Disrupted Cities: When Infrastructure Fails

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An ‘act of God’? A ‘technical failure’? A ‘natural disaster’? A social collapse?
When Infrastructure Fails: Cities as Socio-technical Process

• Beyond ‘city’ as given, internally self-organised entity
• Circulations: Relational, multiscale, processes of becoming
• Looking at ‘the city’ as a socio-technical process orchestrated at multiple scales through the densest and most intense concentrations of material infrastructures linked to more or less distant elsewheres
• Central paradox: Often so normalised, taken-for-granted and invisible that it is only through the removal of these ‘infrastructures’ that their materialities, roles, geographies and politics are revealed

  • 6 starting points
  • 5 Illustrations
  • Brief conclusions
Some Key Points:

1. Cyborg Urbanization

- Blending of social into technical (and vice versa); technological into natural/organic; and social into natural/organic
- Complexes of ‘infrastructure’ involve all three processes of blurring: socio-technical (cyborg bodies); socio-natural (urban water systems; resource commodity chains); techno-natural (urban metabolism & ecology)
- "The city", writes Erik Swyngedouw, "cannot survive without capturing, transforming and transporting nature's water. The 'metabolism of the city' depends of the incessant flow of water through its veins" (1995).
“The modern home, for example, has become a complex exoskeleton for the human body with its provision of water, warmth, light and other essential needs. The home can be conceived as ‘prosthesis and prophylactic’ in which modernist distinctions between nature and culture, and between the organic and the inorganic, become blurred”

Matthew Gandy 2004
2. Bill Joy: When Turning Off Becomes Suicide

- Bill Joy, co-founder of Sun Microsystems, caused a furore amongst, suggested that the mediation of human societies by astonishingly complex computerised infrastructure systems will soon reach the stage when "people won't be able to just turn the machines off, because they will be so dependent on them that turning them off would amount to suicide" (2000).
3. The Paradox of Visibility and Failure: Becoming Visible Upon Breakdown

- For Susan Leigh-Star (1999) nine characteristics.
- embedded (i.e. “sunk into other structures);
- transparent (“it does not need to be reinvented each time or assembled for each task”);
- offers temporal or spatial reach or scope;
- is learned by its users;
- is linked to conventions of practice (e.g. routines of electricity use);
- embodies standards;
- is built on an installed base of sunk capital;
- is fixed in modular increments, not built all at once or globally;
- Finally, infrastructure “tends to become visible upon breakdown”
Of course for a billion urbanites or more, infrastructural failure, exclusion and precarity is perpetually and profoundly visible & improvisation is constant.

Infrastructures have “always been foregrounded in the lives of more precarious social groups — i.e. those with reduced access or without access or who have been disconnected, as a result either of socio-spatial differentiation strategies or infrastructure crises or collapse.” Colin McFarlane and Jonathan Rutherford (2008)
Socio-technical
‘Normal Accidents’
(Charles Perrow): Blackout

“We are all hostages to electricity” Leslie (1999)
4. Disruptions and Collapses as ‘Unblackboxing’ Work to ‘Frontstage’ the Urban ‘Backstage’

- In Irving Goffman’s (1959) terms, the built environment’s “backstage” becomes momentarily “frontstaged”
- The sudden absence of infrastructural flow creates visibility just as the continued, normalised use of infrastructures creates a deep taken-for-grantedness and invisibility.
5. Culture of Fascination

“Cyborgs, like us, are endlessly fascinated by machinic breakdowns, which would cause disruptions in, or denials of access to, their megatechnical sources of being.”
6. Within “Logistical Societies”, Disruptions ‘cascade’ in both space and time (e.g. California Blackouts 2001)
Five Illustrations: Fleeting Moments of Visibility:
(i) Trawler Severing Oceanic Optic Fibre Off Egypt, December 2008
“On July 19, 2001, a train shipping hydrochloric acid, computer paper, wood-pulp bales and other items from North Carolina to New Jersey derails in a tunnel under downtown Baltimore. Later estimated to have reached 1,500 degrees, the ensuing fire is hot enough to make the boxcars glow. A toxic cloud forces the evacuation of several city blocks. By its second day, the blaze melts a pipe containing fiber-optic lines laid along the railroad right-of-way, disrupting telecommunications traffic on a critical New York–Miami axis. Cell phones in suburban Maryland fail. The New York–based Hearst Corporation loses its email and the ability to update its web pages. Worldcom, PSINet, and Abovenet report problems. Slowdowns are seen as far away as Atlanta, Seattle, and Los Angeles, and the American embassy in Lusaka, Zambia loses all contact with Washington.” Kazys Varnelis
(iii) Malign Mobilities: SARS
(Roger Keil and S. Harris Ali)
Securitising Networked Flows

Figure 7.2: Temperature Screening Post, Port of Hong Kong, Returning from Macau, 2006 (Photograph by Roger Kell)
(iv) Reveal the Often Hidden Politics of Risk Within ‘Natural Disasters’ e.g. Hurricane Katrina

• Reveal the often concealed politics of cyborgorganised cities
• Not a ‘natural disaster’ or ‘Act of God.’ Rather, the inevitable result of:
• Climate change accentuating hurricane
• Hitting a city denuded of natural protection and
• Very poorly covered by a levee network that was systematically racially biased over centuries of constructed socio-nature in context of a
• A Neoconservative Federal Government that had systematically skewed Emergency Planning towards terrorism for political ends
(v) Disruptions Central to Contemporary Political Mobilisation and Violence

“Complex infrastructure often exhibits extreme levels of vulnerability to non-planned events. The reason for this is may be found in an area of complexity research called highly optimized tolerance (HOT). HOT research has found that complex networks, like most global infrastructure, exhibit behaviors explained by the design considerations of its makers. The end-result of this planning is a network that is extremely robust against certain types of anticipated failures/insults but conversely is hypersensitive to unanticipated classes of uncertainty”. John Robb
Disruption by Design and the Liberal Way of War: State Infrastructural Warfare

"There is nothing in the world today that cannot become a weapon" (Liang and Xiangsui, 1999)

"If you want to destroy someone nowadays, you go after their infrastructure. " (Phil Agre, 2001)
Hidden Violence Behind the Fetish of Becoming the “Next Shanghai” in Mumbai

The Global Infrastructure Race Is On

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Figure 3. Water pipes cut in Rafinagar during the water raids in December 2009 (Photograph by Renu Desai)
Disruptions and Political Protest - Bangkok: People's Alliance for Democracy (PAD), Dec 2008
Gate Gourmet Dispute, Heathrow, 2005
Conclusion: Powerful Heuristic Devices

• Critical focus on the politics of infrastructure disruptions a powerful perspective for identifying the distinctiveness of cities

• Link ‘mobilities turn’, political ecology and economy, critical urban geography, biopower and critical security & risk studies/IR

• Further disrupt notions of ‘natural disaster’, ‘technical’ failure, ‘Act of God’ etc.

• Exposure of disruptions of ‘normal’ circulations and mobilities serve to problematise and denaturalise ‘normal’ ones within broader context of neoliberal globalisation, urbanisation and securitisation

• ‘Infrastructures’ not stable, fixed and in the nature of things but require huge effort, in *process of becoming*