiently long production run cannot be assured.

Possible answers to scaling-up included:

- Appealing to pioneers such as teachers or to wealthy individuals who want something different and custom built
- Offering financial incentives such as mortgages for those with little capital
- Working with large corporations to build a model scheme for their employees as the Cadbury's did in setting up the Bourneville Village Trust in the English Midlands.
- Setting up development companies that can guarantee jobs for those who take the training.

The market for 'green homes' must be expanded

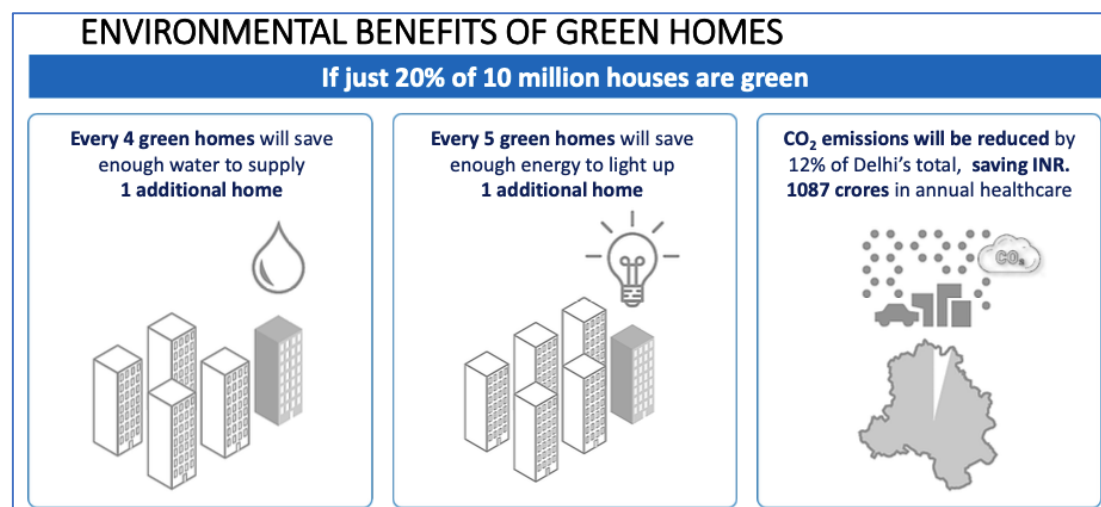
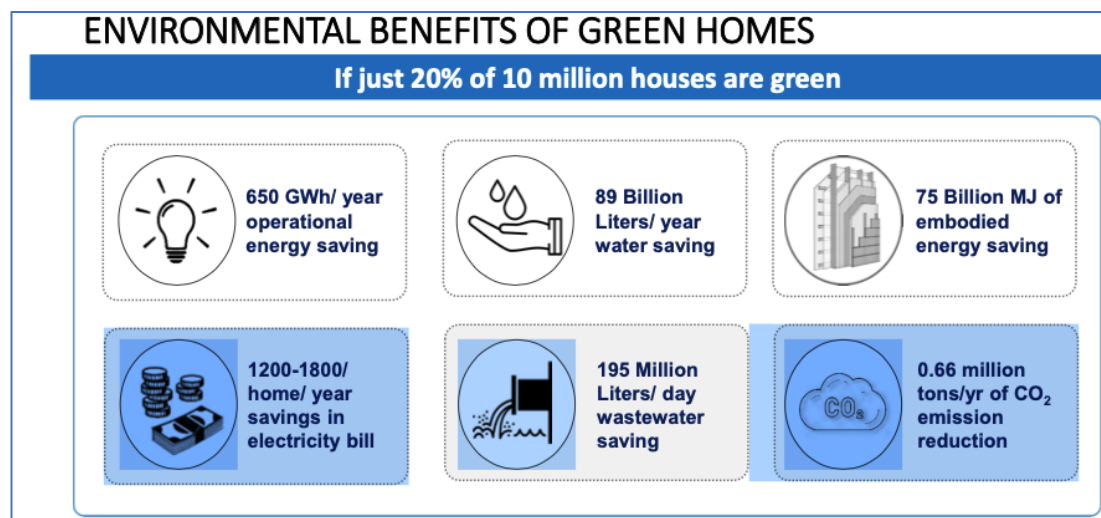
The second part of the event considered possible models for scaling up innovations and overcoming the obstacles. *Neil Murphy* is the founder director of [Town](#), who are the developers of the award-winning Marmalade Lane development in a new settlement in Cambridge called Orchard Park. He explained how one of the largest co-housing schemes in England was built. Cohousing not only involves the eventual residents in the design process, but also provides shared facilities such as space for children or community activities. It is an ideal way of building up a good community.



Although construction was completed in three years, the idea had emerged much earlier for a co-housing scheme on land owned by Cambridge City Council. The lessons were that it is very hard to scale up innovative projects in the UK, success depends on linking top-down initiatives with a bottom-up process, and that support from the local authority in providing land is critical.

How can lower income households be housed?

Autif Sayyed leads the work of a private subsidiary of the World Bank called IFC to develop the market for Green Homes through a project called [Edge](#). He explained that freely available software is used to calculate the current energy, water and resources used in construction in each city as a benchmark. Then working through banks, house builders are encouraged to invest in higher standards, through funding for packages to achieve 20% improvements. The benefits include reducing operating costs and making the home more resilient and thus worth more over the longer term.

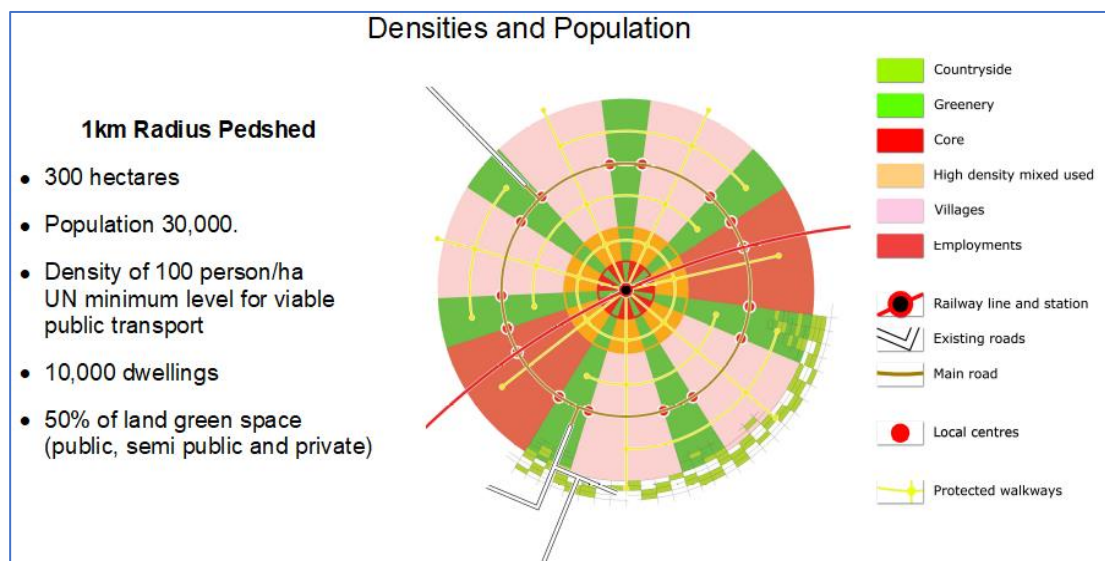


IFC is working through local banks and training their staff so that mortgages can be granted to people who do not meet the normal criteria, and the results are very promising. The great advantage is opening up a source of finance that does not depend on taxation or government spending and should be free from corruption.

Where should housing be concentrated?

One of the best ways of making cities liveable is to reduce traffic in their centres, so making more use of existing suburban railway systems should offer benefits for all. *Camilla Ween* and *Brian Love*, represent [ConnectedCities](#), who were one of the sponsors of the event. Cities could become more sustainable and affordable by building at higher densities around existing railway stations. Camilla showed that the comparative costs of building new lines were much

higher than upgrading existing ones, the London Overground being the outstanding success story, at a comparatively low cost per km. Brian applied their methodology to development potential around stations on existing railway lines, in both Bristol and Tirunelveli.



His figures showed that Tirunelveli could double in population without having to build further than 1 kilometre from rail stations within the boundary of the city, while Bristol could similarly accommodate a population increase of about a third. The plans being implemented for Bristol Metro West by the [West of England Combined Authority](#) could be a model for other mid-sized cities. If land were acquired in advance for development around stations, travel could be made more affordable to those on lower incomes.

Delivering better results

The final session addressed the problems of implementation and going to scale. *Paul Smith*, former Bristol City Cabinet Member for housing is now Chief Executive of the [Elim Housing Association](#), which specialises in meeting special needs of minority groups.

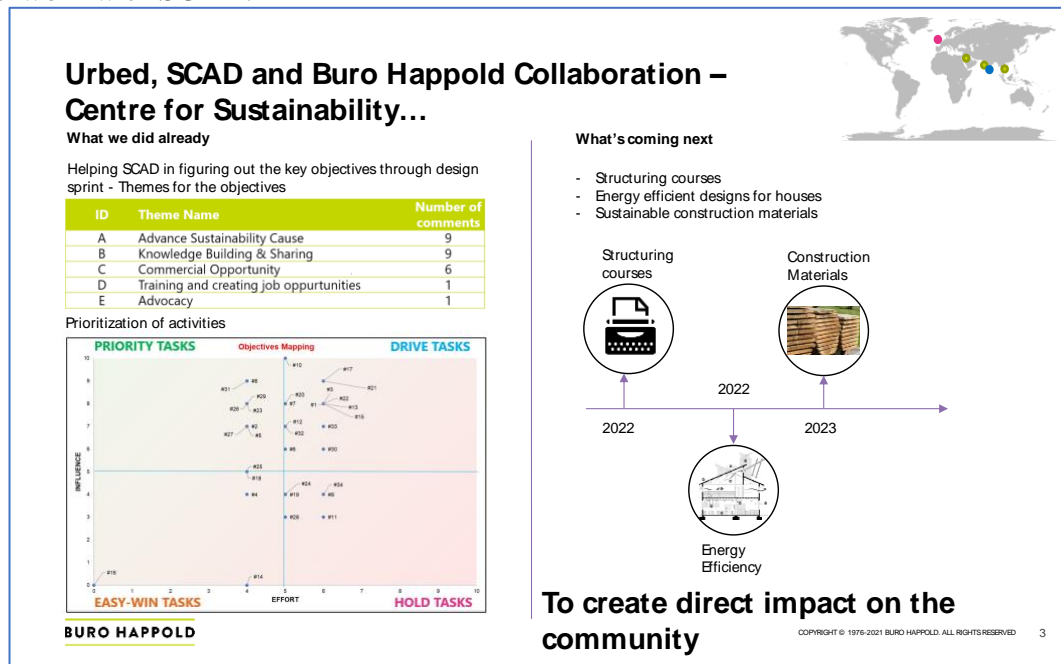


He showed examples of how community led housing schemes are helping to regenerate different parts of Bristol. The three main obstacles are land, finance and planning, of which aquisition of sites is by far the most critical. Bristol City Council owns half the land in the City. The key to producing housing that is both affordable and sustainable is therefore getting some public land on favourable terms, and then acquiring adjoining land in a location where

values are currently low. His examples showed how existing housing estates can be densified, thus providing the spending power to support local shops and services. Prefabricated systems were being used to cut costs and speed up construction. Housing associations in England are not-for-profit companies with a long-term interest, who engage with communities both before and after construction, which makes them ideal for pioneering innovative types of housing.

How should different interests be reconciled?

Vimal Karpe, a senior engineer with [Buro Happold](#) is currently working in Hong Kong. Jitesh Brahmshatriya is their Cities Director in Mumbai. Together they set out conclusions from initial work with SCAD.



They used their [Sprint Project Management](#) technique to get to a consensus on prioritising development of skills training, first in energy and then construction. Jitesh outlined three possible strategies for obtaining land, first by upgrading existing neighbourhoods, second creating eco villages for a target market such as public employees, and finally working with major land owners such as private companies or the railways to create development partnerships for Transit Oriented Development (TOD).

The next steps for Social Change and Development (SCAD)

The closing presentation was made by *Dr Cletus Babu*, founder and chair of the [SCAD](#) group and Nirman Trust. He explained how SCAD help the disempowered in many scattered villages, working through nearly 4,000 Women's Groups who save money together and play leadership roles in their communities.



SCAD is already applying sustainable development principles in fields such as energy and food production, and the conservation of water.



They are committed to establishing a centre for sustainable development which they have called *Gardens of Delight*, modelled on the Centre for Alternative Technology (CAT) in mid-Wales, which their project manager Mr Charles has visited. Though SCAD has been wary in the past of working with State bodies, they are willing to investigate the possibilities, and Buro Happold are helping in transferring some of the necessary skills.

Concluding remarks

In the final session Dr Nicholas Falk, who had chaired the event, asked for responses from the main speakers. Autif Sayyed from his position in promoting Green Bonds for the World Bank said *'Collaboration is key. There is plenty of finance and technical support available if you really want it'*. The CEO of a Bristol Housing Association said that *'getting hold of suitable land is the best place to start, as the finance will then fall into place, and the public sector owns a lot of it'*. There was general agreement with Buro Happold's proposal for *'building for public service workers such as government employees'*, and for their strategy for *'scaling up in stages with an ultimate target of building 3,000 homes'*, and Jitesh repeated their commitment to help SCAD in the next stage of their development.

Neil Murphy drew on his experience in Cambridge to urge *'devising masterplans that can be developed in stages with the right densities, urban form and building materials'*. New settlement should be built where they can take advantage of existing jobs and services, and *'innovative communities should form an early phase'*. Charles, the project manager for the SCAD/URBED eco house, is currently taking forward proposals for a Centre for Sustainable Development, and the proposal for a pilot project *'providing cooperatively run housing for a group of SCAD staff'*. Brian Love reiterated the potential for building on land owned by the railways, and where necessary *'using eminent domain or compulsory purchase powers to assemble good sites for the development of affordable and sustainable homes'*.

Though governments may currently be prioritising the provision of buildings for the homeless, there was general agreement that the new communities should be *'aspirational, places where we would all want to live'*, with a *'mix of housing and other uses'*. Tamilnadu may have lagged behind other Indian states such as Gujarat in the past, and production costs may be higher. Nevertheless, Dr Cletus Babu, founder and Chair of SCAD, agreed that *'it should be worth approaching the new State government with a proposition'* which could involve *'building on land that was further out from the centre and therefore less valuable.'* Dr Nicholas Falk said that for his part, he planned to submit the report of the event to the British government, who have a new team charged with 'levelling up' as well as building more housing. He hopes that some of the innovative people involved in the Bristol

Housing Festival will also want to play a part when they see the report of an event that was packed full of productive ideas.

Conclusions

As well as the many lessons from exemplary projects that were presented and illustrated, a series of practical conclusions emerged from the event. This could be a test case for tackling climate change and 'levelling up', through sharing experience across national boundaries. Follow up actions could include:

1. Securing the reactions from possible partners to this report and the videos, which are available [here](#).
2. Identifying the most promising locations for development (possibly using GIS mapping systems of the kind developed by Earthonomics and also British researchers)
3. Finding prospective champions for setting up pilot projects
4. Establishing multi-disciplinary project teams with the necessary expertise and commitment
5. Devising briefs for projects large enough to create balanced neighbourhoods
6. Consulting with potential stakeholders including foundations or government bodies prepared to fund the preparatory work and local authorities and utilities
7. Engaging with existing and potential residents to understand their concerns
8. Working up a development framework or masterplan
9. Reaching agreement on funding from a consortium of investors
10. Drawing up proposals for stewardship and ongoing management.

Dr Nicholas Falk, 15th November 2021