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Informal urbanism and complex adaptive assemblage

Informal urbanism, from informal settlements to economies and street markets, is integral to cities of the global South – economically, socially, environmentally and aesthetically. This paper seeks to unfold and re-think this informal/formal conception using two interconnected theoretical frameworks. First is assemblage theory derived from the work of Deleuze and Guattari, in which a series of twofold concepts such as rhizomic/tree and smooth/striated resonate with the informal/formal construct. Second is theory on complex adaptive systems, in which dynamic and unpredictable patterns of self-organisation emerge with certain levels of resilience or vulnerability. These approaches are drawn together into the concept of a complex adaptive assemblage, illustrated with brief snapshots of urban informality drawn from Southeast Asian cities. The challenge is to develop multi-disciplinary, multi-scalar methodologies to explore the ways in which informality is linked to squatting, corruption and poverty on the one hand, and to growth, productivity and creativity on the other.

Keywords: informality, resilience, assemblage, urbanism, planning

I want to start with two images of cities at very different scales. Figure 1 was taken in Bangkok a few years ago. Although the sewing machine is old, we all know that this pedal-powered machine has stood the test of time – mobile, sustainable, adaptable. We can also read into this image that a corporation formally owns or rents the modern building and that this use of the sidewalk is informal (although there may be some money changing hands). This may be, for some, simply an image of poverty or underdevelopment, but it is much more one of entrepreneurial flexibility, adaptation and creativity.

Figure 2 shows this formal/informal juxtaposition at a larger scale, where an informal settlement lines the coast of Colaba in Mumbai with the formal city on higher ground. Again it is possible to read this as simply poverty and underdevelopment, or even as a development opportunity. Yet it is now very clear that such settlements are functionally integrated parts of many cities and cannot simply be erased without moving the informality somewhere else. Informal settlements have been the most pervasive single form of new urban development over the past half century, housing around a quarter of the global urban population (UN-Habitat, 2006). Understanding the complexity and resilience of informal urbanism is one of

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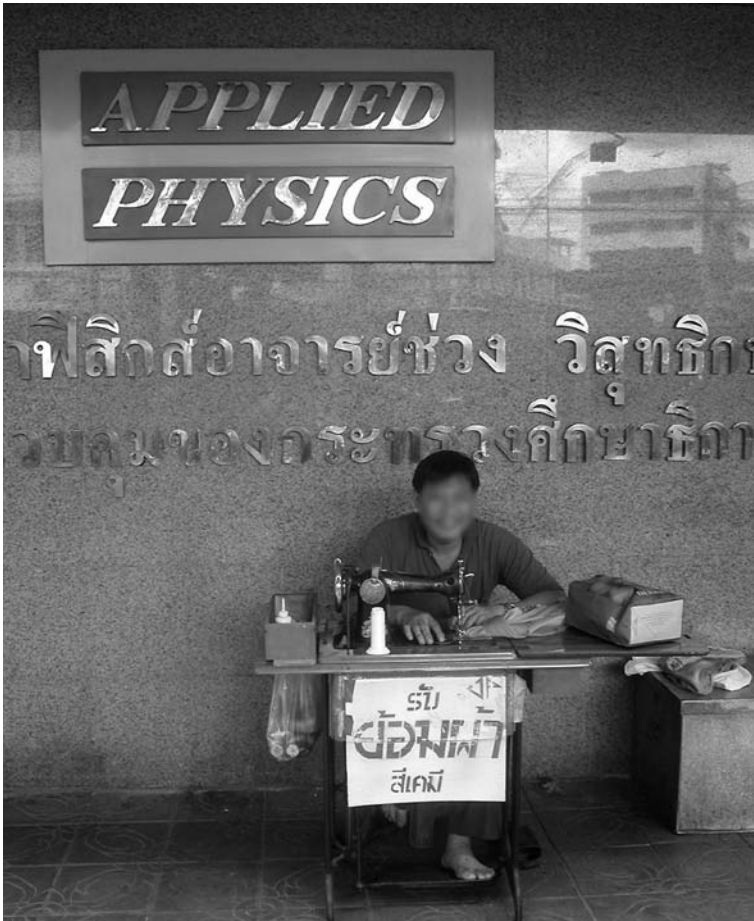
Figure 1 Bangkok
Source: Photograph by the author

the great urban challenges of our time.[1]

The concept of the informal sector originally comes from economics, where it describes that part of the economy that is not captured by economic measures – informal markets, domestic production and so on. The informal and formal sectors are not separate, both are always present with reciprocal relations in all economies. In urban terms, while cities may be more or less formal in character, all cities embody a mix of formal and informal processes. At a smaller scale, while certain districts

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1   It may be relevant to add that this photo was taken at dusk on 26 November 2008, a couple of hours before a team of heavily armed men in rubber boats slipped into Mumbai through this settlement. The informal settlers informed the police, who took no notice.

are identifiable as informal settlements, these also embody a formal/informal mix. Urban informality is not synonymous with slums or squatting. The terms 'squatter' and 'slum' are often seen as more problematic and negative words, defined in terms of what they lack: a squatter lacks land tenure; a slum variously lacks space, durability, water and sanitation. 'Informality' also implies a lack of formal control over planning, design and construction, yet it is the twofold concept of informal/formal, rather than any discrete conception of informality, that becomes the fertile framework for understanding and re-thinking development issues. My concerns, from a background in urban design, are mostly with the ways in which urban informality plays out at the level of everyday urban life with a focus on informal morphologies – the forms of informality (Dovey, 2011). While there are many highly insightful studies of both informal settlements and urban informality in general (Davis, 2006; Neuwirth, 2006; Huchzermeyer and Karam, 2006; Roy and Alsayyad, 2004), the complexities of informality remain under-researched and under-theorised at micro-spatial scales (Soliman, 2010). A range of writers from Turner (1976) to Brugman (2009) and Brand (2009) onwards have embraced the productivity of informal urbanism, yet we do not have any well-developed theories of how such urbanism works. The informal is often rendered invisible to the gaze of the formal city (Shatkin, 2004) and the streets of informal settlements do not appear on maps.

The relations between formality and informality can be seen in the historical sense as one in which informality precedes formality. The traditional village and the medieval city have an urban morphology produced informally by micro-adaptation over time. It is well to remember that the medieval cores of many European cities

Figure 2 Mumbai
Source: Photograph by the author

that now operate as brands for global tourism are the upgraded remnants of informal settlements. Yet there is also the quite contrary understanding where the formal city comes first and informality is a practice of infiltration within the formal framework – what Bayat (1997) calls the 'quiet encroachment of the ordinary' within the interstices of the formal. In this sense informality is defined as those practices that operate outside the control of the state. Yet it does not follow that informality can be construed simply as the other to the formal city, nor is it easily identified with underdevelopment, illegality or poverty. Many of the most developed cities are infused with high levels of informality in some sectors of the city and some of these are the more productive sectors – particularly what is known as the creative economy and creative clusters (Brugman, 2009). To portray informality as underdevelopment is also to misconstrue it as somehow marginal to the development process. It has long been established by Perlman (1976), among others, just how essential informal settlements have become to the economic development of developing cities – the idea of marginality is a dangerous myth. Informal settlements have been the most pervasive form of new urban development globally over the past 50 years and most rural to urban migration has been housed in this way.

One of the key tasks in rethinking this informal/formal relation is to overcome the tendency to give priority to the formal as if informality is a response or reaction to formality. In the context of land markets, Marx (2009, 337) has argued that conceptualising informality as simply the derivative 'other' to a dominant formality precludes us from seeing the potency of informality 'in its own terms'. My interest in this regard includes the morphologies and spatialities of informality – the ways in which informal urbanism flourishes in the spatial interstices of the city and produces urban phenomena with a potent impact on the streetscape and urban image.

I want to refer mostly to the two kinds of urban informality introduced in the images: informal practices within public space such as trading, parking, hawking, begging and advertising; and the informal urban morphologies of construction and settlement, whether on public or private land. These forms of urban informality are fundamentally integrated with an informal economy and an informal politics. Informal controls are imposed over informal practices: informal fines, fees and bribes are paid, votes are bought, blind eyes are turned. Informal houses, shops and factories are built and inhabited by informal residents and staff. Informal land tenure and home ownership systems evolve, informal rents are paid, informal electricity and water is tapped. Informal governance operates within the framework of formal governance. The task of understanding and re-thinking this informal/formal framework is a primary intellectual challenge for development studies, urban studies, urban design, architecture and urban planning. It is a challenge for cities of the global South and North, East and West. This challenge is multi-disciplinary and multi-scale – we cannot address it through the particular disciplines of sociology, economics, urban planning,

geography or architecture. It requires approaches and concepts that can incorporate the dynamism of urban change with a detailed understanding of urban morphology and representation. In this regard I want to propose two complementary theoretical frameworks.

Assemblage

The first of these is 'assemblage' theory, as developed particularly by DeLanda (2006) based on the book *A Thousand Plateaus* by Deleuze and Guattari (1987). The term 'assemblage' here is a translation of the French *agencement*, which is akin to a 'layout', 'arrangement' or 'alignment' – it suggests at once a dynamic process and a diagrammatic spatiality. I have suggested elsewhere (Dovey, 2010) that assemblage is a useful way of re-thinking theories of 'place' in terms of process, identity formation and becoming, and McFarlane (forthcoming) suggests something similar for cities.[2]

An assemblage is a whole that is formed from the interconnectivity and flows between constituent parts – a socio-spatial cluster of interconnections between parts wherein the identities and functions of parts and wholes emerge from the flows among them. It is not a systematic set of pre-determined parts that are organised to work in a particular way, yet it is 'a whole of some sort that expresses some identity and claims a territory' (Wise, 2005, 77). The assemblage is at once material and representational and defies any reduction to essence, to textual analysis or to materiality. To take an example at the urban design scale, a street is not a thing or a collection of things. The buildings, houses, shops, signs, cops, shoppers, cars, hawkers, rules, sidewalks, goods, trolleys, etc. all come together to become the street, but it is the assembled connections among them that are crucial – the relations of buildings to sidewalk to roadway; the flows of traffic, people and goods; the interconnections of public to private space, and of the street to the city. An assemblage is dynamic – it is the flows of life, traffic, goods and money that give the street its intensity and its emergent sense of place. From this view all cities and parts of cities are assemblages.

A key dimension of assemblage thinking is an axis of territorialisation/deterritorialisation that describes the ways social and spatial boundaries are inscribed and erased, the ways identities are formed, expressed and transformed. Territorialisation is a synthetic process wherein wholes form from parts, identities from differences. Territory is a stabilised assemblage, a zone of order, a sense of home that keeps chaos and difference at bay (Deleuze and Guattari, 1987, 310–12). Territories are often identified by the root *sta*: to stand – the state, statute, statue, establishment or institution. In Deleuzian terms territories are 'striated' spaces in contrast to the instabilities of 'smooth' space. The focus, however, is on the process of territorialisation (invasions

2 The use of the concept of 'assemblage' in the literature is often broader than that deployed here; particularly it encompasses the work of Latour (2006) and actor–network theory (Farias and Bender, 2010).

of urban interstices, construction of houses, inscription of boundaries). Deterritoriali-sation is the movement by which territories are eroded (hawkers are removed, squatter settlements are demolished, nations are invaded). Deterritorialised elements are then recombined into new assemblages through a process of reterritorialisation.

Assemblage theory is a useful framework for understanding the relationship of formal to informal practices in the city because a range of twofold concepts that resonate with informality/formality are deployed in *A Thousand Plateaus* as a means to understand assemblages – rhizome/tree, smooth/striated, supple/rigid, network/hierarchy, minor/major (Deleuze and Guattari, 1987; Dovey, 2010, 22–24). Informal practices are rhizomic in contrast with the tree-like strictures of urban regulation and planning; they involve minor adaptations and tactics in contrast to the major strate-gies of master planning; they involve informal network connectivity in contrast to hierarchical control. These twofold pairs form a large part of the conceptual toolkit in the work of Deleuze and Guattari, pairs of binary concepts defined in terms of each other where the focus is on the dynamism between them. They cannot be seen as separate nor as dialectic relations but rather as overlapping and resonating together in assemblages. Assemblage theory is a theory of socio-spatial change, a theory of societies that is also a theory of cities (DeLanda, 2006). Importantly for the task of understanding urban informality, it incorporates informality as fundamental to under-standing the productivity of cities and turns away from any notion of informality as an aberration or problem that can or should be erased.

Assemblage theory is essentially a form of philosophy; it involves a huge amount of jargon and requires a good knowledge of philosophy and social theory in order to even understand it. To apply such a conceptual framework to urban research is a further task. With this in mind (and at the risk of multiplying this complexity), I want to suggest that assemblage theory can be usefully linked to the cluster of theories on complex adaptive systems and resilience.

Complex adaptive systems

Theories of complex adaptive systems are more widely known and used, but with few exceptions (Rihani, 2002; Baser and Morgan, 2008) rarely applied within devel-opment studies or informal settlements. This is work that grows out of a mix of theories of cybernetics, chaos, complexity and resilience (Gunderson and Holling, 2002; Walker and Salt, 2006; Levin, 1999). A primary linkage between assemblage and complex adaptive systems is the work of Bateson (2000, orig. 1972), who was a major figure in early cybernetics and a key source for assemblage theory.[3] Complex adaptive systems theory is an attempt to understand the dynamics of complex systems where

3   The concept of the 'plateau' in A Thousand Plateaus is derived from Bateson's work where plateaus are levels of provisional stability established in particular cultural contexts.

the behaviour of the system depends on unpredictable interactions between parts. Whereas a car or mobile phone is a complicated system, it is not complex in this sense because its parts work together in a generally predictable manner. A complex system is one where the parts are independent (unpredictable) and interdependent – the parts adapt to each other in relatively unpredictable ways, they organise themselves or self-organise. Once a car or mobile phone is plugged into an urban network it becomes part of a complex adaptive system that includes both city and people. The detailed outcomes of such a system cannot be determined in advance but rather 'emerge' from practices of adaptation and self-organisation. Over time a regime with certain characteristics emerges and settles down. At an urban scale of the city, district, neighbourhood or street, the emergent properties of the urban system have something in common with place identity and urban character. This emergent regime is always a mix of formal and informal properties and practices. Unpredictability is in part a result of the fact that minor changes in one part or level of the system can have pervasive effects throughout the syste,; and major plans for wholesale transformation can be stymied by deep-seated resilience.

The 'resilience' of a complex adaptive system is defined as its capacity to adapt to change without slipping into a new 'regime' or 'identity' (Walker and Salt, 2006). Resilience in this sense is not a static quality but a dynamic capacity to move between a range of adaptive states without crossing a threshold of no return. Yet beyond such a threshold change can escalate until the system settles into a new regime. There are many urban examples, including Jacobs's (1965) theory of the self-destruction of diversity where escalating feedback cycles can destroy the social and formal mix of productive urban neighbourhoods. Jacobs was railing against the monofunctional, top-down, tree-like thinking of modernist master planning; and in pointing out the importance of sidewalk life, pedestrian connectivity, diversity etc. she was valorising urban informality, complexity and adaptation as integral parts of an urban assemblage. Informal settlements and informal street markets often settle into forms of resilient yet dynamic stability. The phrase 'informal settlement' might more aptly be described as a negotiated settlement between informal and formal forces.

Resilience theory offers a way of understanding how such processes might be managed with a focus on certain 'key slow variables' that have potential to push the system across a threshold into a new regime or identity. In urban terms such key slow variables may include land and rental value, economic vitality, gentrification, traffic speed and volume, building height and density, social mix, crime and public transport. For urban informality these variables may include levels and kinds of democratic governance and political will. As any of these variables changes incrementally, other parts of the system adapt. As land rent increases so does the pressure to displace informal urban practices. As informal settlements are demolished displaced residents emerge elsewhere (Durand-Lasserve, 2006). As informal settlers are granted formal

tenure they may adapt by selling and moving to another informal settlement. If street hawkers are moved along or organised into formalised trading zones they may emerge in another part of the network. As increased traffic renders sidewalk trading and social exchange impossible, the trading and the exchange adapts.

The characteristics of a system that can increase its resilience to regime change are mostly linked to diversity and redundancy. The diversity of the system involves a diversity of possible adaptations to change. Redundancy is the capacity of the system to perform in many different ways – to adapt to change by moving forms, functions and flows around, different parts can perform a multiplicity of functions. The tendency to strive for optimum efficiency of the system – often the goal of formal planning – can reduce its resilience because it leads to a loss of redundancy. There is an important link here to the famed essay on the slums of Naples by Benjamin and Lacis, in which they described a quality of urban 'porosity' characterised by inter-penetrations of public/private, interior/exterior, old/new, sacred/profane, work/play and permanent/transient: '[O]ne can scarcely discern where building is still in progress and where dilapidation has already set in. For nothing is concluded. Porosity results […] above all from the passion for improvisation' (1978, 168). This quality of porosity is a form of productive resilience.

Complex-adaptive systems are conceived as enmeshed in cycles of change at multiple scales with four main phases of growth, conservation, release and re-organisation (Walker and Salt, 2006; Gunderson and Holling, 2002). This cycle draws from the economic theory of creative destruction originally derived from Schumpeter and particularly influential in Marxist geography (Harvey, 1982) – capital produces cycles of creative innovation that destroys existing structures and territories (cities, industries, neighbourhoods) in order to create new ones. 'Growth' involves a major phase of development – the initial informal invasion of unused interstitial urban land may be a good example. The 'conservation' phase comes when these gains are significant enough to be conserved and protected: more permanent buildings are constructed, political liaisons established for protection, infrastructure is upgraded and the system becomes more or less resilient to change. This is a formalisation process that can lead to stagnancy and loss of adaptability. The 'release' phase (if it comes) is that brief period when the forces for change overwhelm the place and it crosses a threshold and slips into a new regime. In the case of the informal settlement this may be when the settlement is demolished and residents are displaced. Re-organisation is a creative period when a new order begins to appear. This may be the formal city that replaces the informal, or it may be the way the residents are either re-housed or re-house themselves. The settlement may also spiral downwards and stabilise as a dangerous and resilient slum, or it may be incrementally upgraded towards a more formal neighbourhood.

A key issue lies in how to define the 'system'. For Gunderson and Holling (2002) all such systems and their cycles of change are enmeshed in multi-scalar hierarchies

called 'panarchies' where every system becomes part of systems at higher scales.[4] These are hierarchies of scale rather than control since all systems are mutually inter-active. At the smallest scale a street trader operates within the space/time system of a particular street or network with its available locations, codes, fees, customers and prices. This system can stabilise but it can also cycle through phases of growth, conservation, removal and re-organisation. This is the scale of public/private inter-faces and face-to-face contact. In informal settlements this is the scale of room-by-room accretions and their social and access networks. At a larger scale we find the broader patterns of street and traffic networks and the interface between the formal and informal city. The resilience of the system and its emergent properties can only be understood through a multi-scalar approach. Systems can adapt to change by initiating or preventing change at lower and higher levels of the system. Demolition programs may be initiated at the level of the state; resistance may include sitting in front of a bulldozer, lobbying state politicians and organising a transnational response through websites.

While I find such complex adaptive systems theory to be a useful framework for understanding urban informality in these ways, I also find the term 'system' rather limited. It carries connotations of predictability and systematic control as in the work of Habermas (1984), in which the 'system' is identified with the top-down controls of the state and the market and is conceived in opposition to the lifeworld. Such conno-tations would leave us identifying the system with formality, yet the complex adaptive processes that so characterise urban development are anything but systematic in these senses. I suggest that the 'complex adaptive assemblage' is a more accurate and useful label. The synergies of formal and informal practices, the emergent character that is often identified with Asian cities, the intensity and proliferation of streetlife, signage and streetfood, is fundamentally about the ways the informal/formal has been negoti-ated. Informal settlements on the other hand are a global morphology produced (to oversimplify) by sustained rural to urban migration under conditions of a weak state. There is nothing to be defended in the condition of overcrowded and unsafe housing with insecure tenure. Yet it is important to distinguish the informality from the poverty in which it is enmeshed. High levels of informality are fundamental to the ways in which these complex adaptive assemblages work, and a better understanding of them in terms of dynamic processes of urban assemblage is fundamental to any potential for upgrading.

Assemblage, like place, is a multi-scalar phenomenon that can be understood at the level of the building, street, neighbourhood, district and city. Assemblage thinking shares with complex adaptive systems theory the desire to understand such multi-scale relations without reducing the micro-scale to epiphenomena of larger-scale processes

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4   The word 'panarchy' combines the Greek god of fields and fertility with the idea of an all encompassing connec-tivity and a certain disorder.

and structures. Both frameworks oppose any privileging of change from above and focus on understanding the relations and dynamics between scales, particularly the ways that many small-scale adaptations can produce synergistic emergent effects at higher levels. While the higher levels of assemblage may be identified with the state and institutions of governance, they cannot be seen as separate assemblages. While an informal settlement can be identified and territorialized as a discrete assemblage (as a noun), it is assembled (as a verb) through its multi-scale connections with the political economy of city, nation and globe. Such multi-scalar thinking is inherently interdisciplinary and requires that we think across the fields of geography, urban planning, urban design, landscape and architecture – overturning any hegemony between fields. I want to move now to discuss a few brief examples from Southeast Asian cities.

Ban Panthom

Ban Panthom is a dense, diverse and complex inner-urban neighbourhood of Bangkok that is subject to continuous pressure for change arising from traffic, modernisation, commerce, tourism and rural-to-urban migration (Dovey, 2010).[5] One of the key characteristics is its instability: the identity of the place is defined by its slippages, by the fluidity of forms, practices and meanings. A variety of proprietors, residents, hawkers and others use and appropriate public space for a broad range of functions, desires and practices (see Figure 3). The use and meaning of public space are subject to local and global flows of time and space with shifting meanings of private/public and legal/illegal. This 'slipperiness' is linked to intense demand for the use of space, but also to negotiable forms of governance and urban planning. This is a place where functional categories blur as hotels become housing and brothels, public space becomes domesticated and private space becomes public; where a clinic or a car workshop during the day becomes a restaurant at night; where a hawker trolley morphs into a permanent renovation. The urban place identity emerges as a dynamic tension between rhizomic practices of everyday life and hierarchical systems of spatial control; between informal and formal processes. Everywhere there are striations, territories, rules and regulations, and everywhere they are transgressed. Yet this is a home and community for a rich mix of people and a vast range of productive leisure and consumption activities. The levels of informality are not uniform, increasing with night and depth within the labyrinthine spatial structure. It is often the deeper layers of this urban assemblage that are the most livable, most resilient and least legal.

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5   This work is based on the PhD fieldwork of Kasama Polakit (Polakit, 2006).

Figure 3 Ban Panthom, Bangkok
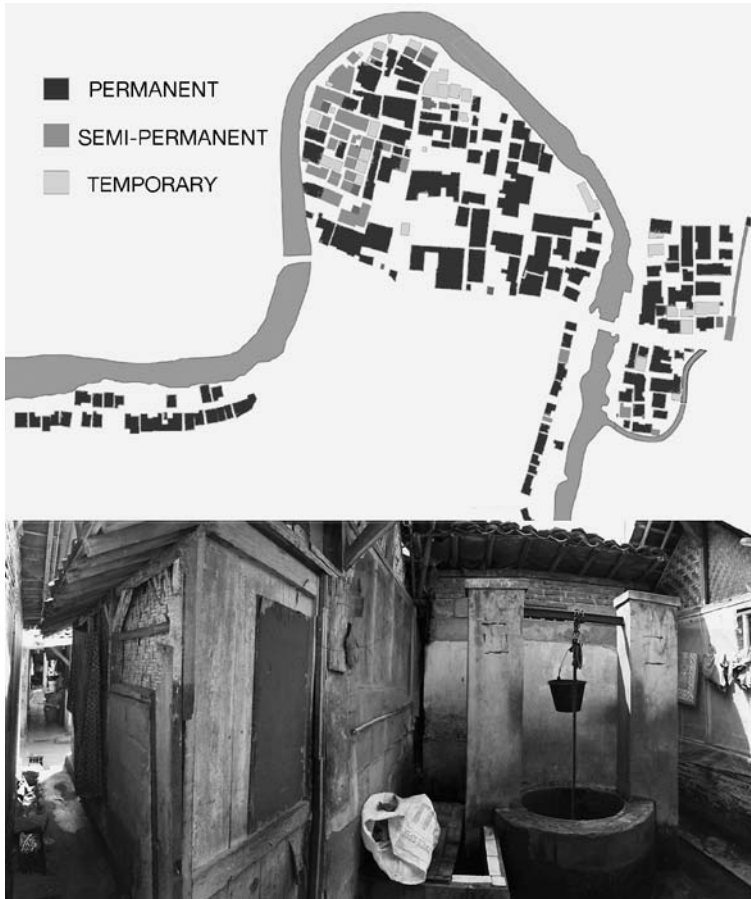*Source:* Photograph by the author

Figure 4 Sidomulyo, Yogyakarta
Source: Photograph by the author and map by Wiryono Raharjo (Raharjo, 2010)

Sidomulyo

The second example is a study of an informal settlement in Yogyakarta (Dovey, 2010).[6]
Here the complexities are rich and the adaptive transformations are dynamic. Forms of
tenure within this settlement range from owner-built squatter housing, to owner-built
on rented land, to full house/land tenure and house/land rental. In no sense can it be
construed as a squatter settlement, nor is it a simple slum, since internal densities and
construction standards range from slums to middle-class housing. Parts of the settle-
ments are enmeshed in practices of speculation, upgrading and land encroachment,

6   This work is based on 2007 fieldwork conducted with a group of University of Melbourne and Universitas Islam
    Indonesia students, later extended as part of the PhD dissertation of Wiryono Raharjo (Raharjo, 2010)

while other parts become stuck in poverty traps. The worst slums and the least secure tenure can be on formally owned but rented land, and the greatest improvements in tenure and housing quality are found in new encroachments. The settlement has proven highly adaptive – to opportunities for upgrading, political support and new settlements along the riverbank. Complex processes of land speculation take place without formal ownership. The state cannot easily remove or upgrade such a settlement, many parts of which are on private land, and they cannot legalise the squatting without stimulating further encroachments. The result is a complex adaptive assemblage that becomes resilient to major change. For those who want informal settlements erased or quickly upgraded into formal settlements this can be frustrating. For those who live there this is the way everyday life is sustained. Informality is the means by which these people gain a house and (eventually) tenure.

Maeklong market

Next I want to look at the Maeklong seafood and vegetable market south of Bangkok. This is a permeable field of temporary market stalls sheltered by umbrellas and awnings, similar in many ways to such public markets anywhere else in the world. This is a complex adaptive assemblage that changes with the time of day and the season, but it also adapts in another way because part of the market is constructed on top of an old railway line. Eight times a day when the train comes through, the market stalls are wheeled or pulled back from the line for a couple of minutes while the train passes and then the market resumes within a minute or so of the train passing. This fascinating piece of adaptive urbanism, best viewed on video, has become a popular internet spectacle which can be found easily by Googling 'Maeklong market'. This is no makeshift or temporary operation and has worked this way for about 30 years. It is a formal operation in the sense that the train timetable is pre-determined and everybody knows what will happen and when; but it is also informal urbanism in the sense that it is self-organised.[7] An informal tower has been built as a lookout – the message passes down the line when the train is coming and everyone adapts.

It is important to understand that the market vendors are not squatters, as the railway authority rents out the train line when it is not needed for trains. It does not, however, appear to be resilient and the change comes from two key variables. The first is increasing tourism from those who have seen this spectacle on the Internet and have come to see it for themselves. There is no safe place from which to view it and any attempt to meet the tourist market would severely impact on the food market. The second force for change is that the railway authority plans to upgrade the rail line and connect it into the national network – the very phenomenon that attracts

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7   I want to acknowledge the collaboration of Sirima Nasongkhla in the investigations of this market.

Figure 5 Maeklong Market, Bangkok
Source: Photograph by the author

global tourism has emerged from its disconnection from the large assemblage and the consequent low levels of use. Any increase in frequency of trains would render use of the tracks less viable. In the cases of tourism and transport, change at a higher level of the assemblage produces new adaptations at the lower level.

Discussion

I want to conclude this paper with a brief discussion of some theoretical, methodological and practical questions that are raised by the prospect of applying the intellectual and conceptual toolkit of complex adaptive assemblage to issues of urban informality. This is not systems thinking as we have known it, nor is it simply deconstruction, aesthetic critique, morphological analysis or political economy. Assemblage thinking is multi-disciplinary, multi-scalar and anti-reductionist; it will resist explanations that simply reduce the small to the large or the local to the global. The complexity and adaptability of the city cannot be understood from singular points of view nor reduced to sociological, spatial, architectural, urban planning or geographical analysis. From an urban design and urban studies perspective such thinking is not new. It is now many years since Alexander (1996, orig. 1965) wrote the seminal paper 'A City Is Not a Tree' – a fundamental insight that continues to inform and transform urban thinking after nearly half a century. Key to this insight was that informal lateral connections between parts are crucial to the ways in which all cities work. Likewise, the seminal urban writings of Jacobs (1965) are replete with the valorisation of informal connections at every scale from 'eyes on the street' to the productivity and creativity of larger urban economies. Jacobs and Alexander might have been describing a complex adaptive assemblage. So what might such a framework mean for the ways in which we approach urban informality in terms of re-thinking the city, research methodology and policy development?

First, the idea of assemblage can help to re-think the formal/informal framework. It is clear just how intermeshed informal and formal processes are in all urban assemblages – even those that may appear highly formal or informal. The informal/formal conception is both fundamental and non-dichotomous – it is a single twofold concept rather than two concepts in opposition. While it often appears that the formal city comes first and the informal insinuates itself into the interstices, this can also be seen the other way around – formal urbanism (urban planning) is what happens to informal urbanism when it is seen as a problem that needs to be fixed. In this regard it is crucial to maintain a distinction between poverty and informality – poverty is a problem and informality is often the means by which poverty is managed by the poor.

Urban informality is too often either demonised as the virus that must be removed or romanticised as the plight of the poor. There is nothing essentially good or bad about urban informality; the crucial research questions lie in the myriad ways in which the formal and informal intersect. Much crime, violence and corruption is informal and the informal sector can also operate in synergies with state and market oppression (Roy, 2004, 159). The informal economy can drain the tax base necessary for effective regime change at a higher level. To understand urban assemblages, to design or regulate effectively within them, requires a complex understanding of the factors

that drive regime change. We may wish to limit the forces for change (the creative destruction of the market) or we may wish to drive the system into a new and better regime (upgrading). There is, likewise, nothing essentially good about urban resilience – corruption and poverty can be highly resilient to change. The concept of resilience has currency across the fields of social, economic and environmental sustainability and there are some interesting intersections among them. Informal settlements have arguably the lowest carbon footprints of any form of urbanism on the planet – they often utilise recycled materials at high densities with low-rise morphologies, close to employment with very low car dependence. I am not suggesting all such settlements are sustainable, but there may be a great deal we can learn from informal urbanism in this regard. Poverty and climate change are clearly the two great moral and political challenges of the era and, as the Copenhagen summit of 2009 made clear, they cannot be addressed separately.

Since assemblages are defined first and foremost by connections and flows, the vertical connections between scales (the connections of global tourism to the spectacle of informality, the linkages between body-house-neighbourhood-city) become highly significant. A particular focus here is on the ways that change at one level leads to adaptation at another. Yet since assemblage has no boundaries, is the larger scale a different assemblage and if so where is the distinction between them? I have no clear answer to these questions except to say that assemblage is largely about territorialisation and in urban terms can be usefully seen as partially synonymous with 'place' (Dovey, 2010). One might argue that this term is equally problematic, but it shares the interdisciplinarity and multi-scalar range of assemblage, and it has the added benefit of being an everyday term that can link urban phenomenology to regimes of place management, place marketing and place identity. Lefebvre (1991, 26) long ago pointed out the curious condition that urban space is both a means of production and a product of it. Informal urbanism is a mode of production of urban space that is also its product as the emergent place assemblage.

So how does one research complex adaptive assemblages? Assemblage thinking is inherently multiplicitous, implying a multiplicity of methods of analysis at multiple scales and from multidisciplinary perspectives. We need to understand constructions of meaning, productions of space, socio-spatial practices, temporal rhythms, network connectivity, experiences of place and much more. Such approaches may incorporate ethnographic, phenomenological, post-colonial, post-structuralist and post-Marxist theory. Methods may include discourse analysis, interview, observation, spatial syntax analysis, mapping, photography, archival research and many others. My own concerns (with colleagues) include the ways in which the informal/formal connection is assembled and understood within cities of the global South. How does the image of informal settlements impact on the public gaze and as forms of political discourse? How do informal settlements emerge within different urban niches with different

degrees of visibility/invisibility (Dovey, 2011)? How does the morphology of makeshift house types in problematic contexts mesh with political and economic ideals? How do images of informality play out in the field of urban aesthetics and what are the attractions of slum tourism? What transformational strategies are adopted to manage such imagery and how is this mediated by the political economy of place-branding, upgrading and eviction?

While dramatic images of informal settlements often appear on the book covers, research on slums is often aspatial, as if the ways in which they have been designed – the detailed materiality, spatiality, density, amenity and spatial structure – are of interest only to the degree that they affirm the idea of poverty and disadvantage as a prelude to transformation. The forms of urban informality are too easily written off as superficial symptoms of larger socio-political forces. Assemblage thinking involves a non-linear logic where the order of the city emerges unpredictably from the multiplicity – spatial thinking and design thinking can incorporate such non-linear logic. The forms of informality matter to the flows of global tourists seeking out the authentic Thai waterfront or marketplace; they matter to the politicians who want such images ordered, erased or covered; and they matter in more complex ways to local middle classes on elevated freeways, behind walls and in high-rise towers, for whom they are largely invisible or imagined away (and for whom they provide the source of cheap labour).

Finally, what difference might assemblage thinking make to practices of urban planning, governance and upgrading? While upgrading clearly involves formalisation, it also involves informalisation. Some NGOs operate in a twofold manner across the formal/informal divide within and across formal and informal sectors – the informal sector formalises and the formal sector adapts to the realities of informality (Roy, 2009, 160). We need policy that is flexible and adaptive (Swanson and Bhadwal, 2009), that both mirrors and accommodates processes of informality. While there are dangers that flexibility in urban governance can be a cover for corruption and runaway deregulation, it is surely clear that older models of comprehensive master planning will fail. This is the great challenge for the urban planning profession: how to move towards a model that accepts unpredictability and informality without surrender to the ravages of market-led ideology? How to plan for the eradication of poverty in a manner that does not kill the vitality, productivity and adaptability that sustains lives? How to formalise the city without erasing the complexity and adaptability of the assemblage?

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