



## RISK & RESILIENCE IN THE BUILT ENVIRONMENT

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Melbourne School of Design and  
Faculty of Science

### Briefing #3:

## CASE: MANCHESTER

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*Much of Australia is vulnerable to natural hazards – drought, fire, flood, storm or sea-level rise. There's a dangerous and growing combination of climate change, urban change, technology hazard and community fragmentation. While the techniques for risk reduction are better than ever, the physical challenges are greater, and the social fabric is stretched further. We need to understand the dynamics of 'resilient communities' in the face of these complex and increasing challenges.*

In practice the synergistic toolkit is a combination of interactive process and desk analysis. For the Melbourne R&R programme it aims at the overall question: *'how to improve the resilience of this city /region / landscape / place, to climate change, in present and future?'* This kind of enquiry can take place in the realm of analysts, policy-makers and academics. It can also take place in the public realm, as a 'democratic, collective problem-solving process', in which such problems and potential solutions look wider and deeper and further.<sup>1</sup> The Melbourne workshop is followed up by a consultation programme of interviews and small groups. Each session takes a similar format based on the 4 stages of the synergistic toolkit. What could be the result?

### 3. EXAMPLE: GREATER MANCHESTER

Greater Manchester (GM) here demonstrates the template in use. Work is in progress on a Resilience-III model in GM (drawing on the RESIN baseline studies on [www.resin-cities.eu](http://www.resin-cities.eu)). The matrix below shows a cross-section of realities behind the resilience studies so far. For each combination of actors, factors and domains, there are positive stories, evidence & framings (in normal type). There are also the 'Versus' cases – negative stories & frames (*italic type*).

The conventional view is that GM is well equipped in the resilience league, with a mild climate, no obvious natural hazards, and a high-income nation level of technology and infrastructure. There's a critical counter view which sees GM as a frontline candidate in neo-liberal austerity, exclusion, and fragmentation, where governance is myopic and elitist, and where the public agenda is captured by media oligarchs.<sup>2</sup>

The matrix here contrasts both viewpoints, positive and negative: to make real progress, these counter-factuals are an essential part of the picture. We need to explore wider-deeper-further, for both opportunities and challenges, and build them into the design of the synergistic pathways. This isn't often straightforward. It's much easier to get technical evidence and numbers for a mode-I risk model, while for the creative co-evolutionary mode-III, there is less tangible evidence, and more space for co-learning and co-creation.

One challenge in GM is a population which is ageing, dependent and isolated, vulnerable to all kinds of natural and human hazards. In response there are digital innovations in remote monitoring: social innovations in care exchanges: economic innovations in online shopping deliveries: and infrastructure innovation in responsive housing solutions. Putting those together might just happen spontaneously, or it might be better to think it through with all concerned.

Another challenge in GM is that areas of flood risk often coincide with areas of high deprivation and insecurity. A recent flood resilience programme in Salford had a very low take-up, due perhaps to distrust of authority, community transience, and split incentives in housing tenure.<sup>3</sup> Ways forward will need to deal with the interlocking challenges. The design and evaluation of policy for urban regeneration is an important part of this.<sup>4</sup>

Once we join the dots between climate change, economic and social change, the pathways don't necessarily represent a simple 'problem', and consequently a simple 'solution'. Instead there's a multi-dimensional jigsaw of potentials, challenges and opportunities. The matrix is an outline mapping of that landscape. The next step is the need to learn how to read the map, navigate the pathways and mobilize the opportunities for synergistic action.

<b>C) 'FURTHER' (transformations)</b>	<b>Mode-I Linear</b>	<b>Mode-II Evolutionary</b>	<b>Mode-III Co-evolutionary</b>
	<b>'CLEVER': (complex)</b>	<b>'SMART': (emergent complexity)</b>	<b>'WISE': (cognitive complexity)</b>
<b>A) 'WIDER': actors/factors</b>			
Flood & storm	Most urban flood defences are working & maintained. - VS- <i>certain areas are flooded multiple times: flash flood risk increasing</i>	Integrated catchment planning principle & policy: -VS- <i>upstream landuse &amp; farm subsidies increase downstream flood risk (e.g. Wadsworth Moor)</i>	Integrated 'ecosystems approach' principles: -VS- <i>current disintegration of public services &amp; policy</i>
Heat, drought,	Heat / drought in UK are moderate in near future: - VS- <i>certain social groups &amp; housing types are high risk</i>	Incentives for private water firms to maintain supply: - VS- <i>near collapse of elderly care system: split incentives for house adaptation</i>	Integrated neighbor-care-exchange schemes for extreme weather: -VS- <i>social fragmentation &amp; exclusion</i>
One-Planet-City	Green infra has increased with post-industrial: GM has good recycling: -VS- <i>most species &amp; habitats declining: over half of waste goes to landfill</i>	Policies & studies on Green infra & res eff: -VS- <i>green infrastructure underfunded &amp; privatized</i>	Many innovations in socio-eco-cultural enterprise: -VS- <i>negative pressures of cost, short term policy, gaps in value chains</i>
Climate mitigation			
<b>B) DEEPER: domains/values</b>			
Social resilience			
Technical resilience	Mainly functional systems of planning, projects, maintenance etc. -VS- <i>Lack of understanding of combined wild card effects</i>	Privatized utilities are providing investment: -VS- <i>vulnerability if combined with cyber attack, terrorism, technology, pandemic</i>	Potential smart-wise city technology with citizen monitoring – -VS- <i>Risk of techno-determinism &amp; stupefying cities</i>
Economic resilience	diverse metropolitan economic structure -VS- <i>Low productivity, investment etc</i>	High value property & professionals -VS- <i>Majority are excluded, precarious, underpaid</i>	Growing interest in holistic inclusive growth -VS- <i>Dysfunctional &amp; divisive macro-economic system</i>
Political resilience	GM has effective devolved structure - VS - <i>General lack of participation or trust by the people: political turmoil, post Brexit</i>	Average transparency & accountability - VS - <i>low res. by underfunding, marketization, privatization of public services</i>	Effective civil society & / culture of learning & innovation - VS - <i>Institutional inertia, perverse incentives, elite nepotism,</i>
Cultural resilience			
Spatial resilience	Large stock of low value houses - VS - <i>Housing crisis mainly for young, low-paid, precarious</i>	Democratic spatial planning system - VS - <i>Forces of gentrification &amp; spatial segregation</i>	Spatial integration, diversity, -VS- <i>System effects of inertia, polarization</i>
<b>D) SYSTEM LEVEL:</b>			
<i>Super-systems</i>	<i>Economic growth will secure the future city</i>	<i>Global investors are the key to success</i>	<i>Collaborative capitalism... how does it work??</i>
<i>Structural layers / archetypes / myths</i>	<i>Defence against hostile nature</i>	<i>Evolutionary competition &amp; innovation</i>	<i>Co-evolution &amp; co-habitation with nature</i>

### 3.1 NEXT STEPS

*Overall the R&R programme aims at visionary yet practical results - 'synergistic pathways from smart to wise' - to enhance the overall resilience of the future city. It's possible to envisage technical solutions – sealed air-con buildings, surveillance cameras feeding into control centres – but mono-functional technology seems to exacerbate other kinds of gaps and vulnerabilities. With the combination of co-learning, co-creation and co-production of all stakeholders, this all adds up to a urban shared-mind, a collective intelligence. This isn't a solution, more like an experimental space or collaboratorium, where creative forward looking responses can emerge and flourish. The synergistic thinking and toolkit outlined here can help to design and explore this space.*

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\* Bowler, N (1972) *Flood image: Floods in central Melbourne. Looking up Elizabeth Street from Flinders Street*, The Age, 17 February, 1972. Neg: A 6589 CN.

- <sup>1</sup> Wagenaar & Wilkinson 2013: Wagenaar H and Wilkinson C (2013) Enacting resilience: A performative account of governing for urban resilience. *Urban Studies*. DOI: 10.1177/0042098013505655.
- <sup>2</sup> Ravetz and Miles 2016: Ravetz, J, and Miles, I.D, (2016). Foresight in cities and the possibility of a 'strategic urban intelligence'. *Foresight Journal*, Vol: 18(5). <http://www.emeraldinsight.com/toc/fs/18/5>
- <sup>3</sup> Bichard, E & Thurairajah, N 2014, 'Trialling Behaviour Change Strategies to Motivate Interest in Property Level Flood Protection', *International Journal of Disaster Resilience in the Built Environment*, 5(2), pp.130-143
- <sup>4</sup> Ravetz, J (2014): Inter-connected responses for inter-connected problems: synergistic thinking for local urban development in a global urban system: *International Journal of Global Environmental Issues*, 13(2/3/4):362-388