

Planning for a Network of Circular Economy Villages

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How might we design Garden Cities in the 21st century to support economic growth in regional areas? How will new technologies, particularly the internet and renewable energy, influence future settlement patterns? Can circular economy principles enable economic activity that has a positive impact on the land and on people?

Not since Ebenezer Howard mobilised the Garden City movement some 120 years ago has there been a more exciting time to be a town planner. Howard's objective in planning for Garden Cities was to find ways for "redistributing the population in a spontaneous and healthy manner."¹

This article proposes to look beyond Greater Sydney as "Australia's economic powerhouse"² and develop strategies that promote economic activity, infrastructure investment and population growth in the regions. Gillon suggests that the response to COVID-19 has accelerated the transition to remote work arrangements,³ enabling many to relocate to regional centres. There are other reasons for moving out of cities, including a shorter work commute, more affordable housing and closer connection to nature. Gillon also notes that push factors away from cities must be complemented by the pull of regional areas. Regional Councils seeking to "capture the benefits of young people on the move" should, in addition to Gillon's suggestions, be planning for modern versions of the Garden City.

Garden city as a network of villages

Figure 1 illustrates Howard's proposed self-contained, satellite cities with a population of 32,000 on 9,000 acres, linked by road and rail to a major centre reflecting the mechanistic thinking of his time. What might a garden city of the 21st century look like? The technologies and business models available today allow new settlements to be both more connected virtually, while being more self-contained in the physical world, affecting both the design of individual settlements and the organisation of a network of settlements.

Population centres of the scale proposed by Howard represent major initiatives that would necessarily need to be managed by a government-owned development corporation. Instead, a much smaller development scale

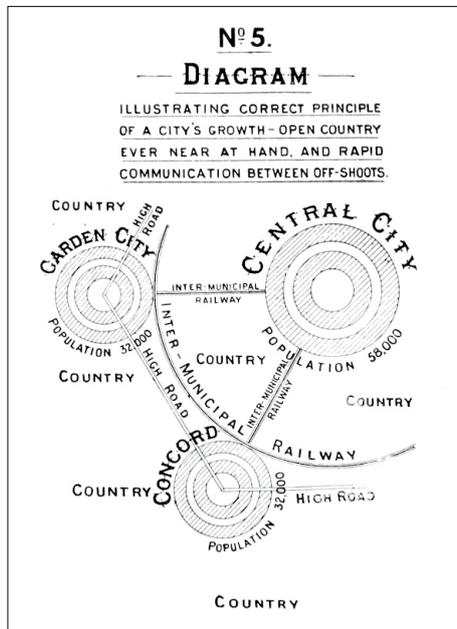


Figure 1: Growth by networking (not sprawling) of settlements (Source: Garden Cities of Tomorrow, Howard, 1902)

is proposed, a precinct or village for a small community, perhaps just 200 people. Developments of this scale can be delivered by a larger cohort of developers and development professionals. Rather than a large population in one place, scale and complexity would be achieved through the organic networking of settlements across a broader area. A network of villages in a bioregion would still deliver significant population growth, while also retaining the rural landscape character treasured by these communities. Such development units would also allow for a more incremental development of rural landscapes, allowing communities to determine and manage the scale and timing of growth. The location of settlements could be identified through current growth management and community strategic planning processes.

Precinct-scale circular economy infrastructure

Recent advancements in renewable energy generation, storage and monitoring could transform the design of individual settlements. An energy micro-grid can pump, clean and circulate water, creating a water micro-grid. Water would be harvested, stored and distributed on site. Throughout the water cycle, it would be monitored to manage quantity, quality and efficiency of distribution.

With more water it is possible to produce more food, taking urban agriculture to a new level. The energy micro-grid can also power a fleet of shared electric vehicles. These infrastructure systems could be further integrated for even greater efficiency. Food waste can be used to make heat and biofuels for energy, water reservoirs can also store energy, passively designed housing can minimise energy demand.

Such an approach adopts the principles of a circular economy – systems thinking, life cycle planning and striving for zero waste – to provide the essential needs of a community. The demand for food, water, energy, shelter, transport and housing is, in economic terms, relatively inelastic. That is, the demand does not vary substantially with price. Therefore, if the village population remains constant, then overall demand will also remain constant. Capital infrastructure can be designed for supply to equal or exceed demand so as to minimise waste. Not all food can be produced on-site but the more that is produced locally the less plastic packaging, storage, refrigeration and transport will be required.

Build-to-rent as the preferred development strategy

Circular Economy Villages (CEVs) are best developed as build-to-rent (BTR) projects because all the shared and integrated infrastructure, also including electric vehicles, work hubs and other community spaces would be best managed holistically by a single entity.



Figure 3: Lochiel Park masterplan (Source: Renewal SA, 2014)

With no subdivision required, design and approval processes are simplified. Phone apps could support community engagement, booking of assets and site maintenance.

It is timely, therefore, that the NSW State government recently announced a 50 percent reduction in land tax obligations for BTR projects, whilst a Housing Diversity SEPP is being drafted to support the BTR sector. Mirvac recently opened their first BTR project in NSW at Sydney Olympic Park, financed through a Managed Investment Trust. Such financing models allow for the funding of a pipeline of projects, while future residents could purchase sufficient units in the trust to offset their rent.

Healthy for people and planet

CEVs offer a range of other benefits for people and the planet. They would deliver the three critical strategies for healthy urban design

– connection to fresh food, connection to community and a walkable environment.⁴ By managing water systems and improving soil health for food production, daily economic activities would have a positive impact on local ecosystems. Positive impact development is referred to as regenerative development and has parallels with regenerative agriculture.

The transition from industrial to regenerative agriculture is considered essential for the improvement of our vast rural landscapes to reduce the impacts of floods, droughts and bushfires.⁶ Yet regenerative agriculture is necessarily more labour intensive and will therefore require more housing for farm workers. As well as extracting people from cities, rural Councils could potentially promote CEVs as housing for regenerative farmers to facilitate this transition.

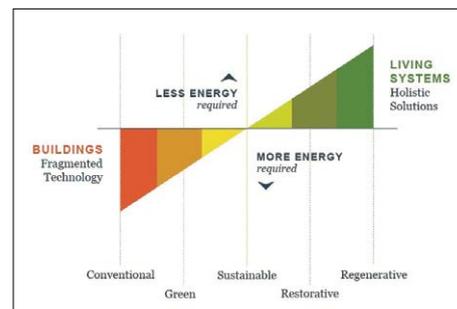


Figure 2: Trajectory of ecological design (Source: Regensis, 2012²)

Conclusion

In a journal article published in 2019⁷ the author provides more detailed justification for the CEV development model and also sets out a suggested strategic planning process for enabling the development of CEVs.

With projects such as The Cape (Cape Paterson, Victoria)⁸ and Lochiel Park (Adelaide)⁹ demonstrating many of the principles described here, it is likely that the first CEV is not far away. ■

Steven Liaros MPIA is a strategic town planner and author of 'Rethinking the City'. He is interested in how the internet and other new technologies together with circular economy and sharing economy business models are reshaping cities. Steven has qualifications in Civil Engineering, Town Planning and Environmental Law.

Endnotes

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