

Ecocultural Assemblages in the Urbanizing Global South

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1. Introduction

Given that the majority of the world's population lives in the global South and given the rising significance of the so-called 'BRICS-plus' countries as the new drivers of global economic growth, it becomes imperative that ecocultural precedents are identified within these contexts as reference points for rethinking how 'development' occurs without breaching planetary boundaries. This will mean recognising, in particular, that urbanization is profoundly changing both rural and urban societies in the global South. There is now serious doubt that the resource base and environmental conditions will continue to exist for developing country cities and their respective hinterlands to emulate the cities that established the norms of urban modernity in the developed world.¹

The next section will provide an overview of the so-called second urbanization wave and its impacts on the global South (both rural, urban and peri-urban), followed by a brief conceptual discussion of the notion of 'assemblage' as a way of making sense of the process of reconfiguring - through everyday improvisations - the complex relations between people, materials, nature and cultures. This then provides the context for discussing a range of cases that help to illustrate (rather than rigorously demonstrate) the multiple ecocultural responses to the second urbanization wave. It will be argued that these responses provide signals and lessons for those interested in reconciling the process of rapid urbanization in developing countries with a potentially more just transition to ecologically sustainable modes of urban living.

2. Second Urbanisation Wave

The first urbanisation wave took 200 years – 1750 to 1950 – and resulted in an increase in the number of urban dwellers in Europe and North America from 15 million to 423 million people (United Nations 2006). This was also the process that resulted in the iconic images of 'the modern city' as the architects, engineers and planners gave cultural form to this radical transformation of everyday life and work. For nearly 300 years, the image of the modern industrial city became synonymous with what a 'city' is supposed to be – a construct of the urban imaginaries of the first wave. It embodied the meaning of progress, rationality, secularism, universality and all that was associated with the Enlightenment. All other cities were either getting there, or were – as in the case of the great pre-colonial African cities or historic core cities in many Islamic countries – either entirely forgotten or denied the status of being cities in their own right (Malik 2001). The awesome power of this historically constructed lens on urban modernity is what makes it all the more difficult to 'see' the cities being created by the second urbanisation wave, let alone the dull compulsion of underlying unsustainabilities.

¹ . Hence the proliferation of reports on how to make cities more sustainable.

The second urbanisation wave will most likely take less than 100 years – 1950 to 2030 – and is taking place in developing countries. According to the UN's Population Division, the total global population is expected to increase by 2.3 billion to 9.3 billion by 2050. The number living in urban areas is projected to increase from 3.6 billion in 2011 to 6.3 billion in 2050, while the rural population is expected to start decreasing within the next decade (Department of Economic and Social Affairs, United Nations 2012). The urban population of the developing world in 1950 was just below 400 million. China alone will urbanise far more people in 50 years than were urbanised in 200 years in North America and Europe together. As the global population increases from 7 to 9.3 billion, it is the urban centres of Africa and Asia (some of which don't exist yet) that are projected to be home to the additional 3 billion people expected on the planet by 2050.

Significantly, whereas in 2011 23 urban agglomerations qualified as megacities of at least 10 million people, this is projected to increase to 37 by 2025. The urban future, however, is not a world of megacities – the greatest expansions will most likely occur in smaller cities. According to the UN's Population Division, by 2025 52.3% of the population in 'less developed regions' will live in cities of 1 million or less and in 'more developed regions' 57.2% will live in cities of 1 million or less (Department of Economic and Social Affairs, United Nations 2012). The percentage of the global urban population that will live in megacities by 2025 will only be 13.6% (Department of Economic and Social Affairs, United Nations 2012).

Although an emerging urban future of smaller rather than larger mega-cities is heartening from a sustainability perspective because it is easier to manage sustainability-oriented system changes to existing or new infrastructures in smaller cities, the bad news is that the second urbanisation wave has created a global population of slums. According to the path-breaking UN Habitat report *The Challenge of Slums*, there were a billion people living in slums by 2005 (United Nations Centre for Human Settlements 2003). In other words, by 2005 one in three people living in the cities of the world lived in a slum.

The second urbanization wave has major implications for peri-urban and agricultural areas. As cities expand and new cities are created, lands that had hitherto been used mainly for agriculture are transformed into urban environments (Godfray *et al* 2010). Quite often this is the most agriculturally productive land precisely because settlements often originated where water and food could be easily accessed. According to the World Bank, if population growth rates continue as projected and densities also continue to decline, the size of urban areas in developing countries is expected to increase 3-fold and 2-fold in developed countries (Angel *et al* 2005). The decline of well-established productive farming communities located in relative close proximity to towns and cities as the countryside gets urbanized inevitably forces these urban systems to become increasingly dependent on the long-distance importation of biomass usually produced by large-scale agri-businesses specializing in chemical- and water-intensive mono-cropping who supply the increasingly powerful supermarket chains that have become in recent decades the dominant suppliers of food to the burgeoning urban populations. This resource- and energy-intensive urban food system is threatened primarily by the financial implications of oil peak, with reference in particular to rising food prices.

3. Assemblages and Ecocultures

Urban sociologists interested in the socio-cultural dynamics of the second urbanization wave have for some years now attempted to devise a new conceptual language to make sense of the

complexities of extremely rapid often informalized urbanisation processes in developing country cities (Davis 2005; Doherty & Lino E Silve 2011; Dovey 2012; Huchzemeyer 2011; McFarlane 2011; Pieterse 2008; Simone 2004; Simone & Abouhany 2005; Swilling *et al* 2003). Although these writers recognise that cities are unique because of their density, changeability and overwhelming complexity, they tend to under-emphasize - or even just ignore - the fact that the false promise of urban modernity is not just about the limits of rationality; it is also about the myth that cities survive disconnected from the natural systems they depend on. Indeed, the deeply ingrained popular notion of 'city limits' visually disconnects cities from their hinterlands that supply the bulk of these ecosystem services and natural resources (Ravetz 2000). It is the ecocultural responses to the transformations of the city-region wrought by the second urbanization wave that is focus of this chapter.

What is most remarkable about the dynamics of incremental urbanism in the urbanizing global South is how the everyday dynamics of the city are grasped and continuously (re)learned by city dwellers across the socio-economic spectrum – what McFarlane calls 'learning the city'. Learning is defined as the "implicit experiential process of incrementally changing how we inhabit or perceive urban space that occurs without our realizing it" (McFarlane 2011: Location 371, Kindle.) In other words, as we go about our daily business, in order to get things done, to go places, to find things or access services we figure out how the city works. We learn about how to use transport systems, where to buy the cheapest food, who to talk to in order to get an electricity supply repaired, where to find a hospital that works properly, how to get help from the police in a crisis, and so on. In practice, however, this kind of learning does not happen in a vacuum. Normally, people figure out how to fit into a neighbourhood of some kind, and/or a set of networks that make it possible to live, work and play. The poorer you are, the more likely it is that your networks will be bound by neighbourhood dynamics and engagements. It is these spatially specific engagements in order to 'learn the city' that McFarlane refers to as "assemblages" that lock the learning process into certain trajectories of acceptable thought and action about how to live, work and play in the city. Sometimes, this can even stimulate new imaginaries of potential alternatives (McFarlane 2011: Location 380, Kindle).

The city is not a machine governed by the imposed supposedly rational rules of urban governance as determined by the law, but rather it can be understood as the emergent outcome of a vast constellation of "assemblages" of actively learning human agents, ever-changing cultures, extensive networked urban infrastructures, transformed ecosystems and unstoppable innovations. Cities must now be understood at all times as part of a much wider *local-global hinterland* that includes both the surrounding region that provides the bulk of the ecosystem services required by the city, but also the global sources and sinks that cities have come to depend on (Guy *et al* 2001; Heynen *et al* 2006; Swilling *et al* 2012).

Instead of understanding *ecocultures* as something more stable and resolved than is ever possible in the rapidly transforming city-regions of the urbanizing global South, for the purpose of this discussion ecocultures are understood as *emergent ecocultural assemblages* – a formulation that blends the notion of assemblage as used by McFarlane with the notion of emergence (as used in complexity theory). Emergent ecocultural assemblages are therefore dynamic learning processes expressed in spatially specific ever-changing provisional (re-)configurations of people, cultures, infrastructures, buildings, materials, ecosystems and natural resource flows. As the cases discussed

reveal, these can take many forms – from the light green techno-fix for the rich of Songdo and Bangalore’s green gated communities, to the deep green socially just ecovillages of Ecobarrio and the Lynedoch EcoVillage (discussed in a separate chapter).

Cases were selected that can be regarded as representative of trends rather than completely unique and therefore unreplicable. Although there were serious limits to the evidence available, each case selected needed to reflect some of the following ‘trace elements’ of an eco-cultural sensibility:

1. evidence of learning processes about socio-technological innovations that could result in more sustainable use of resources, recycling and the restoration of ecosystems;
2. existence of adaptive leadership capabilities characterised by a sensitive engagement with the local context, a commitment to innovation and a sense of trust in the emergent outcomes;
3. institutional arrangements that encourage, incentivise and stimulate sustainability-oriented innovations, including the requisite degree of trust between actors located across different sectors and a commitment to dialogical approaches to conflict resolution;
4. a tendency to value family and community life, limit conspicuous consumption as a mode of identity and avoid self-destructive or abusive personal behaviours;
5. an awareness of the need to focus on improvements in the quality of life of the poorest participants through education, participation and a degree of tolerance of diversities of ethnicity, belief and class (that cities, do often, tend to foster).

Three categories of initiatives are discussed.²The first, *Resisting Disconnections*, are largely rural initiatives that have actively and consciously established themselves to resist the disconnections from nature instigated by modernity and the ever-widening impacts of expanding city-regions.

The second category groups together *Green Urbanism* initiatives. Motivated by a desire to ‘minimize damage’, these initiatives are top-down initiatives by governments and/or property developers who are responding to either the rising cost of conventional urban infrastructures and/or the rising demand amongst elites for green low-carbon or even ‘carbon-free’ environments.

In contrast to green urbanism initiatives, the third category refers to a mixed bag of initiatives as examples of *Livable Urbanism*. These are profoundly urban initiatives aimed at creating distinctive urban ecocultural assemblages, frequently with the poorest urban dwellers in mind. The underlying assumption is quite often the view that formal conventional urban infrastructures and formal dwellings cannot provide affordable and viable living environments for the urban poor. Alternatives were found that were drawn from the rapidly expanding repertoire of socio-technical solutions generated by a wide range of ecocultural movements, ecological design initiatives and research

². Sources of information about the cases include personal observation of some cases, discussions with others who have experienced the cases, interviews with key leadership individuals, websites, project reports on www.worldhabitatawards.org and commissioned case study research prepared for a report on City-Level Decoupling by the Cities Working Group of the International Resource Panel (see Swilling *et al* 2013).

institutions (for a thorough conceptual elaboration of these different types of urbanisms see Swilling & Annecke 2012: Chapter 5).

6. Resisting Disconnections

This section reviews a range of initiatives located within rural/peri-urban contexts because rural spaces (which are in any case almost all inseparable now from their city-regions) quite often offer spaces for innovation that may be hard to find in urban environments where land prices, planning regulations or restrictions on access to land often prohibit innovation. The cases cited here created spaces for niche-innovations that helped demonstrate new approaches to buildings, infrastructures, ecosystems and food production that have influenced and inspired many urban-based ecocultural movements. These more rural initiatives are worth categorising into 'new initiatives' created by groups with an explicit agenda to build new ecocultural assemblages; 'traditional initiatives' where existing traditional communities adopt practices that preserve their cultures, skills sets and connections to nature; and 'project initiatives' which are essentially initiatives by various types of actors aimed at re-organising existing rural communities around a range of ecocultural practices.

New Initiatives

Four initiatives are worth referring to here: Sekem in Egypt (founded in 1977), Auroville in India (founded in 1968), Gaviotas in Colombia (founded in 1971), and Picaranga in Brazil (founded in 2000). All were motivated by highly idealistic leadership groups who wanted to directly and explicitly intervene in degraded/threatened natural systems in order to restore them to sustain human livelihoods and, in some cases, facilitate exports into local and international markets.

Auroville is located near Pondicherry in the state of Tamil Nadu, south India (this account is derived from Dawson 2006-2010:24-26). Initiated in 1968 by a core group that adhered to the philosophies of guru Sri Aurobindo, it currently has about 1700 residents from 35 countries. The aim is to grow to 50 000. It began in what was then almost desert resulting from decades of deforestation and destructive farming. To restore the ecosystems, dams and swales along the contours were built to replenish the aquifers and contain erosion during the monsoon, while over two million trees were planted. Most of Auroville is now a lush forest and 135 hectares are farmed to produce most of Auroville's food requirements. With a strong spiritual centre, the community has evolved a collectivist ethic that has restrained inequalities. Leadership is non-hierarchical and services are provided by local enterprises. Most of the 125 enterprises operating within Auroville are collectively owned. Extra-ordinary technological advances were achieved that were way ahead of their time, including the use of solar power, biogas-based cooking, stabilised earth block construction and various effective ecosystem management techniques. Although located in a rural setting, it is effectively evolving into an economically viable and ecologically sustainable town of interconnected clusters connected closely to the land. Major research centres disseminate the tried and tested technologies across international networks.

Founded in 1971 in the inhospitable Llanos badlands in the Colombian region of Vichada by Colombian social entrepreneur Paolo Lugari, Gaviotas followed a similar trajectory to Auroville. Initially surviving off donor funds, the Gaviotas community merged local Indian families with middle class professionals committed to building a new ecoculture. Although the focus in the first decade and a half was on building up alternative rural development technologies that donors funded to be

replicated elsewhere (e.g. the Gaviotas water pump), by the 1990s the founders discovered that a certain variety of pine could thrive in the desiccated soils. Eventually, 1.5 million pine trees were planted which, in turn, created the conditions for the re-emergence of the indigenous forest that used to grow in the region. Harvesting the resin from the pines generated the income needed for the community to survive (Weisman 2008).

Sekem started in 1977 as the brainchild of Ibrahim Abouleish. Motivated by the values of anthroposophy (originating in the works of Rudolf Steiner), his Muslim faith and a belief in biodynamic farming methods, Abouleish decided to establish a commercially viable agricultural enterprise on 70 hectares of desert located 60 Km northeast of Cairo. The experiment worked which resulted in the establishment of what is now a large conglomerate of agro-ecological businesses involved in land reclamation, organic farming, food production for sale into local and international markets, phyto-pharmaceuticals and textile production from organic cotton. All this is rooted within a thriving community spread across different sites that includes Waldorf Schools, vocational training centres, an association of biodynamic farmers spread across Egypt and in 2012 a private University called the Heliopolis University was established in Cairo. Employing nearly 2000 staff, Sekem defines itself as a social enterprise and its vision as “sustainable human development”. In 2011 it made a gross profit of 96 million Egyptian Pounds. Profits are deployed to fund social, cultural and educational activities.³

Picaranga EcoVillage is located on the picturesque coast of Bahia state in Brazil, 6km from the tourist centre of Itacare. Started in the early 2000s by a family, it now has 160 inhabitants including local Brazilians (who are in the majority) and people from 20 different countries. The Center for Art and Human Development where “people can learn and experience the miracle of life” and the “holistic free school” for students of 3 to 18 years are clearly the institutions at the heart of this “ecovillage for nature lovers”. Buildings are constructed from “local materials”, electricity is generated from solar and wind power, and solar hot water heaters, septic tanks for treating sewage and a permaculture garden complete the picture of an Ecovillage that has made considerable progress in ten years. A core focus is the protection of the 120 hectares of virgin tropical forest adjoining the ecovillage.⁴

All four cases demonstrate how rural or peri-urban environments provided the space for ecocultural networks to coalesce around new technologies for restorative farming, more sustainable modes of human settlement and holistic patterns of cultural development.

Traditional, transformed

The four cases described here are traditional rural villages that faced a crisis of some sort which, in turn, triggered the emergence of responses that reinforced the resilience of these villages. In all four cases, greater resilience entailed investments in new socio-technical innovations that both created and were shaped by various context-specific ecocultural assemblages. The four cases are Hivre Bazar

³ . Personal visits and interviews

⁴ . Sources: Personal communications with a visitor plus website
http://directory.ic.org/22097/Piracanga_EcoCommunity

in Maharashtra State, India⁵; Mbam and Faoune villages in Senegal (Dawson 2006-2010:26-28); Da Ping Village in China⁶; and Ghandi Nu Gam in India⁷.

Hivre Bazar is located in the barren expanses of central Maharashtra. A small village of 257 families, Hivre Bazar has managed to break the patterns of drought, poverty, alcoholism and rural-urban migration that plagues villages in the rest of this region. However, twenty years ago it was a village in crisis and on the verge of collapse caused by migration to the cities, poverty and social disintegration. About this time Papatroa Pawar completed his postgraduate studies in Pune. He was 26. Instead of staying in the city, he decided to go back to Hivre Bazar, his home village, to find solutions to the crisis. Mobilising shramdaan (voluntary labour), his first project was to build watersheds along the contours and replant the trees. The replenished water table enabled irrigation which, in turn, made it possible for farmers to diversify their crops and increase yields. Average incomes increased by 400% between 1991 and 2009, 60 families that migrated to the cities returned, social improvement and cultural renewable programmes were introduced, formal sanitation improved health and eliminated mosquitos, and education improved (especially for girls). The Gram Sansad (Village Parliament) has played a central role, and there is a pervasive sense of prosperity without inequalities. Hivre Bazar is held up by many now as a successful rural development model.

Earthquakes in Da Ping Village in China and Ghandi Nu Gam in India triggered ecological design responses that reinforced the long-term resilience of these two rural villages. The earthquake that hit Sichuan Province in 2008 destroyed nearly all the buildings in Da Ping Village. Instead of rebuilding using the generally accepted modern brick and concrete methods that have become pervasive in China, the local authorities decided to accept advice from the Green Building Research Centre that this poor village of rice farmers should be rebuilt using traditional building methods in order to “bring greater harmony with the local environment”. A thorough participatory process (which included residents paying 50% of the costs of their homes) was initiated to build 200 houses and 11 public buildings using local wood and bamboo, salvaged materials and renewable energy (including biogas). The end result was homes that had more space and were more comfortable than what would have been provided using conventional industrial methods. A new Community Centre was also built that became the centre of a new village management structure that continued to promote an ecoculture of sustainable living, organic farming, ecological literacy and environmental restoration. A new tourism industry emerged because of the publicity generated by the unique approach which has helped stimulate the local economy. The approach started to be replicated in other villages in the Province.

After an earthquake devastated Gujarat in 2001 killing 20 000 and leaving millions homeless, it was discovered that the traditional adobe ‘bhungas’ (circular dwellings) survived while the modern brick and concrete rectangular buildings favoured by younger people collapsed. The NGO called Vastu-Shilpa Foundation (VSF) for Studies and Research in Environmental Design decided to assist Ghandi Nu, one of the worst hit villages. The project constructed 455 traditional bhungas together with three schools, community buildings, production centres, religious shrines, an electricity network

⁵ . Personal interview with a visitor plus (Kulkarni 2009)

⁶ .Professor Liu Jiaping, Green Building Research Centre, liujiaping@xauat.edu.cn

⁷ . www.vastushilpa.org

using renewables, a water harvesting system and a sewage treatment system that redirected nutrients into biomass/food production. VSF set up an office to ensure that villagers participated fully in design and construction. This included extensive training. All materials were locally sourced, including local wood for doors and windows.

The Senegalese villages of Mbam and Faoune located to the South of the capital Dakar are formally registered as EcoVillages by the Global EcoVillage Network (GEN). They both applied to become EcoVillages after they were hit by a major drought in the mid-1980s that nearly destroyed the mangroves of the Sine-Saloum Delta. Reinforced by in-migration of people who harvested the mangroves for firewood, the breakdown of this natural desalinator threatened the rice paddies that had hitherto flourished in the salt-free lands near the lagoons and rivers. Like Papatroa Pawar in India and inspired by Ghandi, Demba Mansare returned from his studies to his home village, Faoune, during the 1980s drought to provide assistance. He established COLUFIFA which is an acronym that translates from the French as Committee to Put an End to Hunger, that now works in hundreds of villages across West Africa. COLUFIFA coordinated an extensive programme of learning, skills development and institution building all aimed at building new knowledge capabilities in communities forced to adapt to changing natural and social conditions. Permaculture design, reforestation, biogas production, agro-ecological farming and environmental conservation all formed part of a new learning repertoire driven by the brutal realities of survival in a rapidly changing region.

Like the intentional initiatives, the participants in these transformed traditional villages found they had more to gain from working with nature than by adopting so-called 'modern' building or farming technologies. The resulting ecocultural assemblages not only attracted publicity, but their learning was packaged and transferred either via NGO partners and/or their own institutions.

Project Initiatives

Although not as profoundly transformative as the initiatives referred to thus far, four rural project initiatives are worth referring to. In all cases, an external NGO played a role using traditional NGO strategies: awareness raising, skills training, technical advice, project management and financial support. The well-known limits to the transformative impact of an externally funded agency apply in these cases, in particular with respect to social empowerment.

- Situated in the middle of the Calakmul Biosphere Reserve, the Calakmul Rural Housing Programme in Mexico was initiated in 2004 by Échale a tu Casa. Over 1000 self-built homes were constructed for poor rural households using adobe bricks stabilised using a patented additive. Renewable energy helped reduce deforestation (www.echale.com.mx).
- In the cold desert areas of the Western Himalayas energy for heating is a major challenge. The French NGO Groupe Energies Renouvelables, Environnement et Solidarités (GERES) intervened to retrofit 550 houses by 2011 that demonstrated the advantages of solar gain, thermal mass and insulation. Whereas in winter indoor temperatures dropped to -10 degrees or below forcing families to live together in one room with an indoor stove causing respiratory diseases, average temperatures in the retrofitted homes do not drop below 5 degrees (www.geres.eu).
- The Better Life Association for Comprehensive Development operates in the Minia governate, Egypt. Using a rights-based approach that champions the interests of the poor in villages located

along the Nile, it has Initiated in 1997 the Local Housing Movement programme which works with local communities to improve and develop their housing, basic services, security of tenure, construction skills and training opportunities. Working with quarry workers, fishermen, low-income farmers and female-headed households in Minia, by 2010 400 new houses had been built and nearly 600 houses improved. The programme also made it possible for 5900 households to gain access to potable drinking water and latrines in their homes (www.blacd.org).

- The traditional methods of home building in the Sahel region of Africa (where 150 million people live) are no longer viable because the use of locally available timber is either illegal, too expensive or just not viable because the trees are gone. To avoid the alternative of using commercial timber and corrugated iron, the *Association la Voute Nubienne* (AVN) began a programme of training masons to build vaulted earth brick houses (that do not require timber) using an ancient Nubian technique not previously used in the Sahel. Starting in Burkina Faso, the programme has spread to Mali, Senegal, Togo, Ivory Coast and Guinea (www.lavoutenubienne.org).

All 12 initiatives described here demonstrate how rural and peri-urban communities managed to learn from processes initiated by a desire to work with nature in more restorative ways. Ecocultural assemblages of various degrees of sophistication emerged that were able to demonstrate the viability of settlement, farming and ecosystem management technologies that were deemed to be incompatible with what it means to be 'modern' in a developing country context.

7. Green Urbanism: Minimising Damage

As argued elsewhere (Swilling 2011), although green urbanism has its roots in a diverse range of movements (from the 'hippie' ecovillages of the 1960s, to the planned solar towns of Western Europe, to pioneer cities like Curitiba, to UN Programmes to promote 'sustainable cities'), today it is the official ideology of a section of the property development industry that accepts the mainstreaming of sustainability and low-carbon consumption. The globally entrenched institutionally well-resourced Green Building movement is the most visible and influential expression of this movement. In contrast to the restorative mission of the cases considered in the previous section, the overall mission of the green urbanism movement is to 'minimize environmental damage'. Many countries now have regulatory frameworks that in some way enforce aspects of the 'green building' codes, including some in the global South.

To 'minimize damage', green urbanism is usually expressed in large-scale top-down technocratic interventions driven by either states or developers, or in some cases public-private partnerships. The three cases described here illustrate these variations: Songdo (South Korea) and the Lagos Bus Rapid Transit (BRT) are public-private partnerships, whereas Bangalore's green gated communities are developer driven. The key question, of course, is whether these can be defined as ecocultural assemblages. They do fundamentally redefine the relationship between resource use and consumption, making it possible for richer people to believe that it is possible to continue to consume but without destroying the planet. What is distinctive is that this is achieved by technocratically reconfiguring the infrastructures that conduct resource flows through the urban system with consumers defined in market terms as individuals willing to 'buy into' the system. To this extent they are market-driven urban ecocultural assemblages delivered through technocratic

interventions that break from traditional modes of urban consumption such as dependence on the private car, fossil fuels, unrecycled wastes and inefficient toxic buildings.

Songdo is a greenfields development in South Korea that aims to create a user-friendly International Business District (IBD) that co-locates global businesses with large Asian markets in a free trade aerotropolis that is both 'green design' and coordinated by the most advanced smart grid technologies available. It is located on 1,500 acres of land reclaimed from the Yellow Sea, near Incheon International Airport. Developed by a public-private partnership between Gale International and Korea's POSCO E&C and designed by Kohn Pedersen Fox, the 9.3 million m² master plan includes commercial office space, residences, retail shops, hotels as well as civic and cultural facilities. When fully developed by 2015, this new city will have 80,000 apartments, 4.6million m² of office space and 0.93 million m² of retail space. The initial estimates of the total investment stood at US\$35 billion. By 2012, over 100 buildings were complete. Although constantly referred to in mainstream fora as a green development model, the extensive investments in energy efficiency and solar energy will only reduce consumption by 14% compared to conventional developments of a similar size. Water consumption will be 20% less and will be sourced from a desalination plant.

The real innovations in Songdo are in mobility: all major facilities are planned to be no more than 12.5 minutes-walk apart, cycle paths will connect everything, a pool car system will be formally institutionalised (with cars parked in underground garages), and hydrogen-powered busses will be the main means of mobility. All waste will be recycled, and guidelines for non-toxic building materials must be adhered to. 40% of the total area is reserved for parks and waterways. Added together, these infrastructure innovations will mean that daily urban living in Songdo will be very different to most conventionally planned developed country cities and also very different to the vast number of new cities or city extensions sprouting up all over Asia (especially China and India), but also elsewhere in the developing world.

To this extent, although it may not be fully realised in practice, the design imagination behind Songdo certainly has in mind a new urban ecocultural assemblage targeted mainly at middle and higher income earners. To put it crudely, Songdo is a fusion of the artificiality of Dubai and the green ambitions of the design glitterati who must compete to deliver the 'largest and greenest' to global elites who have developed a new desire for living green low carbon lives (derived from Case Study Annex of Swilling *et al* 2013).

By contrast, the Lagos BRT is a technocratic intervention by a public-private partnership in one of the most congested and poorly planned cities in the world. Study tours by key officials and representatives of the bus driver union to cities in Latin America with well-developed BRT systems (Bogota, Santiago and Curitiba) helped to build a shared locally rooted understanding and vision for the project. Unlike Songdo it, it does not only cater for middle and upper income groups. Starting February 2007, 22km of BRT lanes were constructed in 15 months at a cost of \$1.7 m/km, just less than a third of the average cost for such systems elsewhere in the world. Funding came from a \$100m loan from the World Bank and a \$35 m grant from government. Key to success was an extensive stakeholder engagement and public awareness programme that sold the concept as an indigenous Lagosian initiative and not another external venture that would be hijacked by local bureaucrats. These consultations included intensive negotiations with the bus driver union to allay fears that their members would be excluded from the new job opportunities because they were not

skilled enough. By the end of its first year of operation, 195 000 passengers were using the busses on a daily basis. Journey times for those who switched to the BRT were halved. Despite problems with maintenance and operations, the Lagos BRT is widely regarded as an African success story that clearly demonstrates how a well-managed infrastructure investment can change urban consumer behaviour (derived from Case Study Annex of Swilling *et al* 2013).

Bangalore's industrial manufacturing base has traditionally been the primary driver of this rapidly expanding city's economic growth. However, over the last two decades IT and outsourcing have become equally, if not more, significant. This, in turn, has attracted a new cohort of skilled wealthy professionals and entrepreneurs in search of high-end accommodation. Property developers responded by building numerous gated communities using traditional resource and energy intensive designs. This, however, has posed a problem for institutionally weak government authorities who cannot deliver the energy, waste, water and sanitation infrastructures required by these wealthy communities. Property developers could not secure building approvals.

Spotting the opportunity, a company called Biodiversity Conservation India Limited (BCIL) positioned itself as a company that can deliver 'green living' to those who can afford it. Using all the green technologies pioneered by generations of true believers, BCIL started building 91 self-sufficient villas on the edge of Bangalore in 2003 and named it *Towards Zero Carbon Development (or the T-Zed development)*. Completed in 2007, BCIL has continued to initiate similar T-Zed developments in various parts of Bangalore. The T-Zed developments are intended to be self-sufficient in water by using rainwater harvesting systems and boreholes. The use of biogas digesters, solar energy, green roofs and passive cooling systems reduced the requirements for externally sourced electricity. Waste recycling, composting and the growing of organic food are also included, as are requirements to use building materials with a low embodied energy.

BCIL is now a growing commercially successful property development business that serves as a model for other businesses. This growth is a response to rising demand for green housing in low density gated communities on the edges of the city. Ironically, what BCIL realised is that green design enables the rich to secede from the city into self-sufficient 'ecocultures for the rich' thus exacerbating sprawl and fragmentation - the main factors that caused the problem in the first place. A positive spin-off, though, is the growth in the number of design professionals who understand ecological design and in the number of contractors who can build in this way. There is no reason why these capabilities cannot now be deployed for the purposes of building higher density socially mixed and mixed-use inner-city brownfields developments (derived from Case Study Annex of Swilling *et al* 2013).

Songdo, the Lagos BRT and Bangalore's green gated communities are representative examples of the kinds of green urbanism interventions that break with some of the conventional urban design assumptions underlying the patterns of resource and energy intensive urban development that many regard as the desired norm in industrialising countries in the global South. If the cities of the global South are to become more sustainable in a predominantly urban world, learning capabilities will need to be developed that could be deployed to design niche innovations that over time coalesce into more meaningful urban ecocultural assemblages.

All three interventions rapidly built new sustainability-oriented learning capabilities, but only interventions like the Lagos BRT have the potential to foster inclusive ecocultural consumption

behaviours. There will, however, undoubtedly be more interventions in future across the cities of the global South like Songdo and Bangalore's green gated communities which will generate 'ecocultures for the rich'. The danger is that this generates a political backlash against green design in general rather than just the way it is applied by opportunistic property developers.

8. Towards Liveable Urbanism

Livable urbanism refers to profoundly urban ecocultural assemblages that combine equity and ecological restoration. Most of these initiatives tend to emphasize the needs of the urban poor while recognising that working with rather than against nature provides the most effective way to deliver affordable livable urban environments. To illustrate this argument, two categories of initiatives will be reviewed. The first can be referred to as urban struggles by organised formations to either resist interventions that threaten the environmental quality of their lives, or they are struggles to secure access to key natural resources that urban living depends on. The second refers to project-based initiatives by urban communities, often supported by an NGO. Here the focus is more on the technologies, learning capabilities and modes of social organization best suited for building ecocultural assemblages in complex and challenging urban environments.

Urban Struggles

Urban struggles are usually about public policies or plans. Either these policies/plans are resisted by a particular set of actors (before and/or after inception), or they are advocated as alternatives to the existing (lack of) policies/plans.

One of the most dramatic and sustained struggles over urban environmental resources in a developing country city took place around the Billings Dam in Sao Paulo, Brazil (case derived from Keck 2002). Initially built as a water reservoir in the 1920s (and named after the engineer who designed it) that was eventually surrounded by elite housing, by the 1970s it started to take delivery of the sewage of a rapidly expanding city that lacked a sanitation plan thus prompting opposition by the elite neighbourhoods. Despite well organised opposition and court action, the Billings Defense Committee that took on the authorities had failed by the early 1980s to halt plans to use the dam for managing sewage. It was replaced after democratisation in the 1980s by the Movement in Defense of Life (MDV) led by a former trade unionist and Workers Party member who represented more working class communities than had by then moved into the area.

However, the heavy emphasis on privatisation of public utilities during the first years of democracy meant there was no interest in committing scarce funds to resolve what was defined as an environmental dispute articulated by leftwingers. By the 1990s, land invasions and illegal property developments exacerbated the pressures on the water basin and the Billings Dam was more polluted than ever. After the electoral victory of the Workers Party in the 1990s, new participatory structures were established (Basin Committees) to co-opt civil society formations into water planning processes. A new generation of environmental movements emerged to take advantage of these opportunities, but now they were pitted against housing and land movements championing the interests of the urban poor who had by this time occupied areas that the restoration of the Billings Dam would depend on.

Slum Dwellers International (SDI) (www.sdinet.org) is an international confederation of largely women-led urban slum dweller movements in over 40 countries in the global South. Originating in Mumbai and Cape Town, this global urban social movement has managed to craft an approach that transforms urban struggles into positive programmes of state-supported community-driven upgrading that demonstrates that slum dwellers can be agents of their own development. A particularly well developed example is the Odisha Alliance that is active in the Indian state of Odisha. The partnership involves a support NGO called Urban Development Resource Centre (UDRC), the grassroots women's organisation Mahila Milan, the Odisha/National Slum Dwellers' Federation (O/NSDF) and another support NGO called the Society for the Promotion of Area Resources Centre (Sparc). This alliance is active in 225 settlements in five cities in Odisha and in three cities in the state of West Bengal. By combining community savings, mutual learning between organised groups and construction of model houses that are affordable and adapted to local needs; a unique power base is created for negotiating with state actors who often lack the bureaucratic capacity to implement anything in informal settlements. Sixty model houses were built and two state-supported programmes were underway by 2012, with 400 houses under construction. Because the legitimisation of the designs stems from existing informal settlements and not the state, designs for incremental upgrading are accepted that do not need to adhere to conventional architectural or engineering standards. To save costs by sourcing local building materials and managing sewage at neighbourhood level, the result is often far more sustainable than what a conventional urban development process would deliver.⁸

A good example of this is the adobe houses and eco-san toilets that were constructed by a particularly well organised SDI affiliate in Lilongwe, Malawi. After waging a campaign to secure land for housing, a well-organised movement of backyard shackdwellers eager to escape rising rentals secured land from the Municipality on condition no additional funding or services would be requested. Traditionally, Malawians have built houses made from clay bricks baked using charcoal. However, with deforestation caused by rapid urbanization charcoal had become too expensive. After visiting the Lynedoch EcoVillage in 2010 to learn about the alternative of using unfired adobe bricks, the women's groups – supported by a local NGO – built 800 adobe brick houses. This was later on supplemented by urine-diversion toilets managed by local entrepreneurs who generated an income from users and from the sale of composted wastes.⁹

Since 1980 the Orangi Pilot Project (OPP) has been operating in Karachi's informal settlements (known as KatchiAbadis), starting in Orangi Town. Although involved in a wide range of developmental initiatives, the OPP is most well-known for its successful campaigns to secure government support for its Low Cost Sanitation Program. This program combines social organising, savings, capacity building, sophisticated technical design and campaigns to influence government to create low-cost sanitation systems that work well in KatchiAbadis. In essence this involves convincing government to finance the installation of primary bulk sewer lines, with communities funding, building and maintaining the secondary connections at neighbourhood level. This has proved so successful that it led to the cancellation in 1999 of a US\$100 m Asian Development Bank loan for conventional sanitation systems. The OPP's Low Cost Sanitation Program has now extended

⁸ . Personal interviews with various participants plus www.udrcalliances.org

⁹ . Personal visits and interviews with various participants.

to service all of Orangi town, resulting in significant health and environmental improvements in the neighbourhoods it has affected. Over 105,670 poor households have invested Rs. 118.7 million in secondary, lane sewers and sanitary latrines, and government has invested Rs. 807.2 million on main disposals. The model has been replicated by 421 other settlements in Karachi, along with 32 cities/towns and 93 villages covering a population of more than 2 million (Hasan 2006; derived from Annex to Swilling *et al* 2013).

Urban Projects

Although most urban projects involve some sort of organised engagement (and even prolonged struggles) with state actors (e.g. the ACC project referred to below), they do not necessarily require a change in policies/plans in order to be implemented. They are usually opportunity-driven initiatives that emerge within unique relatively controlled, bought or captured spaces either as a result of the efforts of an organised community, intervention by an outside agency or actions of a leadership group of some sort.

Ecoovila is an ecovillage in the Brazilian city of Porto Alegre (case derived from Dawson 2006-2010:32-36). Started in 2001 by professionals influenced by the permaculture approach, the aim of EcooVila is to provide an affordable, socially inclusive and eco-friendly alternative to mainstream Brazilian architecture and urban design. The aim was to build homes for 28 families on a 2.6 ha plot in the centre of the city. After prolonged negotiations with municipal officials, by 2006, 20 homes had been built. All the eco-design features were present: passive solar gain, central fireplace, solar hot water heaters, passive cooling systems (including grass roofs), use of local building materials (cob, bamboo and adobe bricks), organic vegetable gardening and an on-site biological sewage treatment plant that produces an effluent that can be used for irrigation. The overriding aim is to build a vibrant community. Unsurprisingly, like similar places all over the world, EcooVila has received a lot of publicity and it receives many curious visitors, some of whom are inspired to initiate their own projects.

Located in the crime-ridden Colombian city of Cali, Ecobarrio defines itself as the “first ecovillage in Latin America”. It comprises a total of 270 mainly self-built homes inhabited mainly by poor urban families, plus recreational facilities and community gardens. Started by the Federación Nacional de Vivienda Popular (FENAVIP) in the early 2000s and funded with government subsidies for the poor, Ecobarrio now includes individual and collective vegetable gardens, community service facilities such as a community centre, drugstore, restaurant and shops. Waste materials were used to make the cement-based building materials. Two large areas, each measuring approximately 1,200m², have been set aside for the creation of an ‘active’ recreational park with sports facilities and a ‘passive’ park for leisure activities. Ecobarrio also includes a ‘Native Germoplasm Bank’ for the cultivation of 12 endangered species of native fruit trees, an integrated system for the management of solid waste, organic agricultural production cooperatives as part of a regional food security project and cultural programmes for young people. There is a strong emphasis on income generation through

‘work cooperatives’, community self-management, conflict resolution and participation, including via a savings scheme introduced by FENAVIP.¹⁰

The Dajopen Waste Management group is a cooperative that was started in 2008 by 30 people (20 women, 10 men) living in an informal settlement in Kitale, Kenya. They each contributed start-up capital from their meagre savings to set up and register the cooperative. Their aim was to generate incomes for themselves by cleaning up the environment through recycling, including composting of organic wastes for use as inputs into organic food production. DWM members collect waste locally or buy it from street families. The products they make for sale from these recycled materials include roofing and floor tiles made out of recycled plastic; baskets, mats and ropes made from plastic bags; jewellery and briquettes made from paper waste; water filters made from saw dust mixed with clay; fencing posts; organic fertilisers, liquid fertilisers and biocides made from bio-degradable waste materials. They also conduct training courses in waste management and organic farming for Government agencies, municipalities and NGOs for which they get paid a fee. In order to cover the running costs of the project, each member contributes 30% of their sales to the group’s collective reserve fund, and retains the remaining 70%. At the end of the year, approximately 20% of this collective fund is distributed amongst members, and 80 per cent is reinvested.¹¹

Quite often the most significant way to improve the lives of the urban poor is to ensure that they remain in close proximity to the services and employment opportunities that are usually concentrated in the inner city. In many cities, the urban poor are concentrated on the peripheries which means only fundamental devaluations of the inner city property markets will result in the inclusion of the urban poor. Without state intervention or a massive disaster (financial, military), this outcome is unlikely. As oil prices rise, the increasing cost of transportation to the city further disconnects the urban poor from the local economy. However, there are some cities where the urban poor are concentrated in the dilapidated historic inner cores (originally built for the wealthy in the c.19th and early c.20th who later fled to the suburbs when this became trendy and profitable), but increasingly threatened with evictions caused by gentrification processes as the wealthy return to the inner cities.

Santos, Brazil, is a good example of this phenomenon. A social movement led by the Associação Cortiços do Centro, Condomínio Vanguarda (Association of Tenements in Central Areas - ACC) represents the residents of the so-called ‘cortiços’, or tenement-style slums. Under a ‘right to the city’/‘right to housing’ banner, the ACC has successfully championed the rights of the urban poor to remain in the inner city. In 2007, after spending time learning from the successful experiences of other grassroots organisations and examining legislation and potential funding streams for housing with the assistance of a group of volunteer architects, the ACC was able to obtain a 6,000m² plot of land in the Santos city centre from the state and have it classified as a ‘Special Zone for Social Interest’ (ZEIS), enabling access to funding. The following year, funding was approved for the construction of the first 113 housing units and additional funding was secured in 2010 for the second phase of the project, involving the construction of an additional 68 units through a system of mutual

¹⁰ . Case derived from www.fenavipvalle.com and general discussions with visitors to the project.

¹¹ . Case derived from www.worldhabitatawards.org plus correspondence with researchers familiar with the project at Kenyatta University, Nairobi.

aid and self-management of resources. Technical assistance was obtained from NGOs and volunteers. A number of environmental features were incorporated into the project, including rainwater harvesting, waste recycling, use of recycled building materials and the use of solar energy. Following the ACC approach, the project is characterised by a collective, participatory approach.¹²

At the outset of this section it was argued that liveable urbanisms were particular ecocultural assemblages that valued both equity and ecology. The first four cases illustrated how this was expressed through a wide range of struggles over public policies and plans that affected everyday urban living. In Sao Paulo, many decades of struggle to protect the city's key water resources reflected competing visions for how to embed urban infrastructures within a city-region's ecosystems – an ecological issue with profound implications for equity. The remarkable stories from Odisha, Lilongwe and Karachi all suggest that when organised, the urban poor can become the agents of their own development in ways that can win state support, especially in environments where the state lacks the capacity for effective delivery on its own. The emergent outcomes are often socio-technical innovations that are not only more inclusive of the urban poor, but if taken to scale can potentially shape the evolutionary future of informal settlements in ways that break quite fundamentally from conventionally designed resource and energy intensive urban development trajectories.

Although all four *urban projects* shared a commitment to equity and ecological restoration, EcoVila remains an example of a middle class urban ecoculture, and the ACC initiative is primarily about social inclusion by empowering the inner city urban poor. While Ecobarra was almost entirely dependent on state funds and DWM was not, both shared a profound commitment to building ecocultures that benefitted the urban poor – one by building a state-subsidized urban ecovillage, the other by promoting micro-enterprises using recycling waste materials.

9. Some Lessons for Builders of Future Ecocultures

The three clusters of initiatives reviewed have continuously evolved through intentional and unintended learning conditioned in part by the ideals of the participants and in part by their engagements with the complexities of their respective contexts. As the inevitable frictions between ideals and contexts instigate many small and some large compromises, each follows a unique context-specific trajectory with significant lessons for those who in future will face the challenge of purposive design of socially just and more equitable human settlements. None of these cases are likely to arrive at a point where they can be depicted as exemplifying a particular set of preconceived characteristics that will make it possible to define them as 'ecocultures'. Nevertheless, using the five 'trace elements' of an eco-cultural sensibility discussed at the outset of this chapter, it is possible to conclude this chapter by drawing out some generic lessons that may usefully inform the coming debates about the future prospects for building eco-cultures.

Socio-Technical Innovations

Evidence of socio-technical innovations is undoubtedly the most visible and immediate impact of all. Motivated by an awareness of the need to mitigate emissions, and/or restore biodiversity and/or minimize resource repletion, key actors in all cases initiated innovations that addressed these

¹² .<http://forumcorticos.blogspot.co.uk/>

ecological challenges. From the more rural cases where soils were restored, to the use of appropriate technologies to benefit poorer communities, to the hi-tech solutions offered in Songdo, what is clear is that experimentation with a wide range of technologies is taking place across many different contexts.

As more is learnt from these experiments, so improvements will be made and applications on scale will become more likely. Diffusion from centres of (often unrelated) niche innovations is how new technologies in the past have spread until they become the new dominant approach. As the social and economic costs of unsustainable resource use mount, so more niche innovations are likely to spread. Many more niche innovations like the ones discussed have already emerged, but they must still coalesce into alternative socio-technical regimes.

Adaptive Leadership

As far as the existence of adaptive leadership capabilities is concerned, from the evidence available it seems like leadership through partnerships is a common theme across all these cases. This, of course, is unsurprising. Innovation often means that the required knowledge and capacity required to bring about an innovation rarely exists entirely within a single institution, especially if a particular disciplinary set (e.g. engineering) is dominant. Facilitating inter-institutional and inter-disciplinary cooperation is notoriously challenging which inevitably creates an opportunity space for those with the capabilities to do this kind of work. The key capability relates to being able to distinguish between technical and adaptive challenges: the former can be dealt with by replicating tried and tested approaches; the latter requires the empowerment of the relevant affected and/or involved actors to figure out solutions via discursive processes. The difficulties are greater in environments that involve poor people with limited education who may be suspicious of professionals or educated leaders.

Trust-building, no matter the context, is often key because trust allows for a diversity of inputs and greater defense of the end result. Anecdotal and some documented evidence from some of the cases suggests that trust ebbs and flows over time as the project expands, leaders move on, new institutions get built, new actors enter the fray and the wider policy and market conditions change. What matters is the capacity to manage this dynamic.

Institutional Arrangements

The diverse institutional arrangements evident across all the cases makes it impossible to claim that one or other form of private, public or civil society-based mode of organisation is most suitable for promoting eco-cultural innovations, especially within the urban context. Nor is it as simple as saying that private sector organisations only drive more up-market developments (like Songdo and Bangalore's green gated communities) – they also played key roles in the Lagos BRT, Sekem and even the Dajopeng initiative. In all these cases, however, working relations of some kind with state agencies and/or NGOs were necessary. The success of the Lagos BRT, for example, was because so much effort was made securing support from trade unions and communities.

The key role NGOs play as facilitators of niche innovations is reflected in the majority of cases reviewed. This is often because they can access grant funding or secure policy protection – both of which create spaces that are relatively protected from market pressures and political interference

for a period of time – a key condition for allowing innovations to mature. However, in quite a few cases the NGOs involved were either international NGOs or local NGOs who had accessed international donor aid funding (e.g. Western Himalayas, Odisha and Lilongwe) or else they were community-based non-profits mixing together local resources and global funds (e.g. Auroville, Hivre Bazar).

It is noticeable that state agencies rarely initiate and lead eco-cultural innovations. However, they can play a key enabling and supportive role. In the Da Ping, Lagos BRT and Orangi Pilot Project cases, the state has played a critical role in the enabling and funding of the projects. The changing nature of the role of the state as political dynamics change is clearly reflected in the Billings Dam case. But the capacity for initiating innovations in all cases lay outside the state.

Behaviour and Values

Although very little information is available from the cases reviewed about behaviour and values, it is significant that it is possible to use the same category to describe initiatives that focus on the needs of richer communities (e.g. Songdo, Bagalore's green gated communities and Ecoovila) and the needs of poorer communities (e.g. Lilongwe, Odisha, Ecobarrio). Some, of course, are quite mixed, such as Auroville, Gaviotas, Picaranga, Da Ping and Lynedoch (discussed in a separate chapter). It therefore follows that it is not possible to assume that the building of ecocultures is only of interest to – and affordable by – the middle class; or alternatively that an ecocultural commitment is only valid if it focuses on the needs of the poor. What is very clear, however, is that there is effectively no room for traditional urban consumer cultures that combine a detachment from nature with conspicuous individualised consumption and high levels of waste. Even in Songdo, elite green consumption is coupled to some form of reconnection to nature via green landscaping. However, admittedly, Songdo cannot in any way be regarded as a model for the rest of the world for the simple reason that the level of resource consumption per capita in Songdo (and possibly also Bangalore's green gated communities) remains unsustainable from a global perspective. By contrast, the struggle by Brazilians for the Billings Dam was clearly at certain times a multi-class struggle not only to preserve a key natural resource, but it also helped shape a set of ecocultural identities. While ecocultural behaviours and values could possibly emerge from co-location within designed 'green urbanism' developments, the role struggle plays in shaping such identities (especially if they are multi-class identities) should not be underestimated.

Intolerance of Poverty Finally, the number and diversity of ecocultural assemblages that explicitly focus on the needs of the poor suggests that social movements and anti-poverty programmes may have much to learn from cases like the ones reviewed here. Significantly, these cases reveal that ecologically designed solutions may not only produce a more affordable better quality outcome, they also seem to offer communities an opportunity to become better organised in order to realise the full benefits of, for example, a locally provided waste recycling or shared renewable energy system.

10 Conclusion

The primary aim of this chapter was to demonstrate that there are a wide range of emergent ecocultural assemblages within and outside the city-regions of the global South. Some of the more mature initiatives are located outside formal city boundaries where they *resist disconnections* from nature driven by the agro-industrialisation of the countryside and the biomass demands of the expanding city-regions; while the *green urbanism* initiatives are top down technocratic interventions that reconfigure urban infrastructures and the design of the built environment to achieve more sustainable outcomes. The initiatives described as examples of *liveable urbanism* are profoundly urban responses, most of them directly concerned with the livelihoods and well-being of the quiet encroachments of the urban poor.

In conclusion, now that the majority of the world's population lives in cities as the second urbanization proceeds into its final phases, it has become increasingly clear that it will not be possible to design and build cities using the same resource and energy intensive approaches that were formulated during the first urbanization wave. The range of cases discussed in this chapter point to the diverse responses that can be expected as city-regions expand their reach, transforming everything across increasingly stressed local-global hinterlands. All previous urban trends that became dominant started in small marginal experiments initiated by visionaries. The ecocultural assemblages discussed in this chapter are no different.

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