

## A New Human Settlement Theory

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### **Biography:**

Steven Liaros is a town planner and director of [PolisPlan.com.au](http://PolisPlan.com.au). He is currently undertaking a PhD project to create a new model for regenerative land development based on a circular economy and as an organisational principle for building resilient and globally connected, local communities.

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Smart cities, liveable cities, green cities, biophilic cities, eco-cities and regenerative cities. Add to this, eco-villages, intentional communities, transition towns and place-making and it seems everyone is talking about the cities of the future. Yet in all this conversation there is little or no discussion about what the thing is that we are trying to change. What is a City?

Invariably, the ‘city’ is understood as an ‘urban settlement’, where urban implies non-rural. Most papers and reports now seem to start with the statement: “over 50 percent of the world’s population now lives in cities!” Yet, the United Nations’ *World Urbanization Prospects (2014 Revision)* which produced this figure also acknowledges that “there is no common global definition of what constitutes an urban settlement” and indeed “the urban definition employed by national statistical offices varies widely”.

A different approach would be to use the original Greek and Roman concept of the city as simply ‘a community of citi-zens’. Planning for people should be the starting point for planning cities. The city can then be imagined as the system that satisfies the needs of the citizens. What, then, do citizens need? The natural needs are a good place to start; food, water, energy and shelter. From this perspective, the separation of urban from rural areas, the consequent separation of urban populations from their food and the exclusion of food systems from the planning process appears an obvious failure of the planning system.

The demand for organic produce, interest in urban agriculture and new platforms connecting farmers with consumers, all suggest that there is growing consumer demand for a change in our food system. For farmers, though, it is more of a necessity than a desire for change. The warming climate is causing an increase in extreme weather events such as droughts, floods and bushfires. Excessive extraction of water from creek and river systems, together with deforestation have resulted in soil depletion and increased salinity. Industrial farming practices have decreased biodiversity in landscapes and soils, resulting in falling productivity and posing significant risks to ongoing food production.

Agriculture is in desperate need of a revolution. A revolution in agriculture will reshape our cities just as it did through the Industrial Revolution. Numerous examples of the seeds of this revolution—referred to as regenerative agriculture—are described in Charles Massy’s ‘Call of the Reed Warbler: A New Agriculture, A New Earth’. He identifies the principles of regenerative agriculture as follows:

1. Maximising the capture of solar energy by fixing as many plant sugars as possible via photosynthesis;
2. Improving the water cycle, maximising water infiltration, storage and recycling in the soil;
3. Improving the soil-mineral cycle by creating healthy soils that contain and recycle a rich lode of diverse minerals and chemicals;
4. Maximising biodiversity and health of integrated, dynamic ecosystems at all levels.

Massy argues that a fifth principle is needed—a change in human attitudes. Only human agency can trigger landscape regeneration by working in harmony with natural systems. The necessary shift in attitude is from an extractive to a regenerative mindset. Instead of just taking from the land, we take and give back in equal measure. This concept of regeneration is equivalent to the ‘closing the loop’

narrative of the circular economy. Closing the loop implies thinking in systems and striving for zero waste because there is no waste in nature.

The principles of regenerative agriculture and of the circular economy provide the basis for a new human settlement theory. Firstly, think of the city as a community of citizens with a regenerative attitude that ensures their actions have a positive impact on the land. Then, capture as much solar energy as possible, manage the water cycle, improve soil health, maximise biodiversity and think in systems so that there is no waste. This approach not only guarantees food but also energy and water.

The revolution—or economic disruption—of the food system converges with disruptions in water and energy systems. For several decades water engineers have advocated for a shift from large centralised dams, channels and pipe infrastructure to decentralised water sensitive urban design (WSUD) models in which water is harvested, stored and distributed locally within and around the built environment. Similarly, the energy transition is more than just a shift from fossil fuels to renewables, it is also a transition from a centralised to a distributed energy system.

These disruptions underpin a disruptive model for planning cities. A local energy micro-grid can power a local water micro-grid, which in turn can irrigate a local food system, offering a community the opportunity to harvest, store and distribute food, water and energy within their immediate catchment. Designing the built environment with smaller private spaces and a wide range of accessible shared spaces and facilities would also minimise energy demand while simultaneously providing opportunities for social interaction and connection. Interestingly, designing the built environment in this way aligns with new build-to-rent and co-living development models that have been emerging in recent years. Disruptions in food, water, energy and land development systems are therefore all converging to disrupt the approach to building cities.

Creating places where local residents can collaborate to provide their basic needs is a form of Place-Making as well as an achievable alternative to the Universal Basic Income (UBI). The direct delivery of basic needs—consumed by the producing community—rather than the provision of money to pay for the purchase of these same needs, addresses the issue of wealth distribution but also re-imagines how wealth is created. It requires communities to take responsibility for their local environment, supporting infrastructure and others in their community.

The city can be designed as a system that provides the needs of the citizens—but how many citizens? Firstly, this approach requires that we plan for a specific number of residents so that the population does not exceed the capacity of the land upon which they are situated. Matching the population to the supporting land and ecosystem of infrastructure ensures that we are striving towards One Planet Living. It also allows us to plan for abundance because the demand for food, water and energy is relatively stable and so can be estimated. Planning can ensure that there is more than enough for the population. The population should also be big enough to benefit from economies of scale, while also small enough to ensure that residents have an effective ‘say’ in the organisation of their social relationships. A village scale of around 150 people corresponds with the Dunbar Number, which some anthropologists and sociologists argue is the maximum group size that can maintain stable social relationships.

Of course, one village does not make a society. Yet creating a process that enables the replication of this development model, where each village is designed to align with the natural ecological cycles of its locality, would eventually create a distributed network. The network could connect through online platforms, open access information, peer-to-peer trading and shared electric vehicles, creating an Internet of Cities.

Creating such nodes in a network is obviously difficult for densely populated areas but represents a significant opportunity and point of difference for the nearly 50 percent of the world’s population that live in rural areas.

The way we think about cities and town planning is anchored in an increasingly irrelevant past; responding to the challenges of *centralisation* arising from the Industrial Revolution. Planning should address the issues arising from centralisation by enabling redistribution of populations, utilising distributed information and energy systems. We need a new way of thinking about cities—a new paradigm for town planning that attempts to extrapolate the future from the world as it is today, not from the world of the Industrial Revolution.