

## **Place in the Flows: Ecology & Society in Jakarta**

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“...Plurality of objectives held by pluralities of politics makes it impossible to pursue unitary aims... The formulation of a wicked problem is the problem!”

- Horst Rittel & Melvin Webber

“In unwittingly destroying the artificial but time-honored distinction between natural and human histories... humans now wield a geologic force.”

- Dipesh Chakrabarty

In January 2013, massive floods hit Jakarta, the capitol city of Indonesia, claiming at least 30 lives and displacing tens of thousands. The floods again called attention to the city's failing infrastructure, and the plight of residents, particularly those living in the informal “kampung” settlements along the city's thirteen rivers. The floods, caused by heavy rains but exacerbated by a breached flood canal, captivated a global audience as landmarks such as the Bunderan HI (Hotel Indonesia roundabout) were subsumed under water.

I found myself in Jakarta just about one week later. Crews were working on reinforcing the banks of the west flood canal that had given way, causing the most recent flood to inundate typically drier areas. Though some areas remained flooded, much of the city had returned to a kind of normal. Bicyclists filled Jalan Thamrin, a major thoroughfare usually packed with motor vehicles, closed to traffic for Car Free Sunday.

I went to Jakarta as an architect. I was interested in the city and the region, its fragile politics and environment. My initial objective was to bring my knowledge and skills as an architect and scholar to address conditions like the informal settlements along Jakarta's waterways and coastline. These settlements – informal, precarious, in harm's way – had grown and densified along the low-slung river banks and around the catchments in the north of the city. My role, I thought, was to document existing conditions, learn from social design, and propose alternatives.

But I realized that the problem is simultaneously bigger and smaller – and more diffuse.

The teeming cities of Southeast Asia are some of the most susceptible to climate change, with four, Manila, Yangon, Bangkok, and Jakarta, placing in the five most vulnerable cities in the world according to one report.<sup>1</sup> They exhibit a kind of patchwork urbanism, what geographer

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<sup>1</sup> Maplecroft, “Climate Change Vulnerability Index 2013 - Most at Risk Cities,” 2013, [http://maplecroft.com/about/news/ccvi\\_2013.html](http://maplecroft.com/about/news/ccvi_2013.html).

T.G. McGee called *desakota*<sup>2</sup> – hybrid regions merging aspects of city and country. Extensive urban development – skyscrapers, shopping malls, infrastructure networks – sprout around and adjacent to less developed areas, producing the distinct landscape of “villages in the city.” With simultaneously lush and threatened ecologies, these urban landscapes have complex political histories, the uneven striations of colonial and postcolonial development giving form to the socio-political and environmental geographies of urbanization. They also have strong histories of community activism, with local groups engaged in fights for urban safety, religious freedom, land tenure, and safe, clean water.

Jakarta exemplifies these extreme contrasts and contradictions, with uneven development and raging inequality. The city has historically dealt with flooding problems. Thirteen rivers thread through the city, 40% of which lies below sea level. Climate change, compounded by rapid urbanization, has exacerbated this. Sea levels in Jakarta Bay are rising at 5.7mm per year.<sup>3</sup> Land subsidence, attributed to unregulated groundwater extraction and increased impermeability due to rampant urban growth, had resulted in upwards of 0.25 meters per year of sinking in some parts of the city.<sup>4</sup> The sinking land, rising seas, failing infrastructure, and clogged rivers have resulted in increasingly frequent and harmful floods – a severe one roughly every five years, serious ones occurring sometimes several times a week during the wet season. Massive floods occurred in 2002 and 2007.

It is also the capital city in a country that is a political and ecological hybrid – Indonesia is particularly susceptible to tsunamis, earthquakes, and rising seas, and at the same time it is often targeted by environmental activists because of extensive logging and forest burning; it is the most populous Muslim-majority nation with relatively stable religious and racial diversity, and it was also witness to Suharto’s dictatorship lasting half its post-independence period, including, in that time, a brutal invasion and occupation of East Timor.

In the 1970s, Jakarta undertook a *Kampung Improvement Programme* (KIP) to modernize infrastructure and services,<sup>5</sup> winning the Aga Khan Award for Architecture in 1980.<sup>6</sup> Groundbreaking in its efforts to minimize the disruption of village settlements within the expanding city, the program focused on the provisioning of hardscape (paved roads and footpaths), water, and sanitation. While in many ways successful, the KIP did not predict the worsening environmental conditions forty years on due to climate change; some paving projects actually exacerbated floods. Nor did it prevent other threats to the settlements. Kampung areas

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<sup>2</sup> T.G. McGee, “The Emergence of Desakota Regions in Asia: Expanding a Hypothesis,” in *The Extended Metropolis: Settlement Transition in Asia*, ed. Norton Ginsburg, Bruce Koppel, and T. G. McGee (Honolulu: University of Hawaii Press, 1991), 3–25.

<sup>3</sup> S. Hadi et al., Study on the Impact of Sea-Level Rise and Its Economic Valuation in Coastal Zone of Jakarta Bay, Osaka Gas Foundation of International Cultural Exchange Research Grant Report (Bandung, Indonesia: Institute of Technology Bandung, 2005).

<sup>4</sup> Hasanuddin Z. Abidin et al., “Land Subsidence of Jakarta (Indonesia) and Its Relation with Urban Development,” *Natural Hazards* 59, no. 3 (2011): 1753–71.

<sup>5</sup> UN-HABITAT, “The world’s first slum upgrading programme,” WUFIII, Feature 4/06

<sup>6</sup> Aga Khan Development Network, “Kampung Improvement Programme,” <http://www.akdn.org/architecture/project.asp?id=1>

have decreased by half in the last twenty years, due to rapid urban development and renewal initiatives.<sup>7</sup> The city recently announced plans to dredge the Ciliwung (a particularly notorious river running through the heart of the city) and create a “modern” recreational riverfront, a move that threatens further displacement of residents. Kampungns now face double stress from climate change and increasing floods, and state and corporate-backed displacement.

Confronting the global realities of extensive urbanization and environmental crises from climate change, the question “*What is the problem?*” is often the problem.<sup>8</sup>

Especially after the 2007 floods, there was heightened attention to the flooding situation from various corners. Dutch hydrological engineers discovered that, due to land subsidence, the city was sinking even faster than seas were rising. The Netherlands and Indonesian government launched a master planning initiative for coastal protections against flooding. City governor Joko Widodo, newly elected in 2012 and popular, promised change, and enlisted the help of the South Korean government and engineering conglomerates to envision the future of the Ciliwung, citing Seoul’s beautiful riverfronts. Scientists and designers from ETH Zurich in Singapore sent drones down the river to capture point cloud data for 3-dimensional hydrologic models. World-renowned Dutch architects joined efforts to design ambitious “vertical kampungns.” And local activists rued the focus on large-scale redevelopment, pointing to the problems of equity and displacement.

The water itself posed a biophysical thread to the story, the literally sinking city with its overtaxed water table confronting the rising seas of climate change.

Jakarta exemplifies the concept of “wicked problems” of planning,<sup>9</sup> for which multiple and contested visions of both the issues and the solutions ensure that the formulation of the problem is the problem itself. Policy meets science meets socio-political power structures, accentuated in the context of rapid urbanization and environmental crises, where such problems are now global and geologic in scales.<sup>10</sup>

Of course, the story is constituted in more typical ways on the ground, as contestation between those with power and those without. The city government has expressed its intention to clear informal settlements, stating that trash thrown into the rivers by residents is clogging the waterways. Kampung residents and advocates claim that they are not provided services, the flood canals are not working, and that increased runoff comes from rapid, uncontrolled development.

Before answering the question of “what to do?” I realized it was critical to search out and understand the multiple scales, sites, and actors of such contemporary “wicked” problems. Urban

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<sup>7</sup> UN-HABITAT, “The Challenge of Slums: Global Report of Human Settlements 2003”

<sup>8</sup> See, also, Anne Rademacher, *Reigning the River: Urban Ecologies and Political Transformation in Kathmandu* (Durham [N.C.]: Duke University Press, 2011).

<sup>9</sup> Horst WJ Rittel and Melvin M. Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences* 4, no. 2 (1973): 155–69.

<sup>10</sup> Dipesh Chakrabarty, “The Climate of History: Four Theses,” *Critical Inquiry* 35, no. 2 (2009): 197–222.

problems – and planning for urban problems – are always complex, contested. That is the nature of the problem. Knowing how to proceed requires not just an understanding, but, critically, a framework for action. How to get past wicked problems?

At its heart, this is a problem of multiple sets of multiple scales – governance scales, ecological scales, and scales of social mobilization.

### *Governance Scales*

The “city” of Jakarta – officially Daerah Khusus Ibukota (DKI) Jakarta (Jakarta Special Capitol Area) – is as well a part of a much larger metropolitan region, an uneven and fragmented system of urbanization. The region is formally known as JABODETABEK, the name encompassing the urban centers of Jakarta, Bogor, Depok, Tangerang, and Bekasi. Jakarta DKI itself is a very large city – with 9.5 million residents. JABODETABEK includes 27.9 million people, one of the largest megalopolises in the world. The discrepancy between regulation of the special capital district and the larger “megacity” poses problems for environmental management.

Mechanisms for regional administration have been instituted, but have not been effective. The stories of stalled environmental projects, for example, the much-delayed eastern flood canal, attest to the problems of fragmented governance.<sup>11</sup>

### *Ecological Scales*

The thirteen rivers threading through the municipal boundaries of Jakarta are part of a larger ecological system. Even tracing one watershed – for the Ciliwung River – brings the story 60 kilometers further upriver, past Bogor, itself an urban center, to Puncak. Ecological scales, including the watersheds, traverse across the administrative boundaries between cities. This discrepancy exacerbates the problems of fragmented urban governance. Upriver conditions impact what’s happening in the heart of Jakarta. The Ciliwung in Jakarta can flood even when it’s not raining in the city per se. Additionally, the causes of subsidence, mainly extensive groundwater pumping, are not bounded to the city itself, but are attributed to urbanization across the metropolitan region.

### *Social Mobilization Scales*

When taking on a popular governor, fragmented and often ineffective governance, spatial inequality, and problems like climate change that extends from the very local to the global, where is the appropriate scale of action? Urban problems – and planning for urban problems – are always complex, contested. That is the nature of the problem. Knowing how to proceed requires not just an understanding, but also a framework for action. As part of my research I looked at the work of two community advocacy groups working in different kampungs in Jakarta. Both organizations were working with a coalition of resident groups, activists, scholars, and community designers.

In Bukit Duri and Kampung Pulo, two kampungs straddling a particularly treacherous segment of the Ciliwung in Central Jakarta, the city government has initiated river “normalization” and

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<sup>11</sup> Imelda Simanjuntaka et al., “Evaluating Jakarta’s Flood Defence Governance: The Impact of Political and Institutional Reforms,” *Water Policy* 14, no. 4 (2012): 561–80.

eviction plans. Ciliwung Merdeka (Free Ciliwung) has organized residents to oppose relocation. Building a loose coalition of researchers, designers, residents, and advocates, they proposed architectural designs to reorganize the river edge in a way that enables rehousing in place. They also organized in preparation for talks with then-governor Jokowi on widths of easements and the details of any relocation. As of July 2014, these negotiations were ongoing.

In Muara Baru / Pluit, in the north of Jakarta, UPC (Urban Poor Consortium) has been organizing kampung residents even in the face of ongoing eviction. A part of the settlements around Waduk Pluit, a large reservoir holding river and canal water before it is pumped out into the bay, was demolished and cleared in mid-2013. In its place now is a park named Taman Kota Pluit (Pluit City Park) but popularly known as “Taman Jokowi.” It’s colloquial naming after the governor – casually invoked by kampung residents and Jakarta’s middle class alike – attests to Jokowi’s cross-cutting popularity.

UPC negotiated with Jokowi for displaced residents to be relocated to areas relatively close by, and to implement a new model of social housing with more kampung-like characteristics, designed by community-design architects and students from University Indonesia. UPC leaders expressed optimism that the plans will be implemented as negotiated, even as Jokowi leaves the governorship to assume the presidency of the country.

### *The Organizing Model*

These community organizations and the work that they do offer a compelling model for activism in areas facing political and environmental pressures. They are veritably grassroots and local. They are collaborative and participatory. They are multigenerational, include diverse genders (in a generally conservative society), and, to some extent, ethnicities. They are also cross-institutional, involving advocates for the urban poor, academics, designers, community leaders, and resident youth. This appears ideal, and makes the case that this sort of thing happens in fact.

But is it transformative? Both organizations/coalitions have seen some success in organizing for more preferable outcomes. Yet, the visible impacts have not necessarily come with structural change. The most progressive aspects of the organizing work – particularly the negotiation with Jokowi for a different model of social housing in areas close to residents original homes – have not yet been realized.

### **Future Research**

This specific work sets the stage for a part of my PhD dissertation – which will probe the relationship between large-scale urban and environmental projects in climate change adaptation and sociopolitical mobilization and alternative visions. My plan is to look at this case in Jakarta, and parallel sites and strategies in New York City – looking at city efforts like Rebuild By Design, as well as community resilience initiatives in Red Hook, Brooklyn – and in Rotterdam – looking at the Rotterdam Climate Proof program and it’s the interrelationships between the actors and strategies in the Dutch case and the two other key sites.