13 Challenging the eco-city

Residents' perceptions of social sustainability in Tianjin eco-city, China

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Introduction

In this chapter, we make the case for 'humanizing' new-build urban mega-projects such as eco-cities by focusing on urban social sustainability, and on the experiences of new residents in newly-built cities such as Tianjin eco-city. We base our conceptual framework in the context of debates over social sustainability (Dempsey et al. 2011; Vallance et al. 2011; Woodcraft 2015), and argue that there is a need to also focus on the way(s) in which socially sustainable urban environments are constructed, in new urban spaces, through relational networks comprised by interactions between residents, buildings, facilities and specific (e.g. domestic) spaces. In focusing on the *spaces* of urban social sustainability we draw on Jane Jacobs' seminal work on, and critique of, the modern city (Jacobs 1961). Jacobs' work is useful here because of its focus on moving past the plans, blueprints and rational urban visions proposed by master planners, engineers and architects, and towards valuing the role of the rather messier relationality found in the everyday city.

Recent critiques have highlighted the ways in which urban development trajectories are often predicated on visualisations of antecedent urban models that are mainly rooted in a European and American urban context (Robinson 2013; Bunnell 2015). At the same time, an emerging body of literature analyses the prominence of Asian urban models in influencing the construction of new cities in China and beyond (Percival and Waley 2012; Pow 2014) as well as urban change processes (Waley 2016). However, at the same time as Asian urbanism is being seen through less 'EuroAmerican' perspectives (Bunnell 2015), there have been calls to recognise the importance of international planning models in the trend for the construction of new urban areas in Asia, the Gulf and elsewhere: these models are characterised, in many cases, by their anodyne globalness (Rapoport 2015). Thus, our analysis of Tianjin eco-city is conscious of the Chinese and Singaporean context within which the new city was envisioned and built, as well as the wider, global circulation of planning and engineering knowledge and human capital that characterises flagship urban developments worldwide. It is in this context that Jacobs' work becomes useful: after all, Jacobs herself was writing at a time when New York seemed to be influenced, in part at least, by non-American planning models, as seen by her trenchant critique of Le Corbusier.

The chapter is based on interviews, participant observation and documentary research. Twenty interviews were carried out with residents of the eco-city. The interviews were carried out in Mandarin in June and July 2014, and participant observation was carried out over the course of several site visits between 2012 and 2014. The interview

sample was constructed using a snowballing approach: a worker at a community centre within the eco-city was used as a gatekeeper for recruiting residents for participants in the research presented here. It is difficult to assess the sample's representativeness, as there is little available data on the current demographic composition of the eco-city. Nonetheless, one sample characteristic worthy of note is the fact that the majority of the sample was aged 40 or above. This is interesting in that the eco-city's own branding and marketing seems aimed at 'young' professionals and families. However, what could explain the bias towards the over-40s in our sample is the fact that it is difficult to access employed residents as interview participants when most interviews were carried out during the day. This partly justified the use of the gatekeeper, who was asked to provide us with a broadly representative sample of interviewees based on her experience both as a resident of the eco-city, and as a worker in direct contact with eco-city residents. In terms of participant observation, notes were kept during the course of several site visits to the eco-city. Documentary research focused on policy and corporate documents relating to the eco-city project from its inception to 2014.

Tianjin eco-city: from blueprint to lived space

Tianjin eco-city is one of the largest eco-city projects currently under construction. It is a relatively new project: the site for a new, national eco-city was selected by the Chinese government in late 2007, and construction started soon after, in 2008. At a governmental level, the eco-city is a collaborative project jointly owned by the Chinese and Singaporean governments: its official name is the Sino-Singapore Tianjin eco-city (SSTEC). Both governments own 50% of the Sino-Singapore Tianjin eco-city Investment and Development Corporation (SSTECIDC), the consortium organisation charged with the task of developing and eco-city. Partner organisations in the development of the eco-city include the Keppel Group, a Singaporean conglomerate, and property developers from China, Taiwan, Japan and Malaysia.

The site chosen for the construction of Tianjin eco-city was the Tianjin Binhai New Area special economic zone, near the city of Binhai, around 40 km from Tianjin proper. The site was on a former wetland area that had been used for industrial purposes, including the storage of contaminants in effluent ponds. The area was decontaminated as part of the eco-city project, so that the site could be repurposed for urban habitation. This was discursively presented as the successful reclamation of land previously seen as 'waste' land (Caprotti 2015). However, the selection and development of an area not previously zoned for agricultural or urban uses can also be contextualised in the broader landscape of land tenure in China. Chien (2013) has highlighted how this system (based on the implementation of limits on the conversion of agricultural to urban zoning at the level of a province) effectively incentivises municipal governments to convert land which does not fall into either the urban or agricultural category into new cities. Thus, Tianjin eco-city was built on a similarly converted and reclaimed area of land.

Tianjin eco-city has received an increasing amount of attention from both policy-makers and scholars. The World Bank authored a report on the eco-city project in 2009 (Baeumler et al. 2009), and the Bank's Global Environment Facility granted SSTEC a US$6 million development grant in 2010. Scholars from a range of disciplines have investigated the eco-city from a wide variety of angles. Much of the scholarly attention to date has focused on the project's specific aspects and components. This has ranged from analyses of the eco-city's green building standards (Ye et al. 2015), its Key Performance

Indicators (Zhou et al. 2014), policy transfer between Singapore and China (Low et al. 2009; Chien et al. 2015) and the role of the eco-city in China's urban and economic transition (Hu et al. 2015). There is, however, an emergent scholarly strand pointing to the need to critically engage with Tianjin eco-city and its visions, policies and its blind spots. In part, this critical strand is based in wider critiques which have highlighted how, in both the global (de Jong et al. 2015) and Chinese (Xu and Chung 2014; Yu 2014; Shao 2015) context, terms such as 'eco-city', 'low-carbon city' and 'sustainable city' are being used by an increasing range of actors and stakeholders, at the same time as their definition remains vague. More specifically, concerns have been raised as to the place-ment of Chinese eco-urban projects within a wider landscape of urban boosterism and green urban entrepreneurialism (Wu 2012; Pow and Neo 2013). Critical focus is also being increasingly placed on the question of how to interrogate Tianjin eco-city, and other eco-urban projects, not only in terms of their KPIs, stated aims and masterplans, but also in terms of their lived, material realities when these projects are actually built, as is the case with Tianjin eco-city. As Rapoport (2015) has argued, there is a need to move from analyses of blueprints, to analysis of lived spaces. Scholars have therefore started to engage with the 'lived' aspects of Tianjin eco-city, from the experience of domestic spaces to the lived experience of the broader eco-city project by its new resi-dents (Caprotti et al. 2015; Flynn et al. 2016), to the materialities of the production and construction of the eco-city and the attendant inequalities resulting from this (Caprotti 2014a,b, 2015). This focus does much to rebalance the overly technical, planning and policy-oriented range of analyses of the eco-city towards a recognition of the city as lived, relational space. As Hu et al. (2015, 78) have argued:

> In the strong top-down approach that has been adopted in the development of SSTEC, policies and law enforcement are the major drivers of meeting quantitative efficiency targets in the building of the eco-city while the public's requirements and acceptance of the project and its cultural embeddedness have been the last factor to be considered.

Building on this, the success or failure of any eco-city project must be seen in this light, and not simply as a set of characteristics that can be categorised and analysed through what could be termed 'metrics at a distance'. It is at this juncture that we focus our ana-lyses of the experiences of new residents of the eco-city.

Lived experiences of the eco-city: relational spaces

Our analysis of the eco-city is focused on actually existing urban projects such as Tianjin as *lived* spaces. This approach is based on an understanding of the city that is relational and social. Therefore, while the eco-city is clearly an often abstract and idealised space of technological visions, technical processes, and policy and financial discourses and mechanisms, it should also be considered as a space alive with *social* processes. We would furthermore argue that it is the interaction between these different types of spatial pro-cesses that enable researchers to gain a more holistic and in-depth perspective of the city-as-place (Murdoch 2005). This is due to the fact that while plans, metrics and indi-cator systems may provide a systematic analysis of techno-environmental and economic phenomena and trends within the city, urban areas have to be dynamic in order to be alive (Graham and Healey 1999), and their aliveness in turn determines (at least in part)

their success as viable urban projects. The discussion and analysis below frames the contextual treatment of the 'lived spaces' of the eco-city at the juncture of bodies of three bodies of literature: that on sustainable, smart and eco-cities (Joss 2015), and literature on the social dimensions of urban sustainability (Dempsey et al. 2011), including a focus both on urban social sustainability and on insights that can be gleaned from Jane Jacobs' (1961) classic work on renewal in the city. These are the building blocks on which our call for what can be termed a 'humanizing of the city' will be built.

Urban social sustainability and community

Although the concept of social sustainability has been defined in a broad range of ways (Vallance et al. 2011), it is key to outline what urban social sustainability means in the context of our study of Tianjin eco-city. This is because, as Woodcraft (2012) has argued, it is important to be able to move from theoretical and often abstract debates around the meaning(s) ascribed to social sustainability, to an investigation and operationalization of urban social sustainability 'in practice'. Specifically, it is key to analyse how urban social sustainability is interpreted and represented by different actors and stakeholders within the city. In a new urban area such as Tianjin eco-city, this means moving past planning and policy discourses and documents and engaging with the lived, relational experiences of the city by its first residents. Our analysis rests on the understanding of urban social sustainability introduced by Dempsey et al. (2012). This is based on a definition of the concept, and of its place-specific materialisations, as dependent on the twin factors of social equity on the one hand, and sustainability of community on the other. Social equity refers to 'fair distribution of resources and an avoidance of exclusionary practices, allowing all residents to participate fully in society, socially, economically and politically' (Dempsey et al. 2012, 94). In the case of Tianjin eco-city, this signifies assessing the resources made available to citizens, as well as the existence of any exclusionary spaces, technologies, policies or practices that may impact on the new city. Sustainability of community, on the other hand, refers to the ability of the local urban community to sustain and reproduce itself, and to function to a level acceptable by members of the community (Yiftachel and Hedgcock 1993; Bramley and Power 2009; Dempsey et al. 2011). Sustainability of community involves a range of practices and processes, including the level of participation in local institutions, the rapidity of population turnover, trust and pride and identity-formation around the urban community.

Scale is a determinant in assessments of urban social sustainability. This is because it is key to define the area (both geographically and in network and relational terms) under investigation. This is increasingly important not only in the case of new cities (which are easier to delimitate), but also where specific and smaller-scale urban interventions are planned or in progress. As Joss (2011) notes in his study of eco-city planning and practice, it is key to remain aware of the typology of 'new' urban areas, from new-build cities to urban retrofits and in between. Recent urban development projects in a range of geographical settings have included urban social sustainability in their plans in varying degrees of detail. Experiments in integrating social sustainability measures within newly planned urban areas have emerged, including urban experiments carried out by development corporations in the UK with regards to new housing projects (Woodcraft 2015). Clearly, the scale of a mega-project such as Tianjin eco-city is far greater than most housing developments in the UK. Nonetheless, the eco-city is composed of several different parcels of land given over to specific property developers to build on,

and therefore the social sustainability frameworks discussed in the literature could be seen as applicable on a block-by-block basis in the case of large-scale urban projects such as Tianjin eco-city. Nonetheless, in the context of hyper-rapid urban development in China, the lack of integration of social dimensions into the planning of new communities has been highlighted as a key concern, although planning practice in this regard is geographically variegated (Chan and Siu 2015). In the case of Tianjin eco-city, for example, a range of social Key Performance Indicators is used to evaluate the performance of the new city. Although some of these indicators are vague, and although they are less detailed than the economic and environmental indicators used in the eco-city, they point to a need to fashion new cities that work not only in economic and investment terms, but as *places* where urban life can happen and flourish. It is in this context that the discussion turns to Jane Jacobs' classic work on urban public space for insights on how to think about new urban spaces in Tianjin eco-city.

Jacobs and the lived spaces of the city

In our analysis of Tianjin eco-city, we focus on the experiences of the new city's first residents. In so doing, we draw on the work of urban scholar Jane Jacobs, and in particular on her conceptualisations of *lived* urban spaces, and her analysis of the consequences of urban renewal and master planning on the city's social fabric. In her seminal *The Death and Life of Great American Cities* Jacobs (1961) was not writing about new-build eco-cities. However, she was in large part concerned with analysing the impacts of new modernist developments in cities like New York: planned along rationalist lines by engineers, planning elites and city authorities. Her critique of the lack of attention paid to what can today be termed urban social sustainability begins with a fine analysis of the dehumanising impact that blueprints for new urban areas can have on the city:

> [T]he principles of sorting out – and of bringing order by repression of all plans but the planners' – have been easily extended to all manner of city functions, until today a land-use master plan for a big city is largely a matter of proposed placement, often in relation to transportation, of many series of decontaminated sortings.
>
> (Jacobs 1961, 25)

This critical emphasis can be applied to the new spaces and buildings which form the engineered heart of a new project such as Tianjin eco-city. Nonetheless, we aim to avoid the facile critical pathway of holding up the eco-city as a straw man to be brought low. Our concern is rather with recognising, first, that the eco-city is in a process of materialisation. While critiquing this process, and its blueprinted foundations, is important, it is also key to engage with the question of how new city spaces can be envisioned so as to be more sensitive to urban social sustainability and to the needs of the urban community. Indeed, Jacobs' key concern was to move past critique and investigate the possibilities of refocusing on the 'ordinary city' or the 'workaday city', the beating heart of urban life that is often absent from the clean, hygienic and stylised visions put forth in planners' visions for new urban centres. Jacobs' critique of Le Corbuserian designs in the mid-20th century could just as easily apply to the master planned and engineered visions of eco-cities today: 'Like a great visible ego, it tells of someone's achievement. But as to how the city works, it tells, like the Garden City, nothing but lies' (Jacobs 1961, 23).

While Jacobs' work is replete with observations on urban social sustainability, in our analysis of Tianjin eco-city we deploy the notion of a set of three relational spaces through which the new city's current and potential future social sustainability can be examined. The thread linking these spatial categories is the focus on spaces of the city as socially relational, performed and experienced (McFarlane 2011). Firstly, the focus of the analysis below is on the overall spatial layout of Tianjin eco-city, including the availability and experience of the social and other facilities provided in the new urban area. This notion of the perception of urban space is key to Jacobs' analysis of the city. This is because, in Jacobs' account, perceptions of urban space and of the buildings and services present within this space leads to a city's public spaces either being successful, or unsuccessful. This extends to the range of services and shops available in the city: 'The greater and more plentiful the range of all legitimate interests […] that city streets and their enterprises can satisfy, the better for the streets and for the safety of the city' (Jacobs 1961, 41). Thus, while it has to be recognised that an assessment of the perception of city space by residents of a new urban mega-project such as Tianjin is necessarily preliminary and not definitive, it is nonetheless an important component of the analysis of a new city's current and potential future social sustainability.

Secondly, the chapter focuses on the eco-city as an economic space of both production and consumption. The aim is to explore the ways in which the eco-city's residents experienced their move into a new-build urban environment, and the obstacles, frictions and positive possibilities present therein. This is part and parcel of the human experience of the city, and a new development such as Tianjin eco-city, economic space becomes a key interface between the private (domestic) experience of the city, and the commercial and consumption-based aspects of urban relationality. Jacobs placed a significant emphasis on the role of economic space and commercial signifiers in a socially sustainable city (Jacobs 1961). She highlighted the complex ways in which stores, eating establishments and other commercial venues increase urban security while at the same time attracting yet more relational activity to city streets. She also called for a diversity of commercial outlets on city streets: in so doing she shored up her wider championing of diversity as one of the keys to urban social sustainability.

Thirdly, the lived domestic spaces of the city are analysed, with a specific focus on the (dis)juncture between new 'eco' apartments, the eco-city's green marketing claims and new residents' lived experiences of these spaces. It is at this juncture that our analysis branches out from some accounts of urban social sustainability, and from Jacob's critique of urban planning. Much of the scholarly literature has, thus far, focused on urban social sustainability, and the sustainability of community, as something that is relational but is not specifically spatialized within discrete spaces. Nonetheless, it is becoming increasingly clear that urban domestic spaces, and housing more generally, are crucial to the effective functioning and sustainability of urban communities (Chiu 2004; Bramley and Power 2009). In the Chinese context, housing has also become a key dimension of urban social change in the context of economic development and hyper-rapid urbanization (Chiu 2002; Yung et al. 2014; Zou 2014). At the same time, domestic spaces within housing developments – their layout, functioning, availability and cultural roles – are crucial components of existing and new urban environments, including in existing iterations of 'enclave urbanism' (Breitung 2012; Douglass et al. 2012; Shen and Wu 2012; Thompson 2013) as found in the residential blocks that constitute Tianjin eco-city.

Lived spaces of the eco-city

Perceptions of eco-city space

When conducting interviews, it became clear that the facilities currently included in the city were appreciated and, in most cases, used by the city's new residents. Several interviewees expressed appreciation of the community centres, social spaces, libraries and other facilities provided close to residents' accommodation. For example, during our visits it became clear that as well as appreciating physical facilities such as community centres, activities and opportunities for social engagement that took place in community spaces were also highly valued and contributed to a sense of wellbeing in the new city. This is in line with recent research pointing to the fact that in dense urban areas, proximity of resources increases social sustainability through increased wellbeing (Kyttä et al. 2016). Several of these activities were aimed at specific demographics: for example, there were painting and calligraphy classes for students on Saturdays, for employed residents on Sundays and for retirees on Tuesdays and Thursdays.

   Nonetheless, what was also apparent was a sense that their enjoyment of these facilities may change or even decrease after the city reaches its target population levels. One of our interviewees, a young mother, encapsulated these concerns:

> At the moment, I am very happy with these facilities, because you do not see this anywhere but Tianjin Eco-City. You can enjoy relaxation within the eco-city without going anywhere else, like adults have places to do exercise and other activities, children have very safe places to play after school, and you do not have to worry about their safety. However, something that I am worried about is that within such a limited community activity space, problems might occur, for example conflicts between children, when more and more people move into the eco-city in the future, because the current permanent residents are a rather small proportion [compared to the eco-city's planned population].

This highlights the fact that while the facilities built within Tianjin eco-city were seen to be of a good standard, nonetheless one of the attractions of the new city was the fact that the city was relatively *empty*. This cannot be considered a major driver for residents purchasing properties and moving in to the eco-city. Rather, it highlights the potential marginal qualitative benefit accrued from moving to an urban space that is comparatively less crowded, and better resourced, than other Chinese urban areas. Nonetheless, it also highlights one of the potential drawbacks (in terms of social sustainability) of newly planned and built urban areas: it is recognised that sparsely populated urban areas in terms of foot traffic 'on the street' can become characterless *spaces* and not social *places* where interactions can happen and where the city is lived and performed (Jacobs 1961; Koch and Latham 2012). Thus, while overcrowding may be avoided in a new urban project such as Tianjin eco-city, further research as the project develops will need to focus on how streets and other spaces become places for urban life to take place – or not, as the case may be. This, as much as design and green and smart technologies, will help determine the success or failure of Tianjin eco-city as an experimental urban project.

The eco-city as economic space

Tianjin eco-city can be seen both as an urban experiment (Evans and Karvonen 2014) and as an attempt to fashion a new and different type of economy in a new city (Caprotti 2015). Plans for the eco-city exhibited a strong focus on establishing the urban area as the central node in a zone focused on the green economy and on high-tech and high value-added industries and services. In part, the eco-city was also economically positioned so as to be a potential residential option for those working within Tianjin's existing animation industry. One of the challenges faced by the new city is that of encouraging economic development in and around the city itself: this will help the eco-city achieve its aims of reducing car use as well as providing a more integrated city experience.

It is, admittedly, too early to assess the economic impact of the eco-city, because corporations and firms' locational choices take time to materialise. Therefore, the comments and analysis below are based on the snapshot of urban economic experience provided by current residents. Nonetheless, it was clear that interviewed residents thought that the eco-city's demographic composition (apparently skewed towards retirees and those aged over 40) was in part due to the contemporary (and potentially temporary) paucity of employment opportunities in the vicinity. As one interviewee argued:

> …the local economy is one-sided as industries are very limited in the eco-city, electronics and animation industries are the predominant ones. The employment opportunities that these industries provide do not suffice for all inhabitants, especially those who are not trained in the electronics and animation industries, who will find it difficult to be employed locally. Plus, most industries are only enrolled in the eco-city's economic plan, but their actual offices are still somewhere else. This is also a reason why most permanent residents here are elderly.

Apart from employment opportunities, the chances for residents to engage in shopping and other consumer activities were, by mid-2014, still limited. While this can, again, be seen as a temporary fact dependent on the city's developmental status, nonetheless it is also an obstacle or deterrent to residents moving to the eco-city. This is because spaces of consumption are key to a city's social sustainability (Colomb 2007): these spaces are *social* spaces as much as spaces where products may be viewed and purchased. One of our interviewees, for example, bemoaned the fact that no clothing stores existed within the eco-city proper, and that for every clothing purchase she had to travel into Tanggu district. A further obstacle was the perceived expensive nature of foodstuffs and other goods actually available in the eco-city: participant observation, for example, highlighted the fact that a standard meal at a small restaurant in the eco-city was up to twice the cost of a similar meal in Tanggu district outside the eco-city. Finally, and as noted by Pow and Neo (2015) in their study of Tianjin eco-city, several residents noted how apartments in the eco-city could be seen as investment opportunities in and of themselves, and mentioned that the current apartment prices were likely to rise as the eco-city becomes populated and more economically viable.

The eco-city as lived domestic space

One of the highly advertised and marketed features of Tianjin eco-city is the provision of 'green' domestic spaces (apartments in new, high-rise residential buildings)

for the new residents of the city. A range of technologies are marketed as central to the aim of making the eco-city a green and sustainable urban area not only in terms of economic activities, but also in terms of its buildings and in the consumption practices implicit in domestic living. Thus, many of the property developers that have built residential accommodation in the city market the green building stand-ards used in construction, as well as the use of solar water heating, the provision of filtered water, air filtering equipment, the use of energy from renewable sources and the like. This focus – on the eco-city dweller and their domestic space and associated technologies – has been critically investigated and described as the construction of 'filtered communities' (Boland 2007). Furthermore, the focus on technologies (such as water and air filtration) that keep residents safe from environmental pollution has been analysed as exemplifying a subtle discursive and material message that the eco-city is 'eco' primarily *for its residents* rather than for the external *environment* (although these technologies clearly also have the potential of reducing residential units' envi-ronmental impacts) (Caprotti et al. 2015).

A further example of the eco-city's outward-facing 'green' marketing not correspond-ing with the experiences of its initial residents is residents' engagement with techno-logies, such as solar hot water, which promise low-energy and low-cost enjoyment of daily activities such as hot showers. Interviewees' experiences with these technologies were mixed, with some enjoying their use in unproblematic fashion, while others were disappointed at poor performance. As one interviewee stated:

> I think Tianjin Eco-City is just a superficial project. The reason why I am saying this is because everything you can see here is almost perfect, you can feel that this really is an eco-city with good social facilities, green areas, prevalence of renewable energy etcetera. However, the solar energy for hot water in my apartment does not work satisfyingly. The eco-city promises that they will use three-star quality standards of renewable energy, but I think they only use the renewable energy that matches basic requirements. Sometimes, the hot water for showering is only enough for one person, sometimes it is completely cold, the most annoying moment is that the shower temperature works well at the beginning and then suddenly turns to cold and it repeats like this. So we have to use electricity while taking a shower and that is not energy efficient. I really want to be environmentally friendly, but sometimes you just don't have the choice to do so.

A further topic of friction between marketing and eco-city residents' experiences of their new domestic spaces was the provision of filtered water, with its promise that water could be drunk straight from the tap, without the need (common in China) for boiling water. The eco-city's marketing materials celebrate the provision of clean water to residents, and the provision of filtration technologies can indeed be considered as a visionary improvement in urban living. However, most interviewees admitted to still using boiled water, or using their own filtration equipment, even though the water supply was meant to be filtered and clean direct from the tap. One of our interviewees, who was one of the earliest residents of the eco-city, stated that:

> As I used to work for the waste water treatment sector, I normally test the domestic water quality by simply putting alum into the water when I am home. I noticed that there was some yellow sediment from the tap water in the eco-city. This is

> something that I never came across in [my province of origin], and I know that the water quality is not as good as what they have told us. But alum is not toxic, so the water is still usable after filtering out the alum. I normally use it for washing vegetables. For drinking water, I often boil the water first.

However, residents' previous experiences with tap water in their city of origin were also key determinants of their perception of water quality in the eco-city. For example, one interviewee from a north-eastern province stated that even though sediment was visible in tap water in the eco-city, it was less than what they used to witness in tap water in their city of origin, and that therefore water in Tianjin was a clear improvement. Another interviewee stated that regardless of claims about clean water by eco-city authorities and developers, they still boiled water and used their own filtration equipment as a matter of course.

It is clear that even though the eco-city's domestic spaces can be seen as part and parcel of new 'filtered communities' enabled by the city's green regulations, the lived reality of residents of these spaces is less one of enjoyment of ecologically modernised living conditions (Spaargaren and Mol 1992), and more one of concern over the diffuse and often invisible risks still present in the new city (Beck 1992). While many residents commented on their positive enjoyment of the city's green spaces and spatial layout, domestic spaces were seen by many as interfaces with environmental inputs – water, air – that could deliver risks and negative externalities directly to residents in their own homes.

Discussion and conclusion

The above discussion focused on the specific ways in which the first residents of Tianjin eco-city engaged with the new urban area to which they had moved. Nonetheless, the analysis presented above highlights some fruitful further areas for advancing a research agenda on new-build urbanism. Firstly, the chapter attempted to move past a focus on plans and blueprints for new-build eco-cities and other new urban forms. In focusing on the lived experiences of the first residents of the eco-city, it has highlighted the *human* dimension found in interactions between residents and the materialisation of designers' visions of the new city. We argue that it is at this juncture that useful research can be carried out in interrogating the goals, indicators, top-down evaluations and marketing and (quasi)-political justifications for new urban areas that often characterise new cities such as the Tianjin eco-city. The focus on engaging with the trend for new-build urbanism, in China and elsewhere (He 2010; Castells and Hall 2014; Ong 2014) builds on Jacobs' (1961) critical analysis of the deployment and impact on existing cities of modernist blueprints and visions that featured more focus on urban architectures and plan-based layouts than on human interactions and lived spaces that cannot easily be reconciled with the straight lines and stylised visions of architects and planners. Humanizing the city, in turn, enables the focus to shift from plans, technologies, indicators and metrics (which lend themselves well to studying environmental and economic sustainability), and towards social sustainability in the city. A focus on urban social sustainability that is engaged with the messiness of lived urban experience will enable researchers to move past a (much needed) focus on *planning* for new cities, to a focus on *living* in these new-build environments. This will, in turn, enable the

voices of residents (and, it is hoped, also of the less-visible and marginalised citizens in and around new cities) to emerge in scholarly work on new-build urbanism and urban mega-projects. In a field that is crowded with the loud and hegemonic discourses of governments, planners, urban marketers and urban design and engineering corporations, a focus on humanizing the city through paying attention to its new residents is beneficial.

Secondly, a focus on humanizing the city and on giving more analytical weight to urban social sustainability enables urban scholars to re-engage with planners and policymakers in their design of new-build urban areas, whether that be in eco-cities, smart cities, new neighbourhoods or other new formulations and reproductions of the urban. Concern with urban social sustainability on the part of developers and municipal governments is often less about social equity and community, and more about what Gressgård (2015), in her study of Malmö's urban development strategy, describes as the enrolment of urban residents into 'fantasmatic' visions of urban futures. The risk in this is that urban social sustainability becomes, effectively, a measure of residents' conformity with the plans put forth by urban strategists. This has the effect of 'hollowing out' concerns with the 'sustainability of community' (Bramley and Power 2009; Dempsey et al. 2011) that, we argue, should be at the centre of plans for new cities that are seriously committed to being socially sustainable. As Barker (2005, 98) has argued,

> How do we know which urban forms and designs are really best? Environmentalists can be very dogmatic, and very prescriptive for other people's lives. But what makes us think that in this we are that much wiser than those who, in the past, were convinced they, too, had the monopoly of wisdom?

Finally, a focus on the lived experiences of the residents of new and experimental urban areas such as Tianjin eco-city also enables researchers to identify and highlight what is *positive* about the planning, design, implementation and lived engagement with these new projects. As discussed above, Tianjin eco-city's new residents were by no means wholly critical of the new city, but consistently pointed to both what did not work, and what worked, from their experiential point of view. This leads to a strong case for the necessity of longitudinal, long-range studies of the ways in which new cities and new urban areas develop and are experienced, interpreted and re-interpreted by their new residents. Again, this moves the research agenda past the focus on static visions and blueprints, and towards a social science approach to the city that is comfortable with its ever-changing and emergent character.

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