Terra ex Machina: Land Building and the Breach of Property Regimes

by

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ABSTRACT

Land building is the infilling of littoral or wetlands systems with developable dryland. It has long been used by state actors to overcome territorial constraints and conquer “wastelands” for economic development, but is increasingly used for large-scale, privately-financed real estate development. For these projects, land building is especially advantageous to both state and development interests because it can bypass traditional land acquisition and because it is unencumbered by prior legal claims, uses, or ecological functions. Compared to inland property, the relative mobility of built land makes it better suited to market-led development. This thesis frames land building as a “geo-hack”: it exploits a false premise of planning and property regimes—that land is fixed in place and quantity—and thereby circumvents both.

This work situates offshore land building on the Malay Peninsula within its history of land alienation, the practice of expanding commercial landholdings by extinguishing customary land uses and ecological functions. Focusing on the peninsular state of Johor, I analyze tensions between the agrarian property regime created by land alienation and recent real estate development pressures. I then turn to the case of Forest City, a large-scale real estate development being built in the straits between Johor and Singapore. By exploiting Malaysian land alienation procedures, the developer fully captures an unexploited rent gap and the state government avoids directly contending with social costs that usually accompany large-scale real estate development. However, my thesis shows that these gains are realized only by overwriting existing production regimes and exposing all actors to global market risks.

KEYWORDS

Land reclamation; territorial development; land commodification; property regime; real estate megaprojects; Malaysia

Thesis supervisor: Gabriella Y. Carolini
Title: Assistant Professor
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TABLE OF CONTENTS

ABSTRACT ........................................................................................................... 2
KEYWORDS ........................................................................................................... 2
ACKNOWLEDGEMENTS ....................................................................................... 3
TABLE OF CONTENTS .......................................................................................... 5

1. INTRODUCTION: LAND BUILDING IN THEORY AND HISTORY ............... 7
   An Overview of Land Building ......................................................................... 9
      Land Building: Related Activities and Terms ................................................. 9
      "Land building" defined .................................................................................. 10
   Inherited Land Building Paradigms .................................................................. 11
      Singapore: Territorial Expansion for Developmental Imperatives .................. 11
      Prussia: Fredrick the Great and the “Conquest of Nature” ............................ 13
      Built Land as Developmental Utopianism ..................................................... 13
   Global and local magnitudes .......................................................................... 14
   Development Advantages of Land Building ..................................................... 16
      Land acquisition costs in urban land markets ............................................... 17
      Absence of encumbrance .............................................................................. 18
      Tabula rasa development surface .................................................................. 21
      Dispossession avoidance .............................................................................. 24
   The Fixity of Land in Economic Thought ......................................................... 24
   Fixity Premises in Land Property Regimes ....................................................... 26
   Land Building and “Submerged Rent Gaps” ..................................................... 28
   Geo-hacking in Time and Place ....................................................................... 30

2. HISTORY OF LAND DEVELOPMENT REGIMES IN JOHOR, MALAYSIA ...... 32
   Administrative Geography of Peninsular Land Development, 1840–1990 ......... 32
      Absence of prior state property regimes ....................................................... 33
      Inland Commercial Expansion in Johor, 1840–1890 ................................... 35
      British Inventions on Land Alienation, 1890–1959 ......................................... 37
      State Paternalism and Smallholdings .............................................................. 39
      Smallholder Protection as Postcolonial Ideology ............................................ 40
      Malayan Independence and the Urban Transition, 1959–1990 ..................... 42
   Case Study: Land Settlement Strategies in Tanjung Kupang ............................ 45
      Land Alienation and Production Strategies, 1840–1990 ............................... 45
      The Second Link Saga, 1990–2010 ................................................................ 48
      Amendments to the Land Acquisition Act .................................................... 50
      Completion of Second Link, 1995–2010 ......................................................... 50
   Conflicts between Agrarian and Urban Land Development ............................ 52
   Chapter Conclusion ......................................................................................... 53
3. GEOHACKING IN MALAYSIA: THE CASE OF FOREST CITY

Political and Fiscal Drivers of Land Development in Johor

Local Mediation of Foreign Real Estate Investment in Johor

Internationalization of Chinese Real Estate Investment

Origins of Real Estate Land Building in Johor

Origins of Forest City

Land Building and the Vulnerabilities of Spatial Planning

Minimizing Acquisition Costs

Refuge from Smallhold Encumbrance

Establishing *Tabula Rasa* Conditions

Efforts to Avoid Land Dispossession

Public and Private Incentives for Land Building

Land Building from Ground Level

“Geo-hacking” around Property Regimes

4. CONCLUSION

Hacking Strategies beyond Forest City

Further Research

APPENDIX 1: LAND BUILDING PROJECTS IN ISKANDAR MALAYSIA

APPENDIX 2: LAND-USE CHANGE IN TANJUNG KUPANG

APPENDIX 3: METHODS AND RESEARCH SITES

BIBLIOGRAPHY
1. INTRODUCTION: LAND BUILDING IN THEORY AND HISTORY

Under almost all accounts of economic production, the essential property of land is that it is fixed and immovable. This “law of fixity” states that land is distinct from other production factors because it cannot be created, improved, or circulated within the production process. Because it is fixed, land resists commodification. Land-fixity is said to underpin some of the most fundamental conditions of economic development: the nature of rent, the administration of property, the dynamics of locational competition, the politics of land development, the territorial organization of the nation-state.

Ascribing a “law of fixity” to the economics of land has also helped to crystalize many monumental criticisms of capitalist development. Like a sand grain in the mouth of an oyster, it agitated French philosophers into physiocratic thought, American progressives into radical positions on land taxation, and leftist governments into land reforms. While this special feature of land is rejected in neoclassical thought, it pervades historical and contemporary political economy in both classical and radical traditions.

Here I take another tack: not to refine the law or to rebut it, but to expose its defects, its exceptions, as central to contemporary urban development. The law of fixity, as I will strive to show in the foregoing chapter, is a “heroic assumption,” not a geophysical property of land. As with many economic models, land-fixity is a parameter, one that reduces complex real-world conditions via useful constraints. Reduction is requisite for analytic clarity, necessary to “flatten” complex phenomena into describable and governable systems. But howsoever elegant, productive, or world-shaping the resulting model, the underlying phenomena remain rife with exceptions. When models-of-the-world are incarnated as administrative practices, the exceptions manifest as vulnerabilities, ripe for exploitation.

Kin to this proposition is the concept of “state simplification” in the work of James Scott (1995, 1998). Stripped of its normative critique, the insight is that the administrative ordering of a society requires the society itself be flattened into an image of administrative order. Scott documents a variety of “legibility projects,”
administrative efforts to wrestle unwieldy, complex social and ecological orders into informational strictures of the state. Whether in codifying street names, straightening forests into tree stands, or suppressing informal economic activities, the task of state administration requires that phenomena be reduced into a model of the phenomena.

Unlike Scott, my focus here is not in the violence, harm, and waste that comes from imposing administrative simplification. Rather, I turn to the vulnerability of such simplifications, and to their unsound assumptions about the nature of the world underlying. The case presented here exposes the vulnerability of property regimes to the law of fixity. Thus, my first premise is that major instruments of property governance and planning—particularly land registries—presuppose a law of fixity: that land is fixed in quantity, immovable in location, and inextricable from its use value. My second premise is that property systems that rely on this presupposition are vulnerable to violations of this so-called law by virtue of their dependence on it.

Modern property regimes, based on a parceling system, are the primary routine through which modern states organize and distribute the value of their land surface. Property regimes enable land to achieve a commodity value in exchange relations, what economists call “land rent.” But because they inherit the law of fixity, they are vulnerable to any attempts to move or create land surface.

I call these violations “geo-hacks.” Pursuing this programmatic metaphor, we can imagine “geo-hacks” as insertions or overwrites upon the existing logic of property relations. Geo-hacks exploit vulnerabilities in the routines of geopolitical order, finding workarounds that the routines are not written to handle. Effective hacking embraces the system logic sufficiently much to exploit it, but insufficiently much that it would cause administrators to rewrite the codebase.
An Overview of Land Building

Land Building: Related Activities and Terms

The exploit under consideration is what I will call “land building.” Though I am reluctant to coin terms, the existing descriptors for creating new areas of land for human settlement are either unhelpfully generic or blithely obfuscating. It serves to review them briefly before defending my own.

“Landmarking” is an English legal term for demarcating the boundaries of an estate, often with rocks or embankments. This has included the filling of marshes and tidelands down to a property line, which approaches our sense of the term (Rawson 2011; Seasholes 2003). The term’s metaphorical purchase, staking out a geographic boundary, has mostly overtaken its original meaning. It now defines unrelated legal practices, like protecting old buildings from renovation, and only describes land-building in historical usage.

A common term among Dutch engineers is “poldering,” referring to a type of land-building where dikes are built to capture the discharge of rivers, causing sediment accretion (Wagret 1968). Poldering has been the most significant technique of global land building, accounting for the extraordinary growth of land in the Rhine-Meuse Delta of the Netherlands and the Ganges-Brahmaputra Delta of Bangladesh over the past century (Van Veen 1962). This term is similarly insufficient for our purposes, as it does not include a range of other building techniques, like infilling marine seabeds with transported sands.

“Land reclamation,” currently the most prevalent term, most plainly means to recover land taken away. One of its usages, the restoration of human-damaged landscapes, could indisputably be called “reclaiming.” But a second and more prevalent usage has nearly the opposite meaning: the conversion of deserts, saltflats, wetlands, and other “wastelands” into arable farmland. This was the dominant sense of land reclamation until the mid-19th century. Describing this activity as “reclamation” has never meant the wastelands were somehow taken; it instead asserts that making the
land productive confers a possessory right. Thus “reclamation” expresses that wastelands, “wasted” in the sense that they are commercially and fiscally sterile, could be revitalized for commercial profit and fiscal revenue.

The filling of submerged land, now the dominant modern usage of “reclamation,” emerged much later than the broader wasteland concept. English-language engineering papers begin to explore the concept by this name in the 1860s, transferring knowledge of Dutch embankments to the estuaries of England (Muller 1862). Projects inspired by these writings crop up in London in 1866 and Singapore in 1873. This connection suggests that oceans and wetlands were also considered “wastes,” ones in which landfilling might rescue underwater places from fiscal sterility.

“Land building” defined

Having found existing terminology insufficient, I offer “land building” as a term that is indifferent to technical process or property relations. Instead, it centers the economic activity in question: the manufacturing of land surface. This narrows the meaning of “land reclamation” to focus on projects that reconfigure land material to create new space for settled economic activities. This process is easiest to see when land material—sand, sediments, rocks—are used to create dryland surface in wetland and littoral environments. While some other varieties of land reclamation involve the creation of market assets—like the irrigation of desert lands, for example—I exclude them from land building because they do not involve extracting and accumulating land material. My interest is in cases where land-based production becomes possible through the geographic reorganization of land matter.

Distinctions here are slippery. The earth’s surface is not actually divided into “land” and “not land”—a set of loci where land surface exists and a set where it does not. In truth, dryland and seabed are only different because the latter is overlaid by water. Wetlands and estuaries muddy this distinction even further, presenting highly productive landscapes that are almost completely resistant to property development or permanent settlement. Ethnographers have explored human activities that thrive in
these fecund, murky landscapes, like the shifting rivulets of *char* land in the Ganges Delta (Lahiri-Dutt 2014). With these ambiguities acknowledged, we can say there is certainly a difference between surfaces that support sedentary economic activity and fixed capital investments, and surfaces that do not. The “land” we are discussing is a legal and economic contrivance: it is the surface on which sedentary economies and property regimes take root.

**Inherited Land Building Paradigms**

Most scholarship has argued that states and cities build land only when it becomes the most feasible way to achieve a developmental agenda. Land building is presented largely as a project of overcoming territorial constraints and the land scarcity within them. Here I explore two paradigmatic cases: post-independence Singapore and 18th-century Prussia. In the 20th century, Singapore became the perfect specimen of land building as a tool of territorial planning. And although the Netherlands is renowned as the major site of European land building, earlier efforts in pre-unification Prussia best demonstrate how land-building became synonymous with nation-building and environmental conquest.

**Singapore: Territorial Expansion for Developmental Imperatives**

Singapore has established land building as a national interest more adamantly than any other modern state. Infill activities have a long history on the island: they are first documented as early as 1822, three years after a British entrepôt was established at the mouth of the Singapore River (Dobbs 2003). But these early projects were focused on eliminating wetlands and improving navigation within port areas, all modest environmental changes. When colonial administrators needed large quantities of land to feed economic expansion, they could shift low-value industries across the straits to Johor, the crown dependency on the mainland peninsula. Chinese plantation agriculture was shifted across the straits beginning in the 1840s when the British began implementing assessments on Singapore’s plantations (Trocki 2008, 109-111). Similarly, when a large catchment area was needed to increase water supply, an impounding
reservoir and treatment plants were built in Johor (Kwok 1986). Although the island’s land boundaries were fairly fixed, Singapore’s ambition of resource capture could expand as needed for population growth and capital accumulation.

After Singapore was ejected from Malaysia in 1965, Singapore lost its ready access to surplus territory. Political leaders in the island nation saw its strict land constraints as a high-order threat to prosperity. Unlike macro-states with a hinterland that could absorb land-consumptive industrial developments and residential expansion, Singapore’s developmental project would have to take place totally in situ. In a 1998 interview, founding prime minister Lee Kuan Yew explained how land building became a matter of highest and insuperable priority:

At the time, property prices were right down because people had no confidence in the future of Singapore. External investors had no confidence, and even our domestic investors were not certain of the future. So I could pass a law allowing all sea foreshores to be reclaimed without compensation. Otherwise, they would have demanded compensation for loss of seafront, and that would have been costly...If we tried to do it today we would have big problems. Private owners would get together and put up tremendous resistance. (quoted in Haila 2015, 75-76)

From the 1960s through today, land building has been inseparable from Singapore’s developmental agenda and planning regime. Maintaining its status as a global logistics hub would require building an international airport container port, warehouses, and refineries within its territorial constraints. To preserve inland land resources, the efficient solution would be to displace these activities to peripheral areas of new infill. The extension of Singapore’s eastern coast in the 1970s secured a site large and remote enough to construct Changi Airport, one of the world’s most-trafficked commercial air hubs. In the 1980s, the consolidation of the southwestern Jurong Islands allowed planners to push industrial, warehouse, and petrochemical operations to the country’s periphery. And infill on the edge of the Central Business District since the 1990s has expanded Singapore’s central land market nearly indefinitely, providing property development opportunities for its highly profitable tertiary sector.
In a 1984 speech, future Prime Minister Goh Chok Tong gave a speech that likened land building to “cutting the Gordian knot” (Goh 1985). Even in a dematerialized economy of tertiary services, Goh reckoned that land was a material constraint. Prosperity would depend upon overriding these constraints through technological cunning. Land building represented an extraordinary form of economic planning: one in which the system boundaries could be expanded.

Prussia: Fredrick the Great and the “Conquest of Nature”

Scholarship in environmental history emphasizes how land building has been linked to heroic projects of national consolidation and environmental pacification. Territorial expansion has usually required violent campaigns of conquest, but internal land building could expand a country’s agricultural base and fiscal space without need of territorial wars. Fredrick the Great, the primary leader of Prussian expansion, wrote in a letter shortly before his ascent to the throne that “making domain lands cultivable interests me more than murdering people” (quoted in Blackbourn 2007: 34). Between 1746 and 1780, Frederick set engineers and laborers to work filling vast marshland across his empire. Of the Oder Marshes, the first of dozens of such projects, Frederick remarked, “here I have conquered a province in peace” (quoted in Blackbourn 2007: 40). This building of new agricultural land had ancillary benefits of eliminating the unruly margins. As David Blackbourn writes:

Information was the fuel that fed the machine of the absolutist state, but the larger purpose has been summed up by Henning Eichberg: to “order, measure, discipline.” Marshland offended egregiously against this sense of order. Unimproved, marshes resisted the cadastral surveys on which land taxes rested, impeded soldiers on the march, and provided a bolthole for “disorderly” elements such as bandits and deserters. (p. 44)

In this account, land building was necessary to a state hungry for new fiscal revenues, but complementary to an agenda of territorial control.

Built Land as Developmental Utopianism

Both histories portray land building as a utopian alternative to the territorial dilemmas of development. In Singapore, offshore land building feeds a land-
consumptive economic growth engine without consuming scarce land resources. In Prussia, wetland filling was an internal circuit around the violence of territorial expansion, bolstering internal development and reducing the margins of non-state activity. Already we can see that land building allows state planners to hack the political and environmental constraints of bounded territory.

Even in literature, land building has taken on this utopian sheen, an escape from the territorial trap. Forty years after Frederick the Great’s death, Goethe finished writing his Faust epic. The play’s final act has Faust acquire tidelands from the emperor, who thinks Faust foolish to believe they hold any value. Using the power and cunning granted to him by Mephisto, Faust envisions a new nation, freed from the shackles of imperial conquest, sheltered from the raw power of the sea. He proclaims his vision of perfect order and industry to Mephisto:

I see how to give to give those millions a new living-space
They’ll not be safe, but active, free at least.
I see green fields, so fertile: man and beast
At once shall settle that new pleasant earth,
Bastioned by great embankments that will rise
About them, by bold labor brought to birth
Here there shall be an inland paradise:
Outside, the sea, as high as it can reach
May rage and gnaw, and yet a common will,
Should it intrude, will act to close the breach.

In Goethe’s telling, Faust consummates his god-like powers with this act of ultimate hubris. By breaching the shore, Faust no longer has to deal with political entanglements or environmental limitations. Shortly after, discovering that even he cannot control all influences upon the site, his ensuing rage leads to his death and apotheosis.

Global and local magnitudes
My claim is not that land-building represents a globally significant reorganization of land, or even a dominant human impact on the biosphere. As a portion of human-impacted land surface, the incidence is minute. Ian Douglas (1990) projects the total area of land reclaimed through 2000 to be about 10,000 km²—an area half the size of Israel-
Palestine. More than half of all this land building before 2000 occurred in the Netherlands’ Rhine-Meuse Delta. In a crude aggregate (Table 1.1), the total surface area of coastal land building over the past 1,000 years is about one-fifth the total area of urban expansion over the last three decades (Seto et al. 2011).

**Table 1.1** Coastal and offshore land building by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Area (km²)</th>
<th>Dates</th>
<th>Source (reporting source)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>6,925</td>
<td>1200-2000</td>
<td>Knights 1979 <em>(Douglas 1990)</em></td>
</tr>
<tr>
<td>Germany</td>
<td>120</td>
<td>1900-1975</td>
<td>Cole and Knights 1979 <em>(Douglas 1990)</em></td>
</tr>
<tr>
<td>Italy</td>
<td>630</td>
<td>1951-1964</td>
<td>Houston 1964 <em>(Douglas 1990)</em></td>
</tr>
<tr>
<td>Spain</td>
<td>1,362</td>
<td>1948-1964</td>
<td>Houston 1964 <em>(Douglas 1990)</em></td>
</tr>
<tr>
<td><strong>Europe</strong></td>
<td><strong>9,917</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>&gt;249</td>
<td>1603-2000</td>
<td>Fu et al. 2010 <em>(Wang et al. 2014)</em></td>
</tr>
<tr>
<td>China</td>
<td>13,380</td>
<td>1950-2008</td>
<td>Koninck et al. 2008</td>
</tr>
<tr>
<td>Singapore</td>
<td>141</td>
<td>1822-2016</td>
<td>Hua 2014 <em>(Bitog et al. 2012)</em></td>
</tr>
<tr>
<td>South Korea</td>
<td>1,550</td>
<td>1950-2006</td>
<td>Author estimate</td>
</tr>
<tr>
<td>Malaysia</td>
<td>30</td>
<td>2010-2017</td>
<td></td>
</tr>
<tr>
<td><strong>East/Southeast Asia</strong></td>
<td><strong>15,350</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bahrain</td>
<td>70</td>
<td>1990-2015</td>
<td>Radhi et al. 2015</td>
</tr>
<tr>
<td><strong>Middle East</strong></td>
<td><strong>138</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Americas</strong></td>
<td><strong>840</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Douglas 1990, updated by author. Table includes major projects discussed in peer-reviewed publications, but does not represent a comprehensive global survey.

If we concentrate on these coastal areas of concentrated human settlement, where humans are dominant competitors for littoral resources, land building is thrown into much sharper relief. It has been central to the economic development of coastal cities. In
the City of Boston, 17.4% of all dry land has been overlaid on salt marshes. In the
nineteenth century alone, infill more than doubled the buildable area of the extant city
(Seasholes 2003). In Singapore, the country’s land area has expanded by 24% since its
1959 colonial independence (Koninck et al. 2008).

Like most urban development processes, land-building projects have accelerated
and shifted eastward since 1950. While the United States and northwestern Europe have
become far more protective of tidal wetlands and coastal ecosystems, East and
Southeast Asia have undertaken massive infilling in estuaries, tidelands, and harbors.
Land-constrained countries like South Korea have embarked on sediment-capture
schemes as large as those of the Netherlands (Choi 2014). And in perhaps the most
dramatic example, localities along China’s eastern coast have worked assiduously to
reclaim tidal wetlands since 1950. 60% of mainland China’s coastline is now buttressed
by a great “seawall” (Ma et al. 2014). In total, these projects along the East China Sea
appear to have reclaimed more land than all industrialized countries had in human
history (Wang et al. 2014).

Despite the rapid acceleration and global growth in land building, there has been
no examination of the total global magnitude, nor explanations for its proliferation in
the late 20th century. If we accept the inherited view that land building only occurs
where land is scarce, it explains little of contemporary urban development trends.

Development Advantages of Land Building

Both the Prussian and Singaporean cases offer pat stories about economic and fiscal
expansion in the face of hard territorial constraints. Neither, however, sufficiently
explains why offshore land building is frequently preferred to inland development,
even where no land constraints exist. Land building, particularly as it has taken place in
costal urban regions like Dubai, Jakarta, and the southern Malay Peninsula—the case
analyzed in Chapter 3—has much more to do with economic advantages internal to the
land building process than physical constraints. The power to mobilize land creates
spatial and political flexibility that is simply impossible in traditional land
development. By introducing new land into a coastal system, land developers gain the capacity to overwrite property regimes.

This has been particularly true for large-scale real estate projects, where developers usually have multiple alternative sites for development. Here I review several considerations that make land building preferable to land acquisition.

Land acquisition costs in urban land markets

Coastal cities represent a terminal interface between maritime trade and land commerce. Historically, most port cities have placed an absolute premium on port infrastructure over all other possible coastal uses. In these contexts, locations that maximized waterfront access also minimized distance from commercial centers. Centrally located docks and warehouses reduce the transport costs of bringing trade goods to inland markets, and vice versa.

After the development of exurban, intermodal container ports, urban waterfronts became more flexible in their use (Lee et al. 2008; Rae 2008; Hoyle 1989). This has created conflicting agendas about the best use of the water-land interface, increasing the financial value and political challenges of acquiring coastal land (Brown 2009). Typical competitors for urban waterfront locations include real estate developments, recreational functions, heavy industries, marina and cruise terminals, aquaculture, and nature reserves.

With so many possible uses and unreplicable characteristics, waterfront locations face steep rent gradients. In major urban centers, waterfront property usually carries the highest land-value premium. For property developers, this premium can exceed the per areal unit construction costs of nearshore land building. Table 1.2 compares waterfront property costs in several cities that have undertaken significant land-building projects since 1950. Land building allows the developer to circumvent the urban land-market regime and negotiate for acquisition without regard to its location-derived market value. In many cases, states have acquiesced to allow developers to only cover construction costs. Fee-free acquisition can amount to a hundred-fold reduction in land-
acquisition costs in markets like Hong Kong, with a more likely range between two-
and twenty-fold in other first-tier coastal property markets.

**Table 1.2** Costs of waterfront land acquisition in major cities

<table>
<thead>
<tr>
<th>City</th>
<th>Land price in USD/m² (2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower estimate</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>25,000</td>
</tr>
<tr>
<td>Singapore</td>
<td>5,800</td>
</tr>
<tr>
<td>Dubai</td>
<td>2,250</td>
</tr>
<tr>
<td>Tokyo</td>
<td>1,600</td>
</tr>
<tr>
<td>Rotterdam</td>
<td>610</td>
</tr>
<tr>
<td><strong>Generic cost of reclaimed land</strong></td>
<td>**315 ***</td>
</tr>
</tbody>
</table>

Reproduced from Schaart 2008 (industry presentation). Converted from euros.
*Includes material, revetment, and compacting costs. Costs vary substantially by water depth.

**Absence of encumbrance**

One of the thorny dilemmas of private property regimes is that any land transaction must first clear a thicket of existing claims to land. Even where a single buyer and seller agree to a transaction, the buyer must reckon with any number of servitudes, easements, and leasehold or other derivative interests, all of which we can generically call “encumbrances” to development. While some encumbrances are well defined by property titles and leases, others—like grazing rights, fractional interests, and customary uses—are often difficult to define within private property regimes. Further encumbrances exist in the regulatory prescriptions about how land may be used.

Although the encumbrances of one parcel can be overcome, they compound exponentially when one large buyer contracts with many petty sellers. Such arrangements become necessary for networked infrastructure and real estate megaprojects. Even institutional economists who believe in the comparative efficiency of private property regimes have noted they create extraordinary transaction costs when a buyer wishes to acquire a large number of private parcels (Demsetz 1967; Ellickson 1993). When a land-buyer faces a reluctant seller, they can pursue any number
of equivalent locations where another seller might part with their land title. But a large-scale project requires developers to broker with a large set of claimants. Not only do the coordination costs grow, but the buyer is at the whim of holdout sellers. Sellers vested with exclusive rights to some portion of the acquisition site often have the power to scuttle the whole deal. This is especially perilous for network infrastructure projects and large-scale urban developments because they face significant path dependencies.

Doctrines of “eminent domain” and “compulsory acquisition” have long existed to combat the holdout problem in private property regimes and to clear land of its encumbrances of monopolies of title. The state’s sovereign power can be invoked to extinguish land claims, but is often restrained by “public purpose” standards. In general, compulsory acquisition attempts to strike a balance between the freehold ideals of private property in land and the state’s function in coordinating development. In jurisdictions like China and Singapore, the holdout problem is removed by ensuring all land is alienated only by leasehold. Nationalized land systems thus face far less encumbrance to large-scale development.

Contractual and regulatory encumbrances are merely legal contrivances, ones that can be unmade as they are made. We might consider the mesh of ecological relationships in any place as a more fundamental form of “encumbrance” to redevelopment. When frontiers are colonized for agricultural development, the first step is to clear the existing habitat for new a new regime of crop production. Where ecological regimes do not conform to commercial production regimes, they must be eliminated. We can see this in the way barbed wire was used to exploit the American West (Netz 2004). By excluding unproductive range animals like bison and corralling sedentary ones like steer cattle, fencing allowed land to be relieved of its range functions and invested with sedentary production.

Littoral environments, where land building is most common, harbor a great tangle of overlapping use claims, all of which might be thought of as “encumbrances” to building new land. The water nearest the shoreline, what we call the “foreshore” and “nearshore,” harbors a complex of spatially simultaneous economic uses that land
rarely permits. Even if we consider only human users—like fishermen, navigators, and gleaners—many types can thrive within the same arena without harming others’ use. It is not just the users that overlap: each depends upon the tidal flux, fluvial discharge, nutrient replenishment, and species competition that occur at the conjunction of land and water. It is precisely the fluid, interpenetrating interface of land and water, what ecologists call an ecotone, that makes nearshore environments so productive and contested.

In common-law countries, the procedure of granting land outside the existing property regime to a first concessionaire is referred to as “land alienation.” “Alienation” holds similar meaning in Marxian thought: to bring an embedded object into exploitation, commodification, and circulation. State administrations have long alienated frontier land at no cost, provided that work of ecological pacification and economic improvement is carried out by the developer agent, often by settlers, loggers, or planters (Lambin et al. 2001). While the government benefits from incorporating fiscally sterile land into revenue property, the developer benefits from establishing an optimally-sized land claim and configuring the site without regard to any existing cost or legal encumbrance. In Malaysia, the case to which we turn in Chapter 2, this arrangement has been central to the creation of an inland fiscal base and commercial system. Property relations for land building inscribe a similar relationship between the state and land developers, often using the same legal mechanisms of land alienation.

Land building is not merely a material transformation of the earth’s surface: it overwrites an unbounded, fluid environment with an enclosed, divisible commodity. It makes alienable what once was not. As Anna Tsing (2015) has written, capitalist development has a primal interest in disentangling the complex relations between ecology and production, an act required to make embedded objects into mobile, alienable commodities.
Tabula rasa development surface

In traditional urban land markets, rent gradients are sloped with the topography of infrastructure networks. Building-scale real estate projects need to locate near highly networked corridors—like highways, broadband trunks, sewer systems, and other “sunk” capital investments—that provide access to goods. The need to “plug in” to achieve investment returns places real estate in steep competition for premium locations. Network access not only shapes urban geography, it constrains the territory of competition. In forcing developers to compete for scarce locations, it becomes the mechanism by which cities and incumbent landowners can capture value increments from new development. Surveying this topography is as central to real estate investment as it is to other forms of resource exploitation. With better maps of the peaks and valleys of rent, and about the infrastructural substratum, a developer can find unexploited seams of land rent. The developer who best triangulates these seams will reap the profits of exploiting them.

If there is a key strategic distinction to large-scale development, it is that sufficiently scaled real-estate projects can overcome certain network dependencies and thus have no need for a precise map. Bigger projects differ in their relative freedom from locked-in infrastructure patterns because of the internal network economies they create. The capacity to build private wastewater treatment facilities, internal mass transit, small-scale power generation plants, and other “premium network space” is characteristic of a broad set of new mega-enclaves, often outside first-tier property markets. Portable infrastructure networks create a much less restricted set of location choices, allowing developers to sidestep location premiums. Large-scale development can thus produce real estate investment frontiers distant from central cities, and globally-networked enclaves well outside the established global-city nexus.

In using their scale and enclosed topology as a barrier to entry, these frontier developments are only available to highly capitalized agents, those able to mobilize prodigious sums of investment capital to cover infrastructure costs. When large players are the first speculators to the market, the ensuing conflicts can be awkward and
uneven. The peripheries on which these projects take root are often dominated by smallhold landholdings and rural peasants. Under more a more piecemeal development strategy, fringe developments will inherit the morphology of agricultural plots, the nuclei of village centers, and the land-brokerage system that accompanies local power relations. But large-scale development requires a wholesale restructuring and consolidation of the land surface. “Land assembly” is a polite term for this process; it often masks involuntary expropriation or even violent dispossession of landowners.

Built land is better for these large-scale enclaves in at least three ways. First, the reconfiguration of land surface can reinforce an enclosed configuration. The “enclave archipelago” is much easier to sustain atop an actual archipelago. Land boundaries are the hardest kind of property borders. They leave no margin where squatters can settle, gleaners can siphon, or competitors can capture spillover value.

Second, land construction allows developers to configure land for optimized investment value. Instead of building atop a prefigured land surface to which building plans must conform, the land can be shaped to the plan itself. This is best expressed by the offshore developments in Dubai, where the iconic “Palm Jumeirah” development (Fig. 1.1) is branched to maximize high-value waterfront property. In the way that Play-Doh allows children more open creativity than regular toys, building land lifts the prefigured constraints of acquiring land. Property can be molded to align more perfectly with the needs of investment capital.

Third, built land is a mobile, homogenous commodity. Sand or other land materials can be transported to a location that optimizes value to a developer and creates the least recourse for other claimants. It is a tabula rasa medium: mobilized sand does not carry any trace of its prior location, nor does it easily become colonized by its biotic neighbors. As we will explore in Chapter 3, it can also have the effect of wiping the slate clean of prior uses.
Crucially, the site itself is not a “blank slate,” merely the land installed. Much like plantations have colonized forests, land building overwrites longstanding regimes of production and ecological relationships. Building land in a fishery eliminates a common property under collective management, a kind of common-pool resource vulnerable to upheaval and takeover by changes in the land. Coastlines and wetland are particularly high value ecological systems, and land building is virtually certain to disrupt fluid hydrological regimes that sustain a bounty of life. Thus, land building is a *tabula rasa* surface only insofar as it has the power to erase prior conditions. In the power to erase, we can land building’s likeness to the enclosure movements of the English 18th century and land grabbing movements at play today (White et al. 2012).
Dispossession avoidance

The last of these advantages may be the most controversial to those who see large-scale development as an inherently expulsive condition. Large-scale developers and state actors do not usually wish to entangle themselves in land dispossession, if it can be avoided. Consolidating landholdings for urban development creates systemic risks on all sides. Compulsory acquisition often attracts public protest and international outcry. Outside the Indian city of Jaipur, land assembly for Special Economic Zones has been a fractious and transparent process of “accumulation by dispossession,” one that requires constant intervention by the state on behalf of development interests (Levien 2011, 2015). In the Pearl River Delta, holdout homeowners draw local and international media attention, creating striking images of “nail houses” that remain standing in obliterated landscapes. To help earn farmers’ trust in relocation schemes, Chinese municipal governments have begun to assess and support small farmers, often at large political costs to municipal governments and private developers (Tang, Wong, and Lau 2008).

To be clear, it is not my belief that developers wish to avoid land dispossession at all costs. They wish to avoid it to the extent that the risks of outright resistance and reputational harm increase the costs of acquisition. In societies where resettlement schemes are commonplace and acquisition costs are set by the state and not market value, there is much less incentive to avoid dispossession. But if there is an alternative site that can offer as much rental value as these risk-adjusted costs, it is my presumption that a land developer would prefer such a site.

The Fixity of Land in Economic Thought

Neoclassical thought has avoided describing land as a distinct form of capital, but the distinction is central to substantivist and Marxian economic theory. In The Great Transformation (1944), the locus classicus of substantivism, Karl Polanyi places land alongside labor and money as “fictitious commodities.” In his argument that market economies require a coercive reorganization of their parent societies, an essential precursor to market creation is the mobilization of the “embedded” factors of
production. Fixed in place and central to feudal social order, land could only become “mobile” via property markets, by the circulation of underlying titles. Polanyi calls the drive to “isolate [land] and create a market for it perhaps the weirdest of all the undertakings of our ancestors” (187). Making landholding fit inside exchange relations required not only enclosure movements, but a more basic rethinking of the relationship between human freedom and property. Political philosophers like Jeremy Bentham and John Locke attempted to place the foundation of “inalienable” rights not in the freedom to use land, but in the freedom to own it.

But the underlying propositions for these sorts of positions reveal deeper sources of confusion. Polanyi’s belief in the immobility of land arose from a belief that “the soil cannot be physically mobilized” (Polanyi 1944: 189), a point which can be quickly refuted in our current inquiry. To help hone in on the matter under question, it is worth first discarding some of the absurd formulations of the “law of fixity.” The immobility and non-creatability of surface land is not an ironclad geophysical principle of land mass. Stepping back into the view of earth-time, the slow erosion of continental shelves and the spreading of ocean floors make clear that the earth system has no perfect areal-balance of surface land. Even over shorter time scales, advance and retreat of glaciers throws cold water upon the idea that humans have had access to some fixed settlement space on the face of the earth.

We should also disregard as ahistorical any interpretation that suggests property regimes have developed over bounded space. Capitalist production has been relentlessly expansionary, as have the property regimes that sustain it. In a purely biophysical model, global-change scientists Navin Ramankutty and Jonathan Foley estimate a three-fold global increase in permanent croplands since 1700, much of it driven by state policies promoting the privatization of land (Ramankutty and Foley 1999; Lambin et al. 2001). Many reasons for this have been expounded. Polanyi, for example, saw the subjugation of colony land as a way to ensure production outpaced protectionary movements against marketization in Europe (Polanyi 1944: 187–188, 192, 223–25). Other accounts have been more deterministic: world-systems theory has placed
terrestrial expansion as a fundamental tendency of capitalist production (Wallerstein 2011).

What is meant by Polanyi and others is something more akin to the idea of territory. Within a particular society, there is a relatively fixed space of productive land. That production space has no total boundary, but returns do diminish in incorporating increasingly marginal land. Expanding those margins usually requires technological innovation that give marginal land higher value, or an ability to liberate land from prior owners.

Given the technological costs of dredging and filling, the desire to “mobilize soil” requires that private owners gain exceptionally high rental values from doing so. Combined with technological cunning, the possibility of capturing exchange values from moving soil is what makes it profitable. This, of course, is only possible under the system of exchange that produces private land rents. Bu where it gains a sufficiently high commodity value, land can escape its status as a “fictitious commodity.” There, the soil then becomes as mobile as the disembedded market.

**Fixity Premises in Land Property Regimes**

I have invoked the idea of a “property regime” here so as not to over-steer this analysis towards private property. Land building often straddles wildly different property regimes. The land-building project we explore in Chapter 3, for example, takes place in a shallow, foreshore marine environment used primarily by local fishermen. Fisheries are the paradigmatic example of an open property regime, one that is nonexcludable and in which each user subtracts from a stock of fish. The same fishery is shallow enough to invite gleaning activities that only partially overlap in their use interests. Local fishermen take an interest in fish, prawns, and crabs; gleaners are after sea pens, sea stars, and other sedentary creatures. In deeper areas of the same arena, fishermen and barges ply the same waters without much conflict.

Within such a regime, land building is able to create an enclosed claim that overwrites all of these prior productive uses. Filling the sea with land creates an
excludability once impossible, and it smothers the resource base which made these other activities productive. But, more indicatively, it makes these expulsions desirable by creating "higher and better uses" on the newfound land. Offshore parcels are most efficiently held as a commons; land is far more receptive to the monopoly system of private property.

In the most abstract and universal characterization, property regimes distribute the use values of land surface within a territory. These regimes exist because land itself has no inherent divisibility. To be alienated into private use, a contrived division of land must overtake the land itself. Most modern states have invented a straightforward mechanism to make these allocations, what surveyors call a cadastre or land registry. In a material sense, the cadastre is the government's record of land titles; in a legal sense, it confers rights of use and occupancy to land title-holders. But in a more geometric sense, the cadaster is a fixed, discrete, flat grid of parcels, deliberately insensitive to the vagaries of flux and movement. A growing shoreline, a shifting rivercourse, the slow changes of climate that fertilize some land and sterilize others are all annihilated in the freeze-frame of the land survey.

Like the joint-stock company or the shipping container, the parcel is a basic organizing principle of market economies. It has proved to be an administratively convenient and politically durable way to organize property relations. But like the container or the corporation, its basic functionality should not be confused for economic efficiency. James Scott (1998) contends that cadastres arose as a way to make legible the complexities of local land uses to the logic of revenue collection. A field that changes hands by the agricultural season, a grazing commons that doesn't record its users, or fuzzily-bounded fishing ground is a headache for the tax collector. To avoid variation, states have expended an enormous amount of energy in surveying and standardizing land claims so that they can be centrally administered (Scott 1998; Rose 1988). Under the cadastre, ambiguities and disputes over land must be squared with an objective grid of land title, or resolved by the systematic exceptions of property. Centralized states need land tenure to be organized by parcels and cadastres, not the other way around.
As Harold Demsetz (1967) contends, a private property regime finds its greatest advantage in internalizing the externalities of production to the landowner. By creating a tiny monopoly over space, it is also tremendously efficient in simple transactions, minimizing the number of claimants. Both buyer and seller have bargaining power in capturing the rental value of the property: the buyer from inventing more profitable uses, the seller from reserving it from sale. By enlisting the state to make a standardized relations between land buyers and land sellers, land achieves a “market value” that accords benefits to two parties, usually with a fiscal take by the state.

But the problem of flattening four-dimensional geographic processes into two-dimensional administrative space is that the other two dimensions are illegible and unwieldy. Land building exploits this as a vulnerability, creating claims that are “off book” and sending surveyors scrambling to catch up. In building land, there is no obvious “seller” to demand a “fair market value.” This allows rental values to accrue entirely to the builder, minus whatever costs it takes to appease the land administrator.

As a final note of caution, we should also be careful not to assume that private property regimes are much alike outside of their grid logic, nor that any one regime rests on a unified, standardized system of rules. This is especially true in Malaysia, where private property in land is characterized by a dual system of largehold and smallhold with very different motives, protections, and encumbrances.

Land Building and “Submerged Rent Gaps”

“Rent gaps” are key to understanding the urban development process. Neil Smith (1979, 1996) originated this concept in his examination of American gentrification. Smith argues that late-20th century interest in “revitalizing” inner cities emerged from growing gaps between capitalized land rent and potential land rent, leading to the linked process of neighborhood renovation and social expulsion.

Smith eyed “rent gaps” that emerged from undercapitalization, like the strategic neglect of poor, black neighborhoods in inner city Philadelphia. But rent gaps can also be manufactured by increasing potential rents without landowner consent. At the
national scale, macroeconomic restructuring and industrial policy become other ways to manifest rent gaps, creating potential land uses formerly impossible under prior regulations (Swyngedouw et al. 2002). Locally, rezoning, infrastructure development, and piecemeal deregulatory strategies allow cities to strategically manufacture rent gaps for planning purposes. The creation of “Special Economic Zones” is perhaps the most fitting example of this. By reducing tax burdens for certain investor classes, cities can erase prior restraints of land valuation and solicit preferred types of investment. This has been particularly effective for recruiting and directing foreign investment, the largest and most footloose pool of capital that local property markets can capture. David Harvey (1992) and Ananya Roy (2011) have criticized SEZs and other deregulatory strategies of rent-gap creation as “geobribes,” ways of using local rent-gap formation to favor multinational corporations.

Other authors have extended rent-gap theory to large-scale real estate development, arguing that the capacity to outlay infrastructure provides private financiers with an uneven power to raise land rents (Swyngedouw et al. 2002). Instead of waiting for the state to induce rent gaps through regulatory reform, large-scape developments can manufacture rent gaps themselves. Revisiting our earlier thinking about escaping infrastructure networks by scaling up development, large-scale development also offers a strategy of eluding state-led rent-gap formation.

Again, land building extends this power in extraordinary ways. Land markets are fundamentally constrained by the boundaries and topography of land itself (Saiz 2008, 2010). Even under a simplified rental gradient of monotonic decay (von Thünen and Hall 1966), land rents halt at the shoreline, and only an “imaginary grid” of rents extends beyond it. To raise new land where it does not yet exist allows land builders to exploit submerged rent gaps, ones that are invisible and inaccessible to other actors. Like large-scale development, land building offers a way for highly capitalized actors to access rent gaps that others cannot. Given that real estate markets require settled land to exist at all, it is an epistemic conceit to even call these “rent gaps.” In a very real sense, land building wills land rents into existence.
Geo-hacking in Time and Place

At its core, the ability to exploit the differences between land surface and land markets is why we can call land building a geo-hack. Land is a territorially constrained commodity; land markets are an infinite grid of location values. Land building reconciles the two to each other. Combined with large-scale real estate development, land building offers a unique way to exploit the mismatch between territory and grid: first, by manufacturing land, and second, by manufacturing larger rent gaps. With planning regimes and property regimes invested in administering the territory, private developers become free to work in the grid beyond territory. The mobilization of land overwrites the constraints that development otherwise inherits, but leaves no margin for others to follow. Land building succeeds as a hack because it is a temporary and limited incursion into the logic of property and planning; one that can absorb all the private value of a property regime without opening the same value to other parties.

Land building is a hack in the sense that it finds vulnerabilities and exploits them, but we should not take this to mean that it is an *ex nihilo* innovation. Land market expansion by commercial conquest is not a new phenomenon, nor is the refiguring of property relations by creating an entirely alien environment. As such, these exploits must be considered in the mirror of historical land development. Furthermore, to understand the techniques of any instance of land building, we have to understand the operational logic it attempts to circumvent. This is not so easy to do in generic terms; it requires that we adopt a particular site to squint at.

The following two chapters of this volume are entwined attempts to understand and situate one land building project on the Malay Peninsula, a site called Forest City in a coastal district known as Tanjung Kupang. Chapter 2 presents a limited historical review of land development in the Malaysian state of Johor and the administrative logic that has shaped it, narrowing rapidly towards a historical geography of the site in question. My goal here is obviously not to write history proper, but to establish a functional analysis of how land building becomes desirable and feasible within one place and time. Having worked to unravel the generic conditions that make land
building attractive, my goal is to weave the threads through the fabric of one landscape, and thereby turn it over to examine its stitching. Examining the stitches can help identify the artisan: the fiscal rationale, social conflicts, and kindred practices that shape the modern political economy of land in one small district.

Chapter 3 begins by looking at contemporary land building in Malaysia, again converging rapidly on Forest City, a foreign real estate investment being built off the coast. With a dramatic, recent uptick in land building and foreign investment, sites that express this convergence can help us understand the type of hack land is. Our task is again to pull out the threads we already recognize in this first review of contemporary land building.

A review of the methods used in these two chapters can be found in Appendix 3. Both rely substantially on archival work in Johor and Singapore, especially the review of land-survey maps, master plans, and land records gathered from four peninsular archives. Much of the local history reviewed in Chapter 2 was assembled from the microfilm newspapers at the National Library of Singapore. In addition, I interviewed local residents affected by the Forest City project about local history and the economic and social impacts of offshore land building. Conducted in English and Malay, these interviews are not cited directly here, but have formed a “ground-truth” that has helped to explain the production regimes and political tides that have shaped Tanjung Kupang and Forest City.
2. HISTORY OF LAND DEVELOPMENT REGIMES IN JOHOR, MALAYSIA

There is one connection between the economy and environment that seems important to introduce up front: this history of human concentration of wealth through making both humans and nonhumans into resources for investment. This history has inspired investors to imbue both people and things with alienation, that is, the ability to stand alone, as if the entanglements of living did not matter...The dream of alienation inspires landscape modification in which only one stand-alone asset matters; everything else becomes weeds or waste.

Anna Tsing, *The Mushroom at the End of the World*, p. 5-6

Large-scale land building, though pervasive in the urbanized state of Singapore, has only recently commenced in the rest of the Malay Peninsula. However, the process of alienating land for economic expansion and territorial control is longstanding within the borders of modern-day Malaysia. To stage our discussion of land building in southern Malaysia, we first can establish a functional analysis of peninsular Malaysia’s property regime as an economic system. This requires us to look back at the development of the parallel systems of commercial largeholding and protective smallholding that now characterize most private landholdings on the landmass.

**Administrative Geography of Peninsular Land Development, 1840–1990**

Since the arrival of landed commercial interests in the 1820s, property regimes on the Malay Peninsula have been organized around two basic administrative objectives: how to most efficiently grow state revenues with the alienation of land property, and how to create social protections that conform to this private property regime. Malaysian land law, which has codified these objectives, has thus had to serve two basic principles: first, to efficiently subdue landscapes to maximize value extraction, and second, to incorporate Malay and other subject populations into a system of private property.

These objectives were compatible with each other and mutually reinforcing for much of the 19th and 20th centuries, producing parallel largehold and smallhold land systems. Within Malaysia’s agricultural capitalism, we can liken this dual property regime to the “double movement” that Polanyi witnessed in industrial capitalism. But since 1960, the urban transition in peninsular Malaysia has involuted their relationship
by creating “higher and better uses” for both types of land near urban property markets. Malay smallholdership, considered a developmental advance during the pre-independence era, is now treated as a particular encumbrance to national development in certain urban markets. Accordingly, the crystalline land rights afforded to smallhold land under the British land system have been rapidly eroded in the post-independence era. This has resulted in various strategies for the re-acquisition of smallhold property.

After discussing the preconditions and process of commercial settlement on the peninsula, I examine urban development pressures as they have arrived in Tanjung Kupang, a rural western district. As the third chapter will elaborate further, land building appears to offer an escape from the smallhold-largehold conflicts that have come to characterize urban development on the peninsula.

Absence of prior state property regimes

Despite its parallel status to British India within the crown colonies, the colonial mandate for British Malaya could not have been less similar. Colonial law in British India attempted to accommodate a panoply of agrarian production systems within the logic of fiscal and commercial extraction. But when the British arrived to establish a maritime foothold in the Malay Peninsula, they encountered only a few concentrated settlements and no pattern of sedentary agriculture or mineral exploitation. The task would be to manufacture a land development system that would exploit a fiscally sterile continent.

At the time of British arrival, there were three coastal negeri (city-states) that had sway over the Straits of Malacca: Penang, Malacca, and Singapore (Reid 1995). Unlike the centralized agrarian states that thrived in the river deltas of Cambodia and Vietnam, the city-states and other petty kingdoms had no inland resource base from which they systematically extracted rents or revenues. Instead of concentrating labor and grain, as most macro-states have done, they instead raised revenue by commandeering spice trade routes and harboring merchants (Scott 2009; J. Kathirithamby-Wells 1990). As maritime trade among European, Indian, and East Asian empires accelerated, ports in
the Straits of Malacca became a vital choke point to global trade flows. Though situated on the landmass of mainland Southeast Asia, the Malay city-states comprised an archipelago of statelets connected by maritime trade routes. Empires of the straits, like Srivijaya and Malacca, had virtually no inland infrastructure and no export-oriented agricultural base. But though they had little overland connection to interior societies or mainland empires, they were deeply enmeshed within maritime Southeast Asia, an arena commonly called the Malay Archipelago.

With growing European presence along the spice routes came increasing pressure to exploit the Malay Peninsula as another territorial colony. Though commercial experiments in British Malaya were modeled after the British Raj in India, developing a base of export commodities would require an unparalleled reorganization of peninsular ecology and peninsular people. When the Indian subcontinent came under British rule, the Indo-Gangetic Plain already had a multi-century history of territorial empires, sedentary cultivation, and commercial crop production. This had given rise to centrally managed systems of land tenure and revenue collection (Habib 2001). By comparison, inland areas of the Malay peninsula—heavily forested, malarial, nutrient-poor—were almost perfectly hostile to permanent human settlement, and had no centrally organized property system. Labor force, land laws, markets commodities, and administrative techniques would all need to be imported to effect an alienation of the Peninsula.

Land-based commercial activities were not absent from the peninsula, but they were constricted by environmental and geographic conditions. Commercial industries like fishing and rice-padi cultivation assembled along the Malay coast because of constant nutrient replenishment by river outlets (Ooi 1963). By comparison, inland areas could only sustain swidden agriculture, or shifting cultivation, a technique of clearing patches of forest for cultivation followed by a long fallow period of forest regrowth. Tropical soils do not have a resident nutrient base because they are constantly leached by rainfall. When the canopy is cleared for cultivation, they lose their rapid build-up of decomposing humus and are quickly exhausted (Ooi 1963). In
burning to clear forest and allowing natural regeneration after cultivation, swiddening deals with this primary dilemma of soil exhaustion. But a consistently mobile system of production lends itself neither to fixed property claims nor ready taxation (Scott 2009).

The lack of a centrally managed land system should not be confused for a lack of inland habitation or contact with these states. Evidence of swidden cultivation by orang asli ("original people" of the Malay Peninsula) originates some 10,000 years before present (Bulbeck 2015). Anthropologists have documented the network of trade relations between swidden cultivators and coastal kingdoms and entrepôts (Dove 2011). Still, it is accurate to say that before the 1820s, rulers and merchants had little interest in commercializing agricultural production, expanding inland territory, or assimilating non-state cultivators. Empires faced outward, towards the roving sea, away from the unruly interior.

Inland Commercial Expansion in Johor, 1840–1890

The creation of systematic land laws heralded a reorientation from control over sea commerce to control over land commerce. The reasons for this shift were complex. The expansion from coastal statelets to territorial states began as administrators in the Straits Settlements sought to secure export commodities, primarily tin, pepper, and gambier (J. Kathirithamby-Wells 1990). For local rulers, this strategy offered a more reliable basis of taxation than maritime raiding expeditions. For the British, it also served the extractive logic of colonial rule.

In the peninsula’s southernmost state, Johor, the temenggong—a British-recognized Muslim ruler—rose as a pioneer patron of inland development. The land alienation system he invented is now known as the kangchu system, a Teochew word literally meaning “lord of the river.” Beginning around 1842, the temenggong would draw up royal contracts (surat sungai) that gave commercial pioneers exclusive rights to the produce of an entire river watershed in exchange for a tax on commercial profits. Teochew Chinese planters, unhappy with British efforts to extract revenue from their Singaporean plantations, were the primary clients of this system (Trocki 2008). Lured by
the *kangchu* concessions, planters left Singapore and established an agricultural foothold along the coast of southern Malaysia. The concession afforded planters a monopoly on river-fed nutrients, a clear outlet to bring goods to market, and the flexibility to develop large-scale pepper plantation operations (Trocki 2008). In return, inland areas were cleared and made productive. In the southern peninsula, the *kangchu* and its grant of legal control over the watershed grew to be the key institution establishing large-scale agricultural enterprise.

A central dilemma of sedentary societies is how best to deliver water and nutrients across an expansive area of agricultural production. Most agrarian societies have either leveraged cyclical flood regimes or introduced state-financed irrigation systems to accomplish this task (Wolters 2007). Historians have argued that these systems have been central to the political structure of state societies (Rigg 1992; Wittfogel 1957). But with no floodplains or inland reservoirs, the Malay peninsula lacked any indigenous capacity to establish waterworks for settled agriculture. Instead, private control of river watersheds provided a river-fed nutrient base, allowing planters to gain a permanent foothold in Malaysia. This largeholding strategy would never have been desirable to swidden cultivators, who could instead rely on mobile cultivation strategies and fallowing for soil replenishment.

Thus, the basis of Malaysia’s property system did not arise from a need to rationalize customary property arrangements, or a belief in the democratizing power of private property, but from the exigency of establishing a system of land-based commerce. While the temenggong’s contracts granted a monopoly over land resources, this was not synonymous with modern concepts of parcelized private property. Rather, it established a fuzzy boundary that clarified access rights to a river and maximum extent of cultivable land around it. Delineated and transferable land claims would not emerge in Johor until the British began their own commercial colonization of the region.
British Inventions on Land Alienation, 1890–1959

By the end of the 19th century, British territories on the peninsula had adopted land-tenure systems similar to the temenggong of Johor. British governors would extend fee-simple commercial concessions to rubber planters and tin miners, who opened up the peninsula for inland settlement and territorial consolidation by British and Chinese capitalists (Drabble 2000). By the end of the century, the basis of colonial power shifted from regulating seafaring to regulating landholding. Rather than managing international trade flows, British Malaya would augment them with new commodity crops.

Large-scale landholding, of course, required that any prior claims to possession be extinguished. Unlike the United States, where 19th-century territorial expansion was characterized by war, sedentarization, and forced relocation of native societies, the inland Peninsula presented much less human resistance. Still, to achieve inland development the tropical, malarial landscape would need taming. This could be accomplished in the traditional manner of conquest: by erasing prior production ecologies and implanting a new one. In his work on plantation development in Borneo, Michael Dove summarizes how plantations were made to supplant Malaysia’s swidden and smallhold systems of agriculture:

From colonial times to the present in Indonesia and Malaysia, the history of estate development is one of the erasure of preexisting environments and modes of production and their replacement with something completely different: a new topography, new biota, new labor regimes, even new microclimates…This task was not an easy one in alien and complex environments where preexisting native epistemologies were ancient, culturally embedded, and highly functional. One way that colonial powers dealt with this challenge was simply to change the environment, to create a blank slate. (Dove 2011, 25)

In Dove’s view, the act of introducing an alien ecological and social landscape was central to the broader episteme of legal “alienation.” Possession and control was easiest to demonstrate by removing all traces of a former production system or terrestrial ecology. To be pioneered, land must first be made “unencumbered,” not just merely in
the sense of having no prior possessory interests, but unburdened by other productive entanglements.

The relation of the “blank slate” to tropical ecology is clear: it involves the replacement of complex forest biota with a monocrop of commodity trees. In Johor, the succession of tropical forest by gambier, the succession of both by rubber plantations, and the succession of rubber by oil palm is evident in the land-use surveys conducted between 1880 and the present day. Dove (2011) has argued that each crop has required incrementally more dominance over land, water, labor, and commodity processing.

But this erasure also manifested in the plantations’ labor relations. Rather than attempting to assimilate smallhold cultivators as wage-workers, British officials looked to establish a totally foreign system of labor. To help accelerate land clearance and further alienate production from place, the colonial government began recruiting indentured laborers from South India to state plantations (Amrith 2013). Similarly, Teochew Chinese laborers were employed by Hokkien revenue farmers. By the time of the Second World War, the settlement system had thus established the crude socioeconomic structure that would characterize Malaysia’s post-colonial struggles. In addition to their own agricultural and mineral holdings, British administrators in the Straits Settlements presided over or advised the control of three distinct groups: a Chinese business class of planters and merchants, a landless class of Tamil laborers considered to be outside the dignities of citizenship, and a majority class of Malays positioned as an economic abject (Harper 2001). At the heart of these political arrangements was the land tenure system that had emerged to serve commercial planting and mining.

Colonial administrators had one more ace up their sleeve to create a totalizing system of plantation production. While the temenggong’s kangchu system were magnificently efficient at alienating land, the fuzzy watershed boundaries did not have the durable and definite exclusivity of modern private property, one in which production monopolies become co-extensive with map borders. In 1913, British governors of the Peninsula began enforcing the Torrens system, first developed in New
South Wales. The Torrens system established that the land registry contained all legally relevant facts regarding land claims. Occupancy, deed, labor, or any other possessory claims could no longer dispute the authority of the cadastre. Unlike the English and American jurisprudence that considers a hierarchy of claims of possession, improvement, and title lineage, landholdings became a singular and uncontestable administrative fact.

Having tamed all inputs—a disciplined labor force, orderly plantations crops, a vertically integrated commodity production—the system remained endemically fragile in its central purpose: creating profits from land. Fluctuations in international commodity markets ensured that no plantation could guarantee a steady profit, which threatened the fiscal base and administrative logic of British Malaya. A landscape perfectly manicured for investment yield is one perfectly primed for external shocks.

State Paternalism and Smallholdings

Having established how land alienation and land laws were used to further commercial expansion, the task remains to show how territorializing settlers became an equally important objective. The belief that resource extraction is the only goal of colonial development presents a shallow reading of administrative logic. Ordering the rights, duties, freedoms, and securities of an indigenous population has always been an equally high administrative task. As Paul Kratoska (1985) has argued:

Officials in Malaya considered tenure arrangements to be of fundamental importance in laying the foundations of colonial rule. Security of tenure, the argument ran, contributed to the prosperity of the local population, giving men of substance a clear stake in the country and, accordingly, in administrative stability and in law and order. Moreover, in order to attract capital investment in commercial agriculture a colony had to be able to offer clear and uncontested rights in land. Land laws were important, then, not only because they gave titles and security of tenure to landholders, but also because they established where land was free of claims and encumbrances. (16)

The opening of inland frontiers made organizing the system of smallhold land claims of sudden and paramount commercial interest. Based on a reading of customary law across states, British administrators believed that clearance and permanent
occupancy became the legitimate basis of proprietorship under customary Islamic law (Wong 1975, 10-11). Whereas permanent settlement had previously been restricted to coastlines and rivers, peasants could now gain a foothold on the fringes of inland clearance. If administrators failed to get ahead of smallholders, it would invite a clutter of smallhold claims that would frustrate further commercial production by legally encumbering land. Furthermore, without a tenuring system, small cultivators would continue to cultivate with abandon, quite literally abandoning exhausted lands in favor of more nutrient-rich claims as had been customary.

Kratoska indicates that these early attempts to establish fixed tenure were unsatisfactory to administrators. Not only did abandonment persist, but the so-called peasants were eager to sell land to other bidders, and often preferred temporary land licensing to permanent title. Although the agronomic advantages of footloose cultivation for these smallholders were indisputable, land sales were perceived as the source of Malay impoverishment: administrators feared a permanent asset were being dissolved for quick cash infusion. To sedate the unruly strategies of Malay cultivators, administrators established the Malay Reserve Land system in 1913. Under Malay Reserve laws, land in rural precincts and villages could only be transferred among ethnic Malays and could not be consolidated or alienated. In Johor, state administrations encouraged smallhold pioneers to join with these schemes by reducing quit rents in exchange for making their lands non-transferable (Guyot 1970).

On face, the Malay Reserves were established to protect Malay peasants — to ensure they were not ruthlessly exploited by lenders, land consolidators, and dominant ethnic groups. But the more direct administrative interest was in getting Malays to act as sedentary peasant subjects.

Smallholder Protection as Postcolonial Ideology

Over the early 20th century, the “mythical attachment” of Malays to their land took hold as an essential cultural fiction. It congealed as the myth of the bumiputera, the idea that Muslim Malays were the rightful “sons of the soil” across the Peninsula. Like
United States ethno-nationalism, the myth required a belief that one ethnic group had a more original claim to settlement despite the near-simultaneous arrival of all non-native groups during a period of commercial expansion. During the mid-century merdeka movement, Malay nationalist leaders frequently declared that inland Malay kampungs had been the natural order of the peninsula before extractive colonial interests arrived (Harper 2001). Independence would mean a restoration of land to the people who occupied it. Relatively ignored was that the notion of land-attached Malay peasants had much more to do with paternalistic land laws.

So long as inland commercial expansion was a central task of state administration, so, too, was establishing smallhold land claims for peasants. These smallhold claims were buttressed by a democratic theory of property rights, Islamic law, and self-determination, but emerged from a belief that sedentarism and landownership could overcome the damage that Malay smallholders might otherwise do to commercial interests. And so long as there was generous “unencumbered” land to alienate, these activities remained complementary, ensuring that inland development would not be restrained by prior occupancy or complex land claims.

Even under these paternalistic conditions, we can see what Karl Polanyi (1944) described as a “double movement.” The Malay Reserve laws were an attempt to protect vulnerable classes from economic exploitation, provided that these protections were compatible with the economic system itself. Malay Reserve laws can be seen as an ungainly effort to subjugate Malays cultivators to the logic of commercial exploitation, but they also created a social margin in which noncommercial production could survive, in which non-capitalists could still use and hold land. The key to such double movements, however, is that the regime of protection must keep pace with the regime of production. In an economic system veering towards industrialization and value-added real estate, these protections could not long endure.

At the dawn of Malayan independence in 1957, the Malay ethnic majority swept into political power. With a base of smallholder agriculturalists, the Malay Alliance quickly found its voice in building a nation centered on the economic advancement of Malays. Because Malays saw themselves as wrongfully excluded from the colonial developmental mandate, the party committed itself to a mission of ethnic rebalancing. In 1969, the New Economic Policy made it the government’s explicit aim to ensure Malays would capture a greater share of private wealth and political power. However, little substantive change was necessary in the dual developmental agenda that the British had promoted. More than ever, supporting economic advancement would mean prioritizing commercial expansion while protecting Malay land claims.

At the time of independence, fully 74.5% of the of the country remained in agrarian production (Yaakob et al. 2015). At the same time, commercial plantations and smallholdings had begun to reach their inland limits against reserve forests and highland regions. Much like the “closing of the frontier” in the United States (Turner 1920), developmental expansion had to make an abrupt about-face. With the horizon of land expansion closing, commercial interests began seeking “higher and better” uses of land near urban centers. Beginning in 1969, the federal government sponsored a shift towards urban manufacturing, and Malaysia undertook one of the most rapid urban transitions of the twentieth century. With manufacturing and refinement activities heavily government subsidized, industrial labor increasingly migrated towards cities.

The plantation estate proved a convenient spatial arrangement under which to acquire and urbanize land. Large plantations, which constituted the vast majority of the urban land periphery (e.g. Fig. 2.1), were easy to convert to large industrial and residential estates. Corporate owners of plantation land could usually be persuaded to divest of their agricultural landholdings or join as investors, which allowed them to use sale proceeds to acquire new holdings in less-developed Malaysian states, or to diversify into industrial holdings (Hong 2011). But Malay peasants, who had been granted legal rights and immunities so long as they retained their claims to citizenship
were embedded in small landholdings, would have much to lose by selling off smallhold claims.

The fervor for urban investment required the federal government to expand its control over land development. Already, emergency laws allowed town planners to resettle unregistered squatters on high-value land (Prasad 2017). But there remained the crystalline protections of registered property, hardened by the Torrens System and the even more stringent Malay Reserve Laws. The Malay Reserve system was designed to resist transaction, redevelopment, and commercial repurposing, all to prevent landowners from “forsaking” their claims. But with land claims divided fractionally and considerable fragmentation of ownership, reserves stood out as low-density, undercapitalized enclaves surrounded by large-scale urban development. In the 1990s, while the central areas of Kuala Lumpur were transformed into a global commercial hub, the adjacent Malay Reserve of Kampung Bharu remained relatively untouched because of the special inalienability of Malay land claims.

In 1960, Malaysia’s first eminent domain law was passed, modeled on India’s 1894 Land Acquisition Act. Under the Indian charter, the barrier to compulsory acquisition of titled property was merely demonstration of “public purpose,” broadly construed, and the assurance of “adequate compensation” set by the government (Maidin et al. 2008). This would allow the Malaysian government a great deal of flexibility to acquire land for developmental purposes, including an ability to fix a compensation price that need not reflect market value and would not be subject to judicial review. During the Malayan Emergency of 1969, a related “Essential Clearance of Squatters” regulation was passed, ensuring that the government’s work to clear untitled property would be absolute and unimpeded by judicial review (Prasad 2017).
Whereas the “Clearance of Squatters” regulation permitted the clearance of land occupants with relative ease, the Land Acquisition Act remained a less flexible tool. Its “public purpose” standard created a hurdle, one that industrial developments and large-scale infrastructure could not always clear. Serving to protect private landowners against unjustified takings, the law was not one that wholly served the interests of a developmental state. As ever-growing developmental imperatives brought pressure on the peninsula’s land market, the government would require greater latitude to alienate land for redevelopment. In the 1990s, the frontline of this fight would be a coastal
district in the west of Johor, where a large reserve of smallhold land was suddenly exposed to newly manufactured urban rent gaps.

Case Study: Land Settlement Strategies in Tanjung Kupang

To explore the persistence of Malaysia’s dual system of smallholding and largeholding, we can place a magnifying glass over the coastal regions of Johor, where these historical systems of land development and use competition remain most braided. On the Western shore of Johor, a district of Tanjung Kupang (lit. “Cape of Mussels”) today shelters a diversity of littoral, largehold, and smallhold users. The district fronts the Straits of Johor and is bounded by two rivers: the short, winding Sungai Pendas, and the wide, dendritic Sungai Pulai, one of Southeast Asia’s largest estuarial reserves.

Land Alienation and Production Strategies, 1840–1990

In addition to riparian habitat and extensive mangrove forests, the two river systems have long harbored nomadic boat people known as the orang seletar. Since at least the 1840s, the orang seletar have used the estuaries as a sheltered base for coastal fishing and maritime raids (Logan 1847). River-facing villages are still ensconced in the Sungai Pulai’s tributaries, although the economic pursuits of orang seletar have been transformed by the region’s inland development and political pacification (Nopiah 1979; Jamilah Ariffin, Chow, and Chang 2014). Fishing and maritime navigation remain a primary source of employment for many other residents of the coast, including 800 ethnic Malay and Chinese residents. In addition to fishing jetties nestled in these two wide-mouthed rivers, access to the sea is afforded by a number of smaller rivers only wide enough for small sampan boats, whose oars have been traded for motors.

Plantations, orchards, and forest reserves have occupied the district since the earliest inland development of the southern peninsula. Records of pre-colonial settlement in the district are mostly confined to British travel diaries, but suggest Johor’s southern coast to be ripe for exploitation (Logan 1847). The first documented land claims in Tanjung Kupang appear in 1846, when Chinese gambier planter Chia Tchew Chee received one of the earliest kangchu grants from the temenggong of Johor (Trocki 2008, 111, 220). The
Sungai Pendas served as the *kangkar*, or the “river foot,” that offered market access to this early gambier plantation. British survey maps show Chee’s estate to have been succeeded by several descendent rubber plantations. By the 1920s, the inland areas between the two major rivers were primarily under rubber cultivation, with a fringe of diversely-cropped market gardens along the region’s coastal road. This coastal land was held in Malay Reserve, indicating its smallhold status protection from redevelopment schemes. By 1990, about 10,000 farmers and fishermen lived in the region (Vinod 1990).

The region’s western boundary, the Sungai Pulai, was home to the other major commercial interest in the region: mangrove logging. Mangrove trunks are prized as a smokeless fuel source and for their rot-resistance as building pylons. But they are not easily alienated into plantation cultivation: mangrove swamps are impenetrable to settlement, difficult to propagate, and fickle in their dependence upon tidal inundation (Kathirithamby-Wells 2005). With mangroves inalienable from the estuary and the estuary impermeable to settled agriculture, the Johor state government set aside the entire river system as a nature reserve in 1923, to be exploited on a 20-year rotation (Hashim et al. 2005). Today, even as the Sungai Pulai is celebrated as a major nature reserve and Ramsar-protected wetland (Chow 2010), the logic of fiscal exploitation still motivates its conservation.

The diversity of production in Tanjung Kupang reflects the successive settlement strategies of the entire peninsula, but the district stands out in Malaysia for the persistence of these overlapping use regimes. Fishing, smallhold farming, largeholding, and urban wage-work all remain productively entangled, all in spite of commercial exploitation and land-conversion pressures. The margin of petty farming, fishing and commerce remains central to the district’s social life, reflecting the political equilibrium between smallhold and largehold settlement.
Figure 2.2 Tanjung Kupang Land Use, 1990. See also Appendix 2.
The Second Link Saga, 1990–2010

Until 1990, Tanjung Kupang had been well outside the periphery of industrial development in Johor. Outcroppings of agricultural processing were present in the rural towns of Gelang Patah and Pekan Nenas, but large-scale industry and trade remained several hours away in Johor Bahru. State infrastructural investments—rail, ports, administrative buildings—were similarly remote, built to funnel exports through the causeway to Singapore. Although lands changed hands and estate boundaries shifted, the basic agricultural and coastal economy saw few fundamental changes.

In the 1980s, immediately across the Straits of Johor from Tanjung Kupang, Singapore began developing its largest industrial area, Tuas. Once a kindred rural periphery to Tanjung Kupang, Singapore’s final agricultural reserve would undergo dramatic transformation. Tuas farmland was acquired for industrial and military use. Land-building maximized buildable land areas along the northwestern shores. North-facing river mouths were enclosed from the straits as freshwater impounding reservoirs. With Singapore’s ports and maritime economy concentrated along the southern coast, the northwest coast could be severed from its interface with the straits.

While the plantations and farms of Western Johor saw little change, industrial growth in Singapore’s west placed invisible pressures upon Tanjung Kupang. By 1988, the causeway in Johor Bahru was considered a major chokepoint in regional trade and a frustration for hundreds of thousands of daily commuters. In June 1988, reports from bilateral talks revealed a much larger “Second Link” bridge being contemplated by the two states (Dhaliwal 1988). Although several sites in Western Johor were being evaluated, the most likely connection would be the agricultural processing town of Gelang Patah, directly north of Tanjung Kupang. The proposed bridge would pass over village roads and empty into the town.

Whispers of a bridge to Tuas echoed loudly in Johor’s rural west. Within the year, before a deal was struck or site selected, land prices in Tanjung Kupang and Gelang Patah nearly tripled (The Straits Times 1989). Much like British administrators who installed the Malay Reserve system, state assemblymen coaxed smallholders to keep
their land, claiming that they would see greater dividends from holding it (*The Straits Times* 1989; *New Straits Times* 1990). However, with the state government able to determine “adequate compensation” under its broad compulsory acquisition powers, holding land held great risks. Many smallholders sold anyway, knowing those dividends might be annulled at any time. Land sell-offs represented a gamble on present market value in the face of expropriation, even if it meant forfeiting future returns.

Skittish land sellers were largely vindicated two years later. In 1990, Johor’s Chief Minister Tan Sri Muhyiddin announced that UEM, a party-linked construction company and development outfit, would receive 10,000 hectares of developable land as compensation for completing the bridge project and a new western expressway system (Lin 1990a). The land alienation scheme was double the size of all private landholdings in the Tanjung Kupang district, suggesting all land claims might be extinguished. The same speech again admonished landowners not to sell land. It appears not to have had much effect; land sales increased 30% in the same year (Lin 1990b). Months later, the state government imposed an indefinite freeze on land sales in Tanjung Kupang and nearby Gelang Patah (*The Straits Times* 1990). The freeze made clear that the government would not distinguish between plantations and smallhold plots, even capturing Malay Reserve land.

Although the state government kept its acquisition plans close to the chest, outlines were sketched in news reports. The state appeared ready to remove 1,486 smallhold farming families from landholdings or leased land. They proposed to compensate 897 landed families the approximate value of their farmland before Second Link, and left tenant farmers uncompensated (Mohamad 1991). Although election results showed at least of half residents did not entirely oppose the UMNO acquisition plan, several lawsuits were launched against the state government, by both plantation owners and Malay smallholders. Each argued that the land-for-infrastructure scheme was flagrant expropriation, not justified under the “public purpose” rules of the 1960 Land Acquisition Act.
Amendments to the Land Acquisition Act

This second clearance of Tanjung Kupang’s encumbrances would require legal innovation, not merely land concessions. In 1991, UMNO leaders put forth a bill in the Malaysian Parliament that caused unrest even among their own members of parliament (Hassan 1991). Act A804 proposed to change the “public purpose” standard for compulsory acquisition in two ways. First, it stipulated that compulsory land acquisition could occur:

for any purpose which in the opinion of the State Authority is beneficial to the economic development of Malaysia or the public or any class of the public.

Second, it ensured that subsequent sale of the seized land—and use for any purpose by the new owner—could not invalidate the original taking. Statements by party leaders made clear that the law’s motive was the Second Link land-for-infrastructure scheme proposed by the Johor state government (Hassan 1991). The bill passed, with opponents claiming that the new language would allow state governments to acquire land on a nearly ad hoc basis. Opposition leader Lim Kit Siang, representative for Tanjung Kupang, alleged that the bill would “destroy the constitutional right to property” in the service of acquiring land in Tanjung Kupang (The Straits Times 1991).

Completion of Second Link, 1995–2010

The new standard for compulsory acquisition gave the Johor state government the legal ammunition it need to erase property claims in Tanjung Kupang. However, political support for total clearance began to wither. The state made several concessions that responded to quell smallholder unrest. In 1992, the Chief Minister Muhyiddin announced that 95% of the acquired land would be from large plantation estates, and that the bridge would be redesigned to minimize impact on rural villages (The Straits Times 1992). The coastal kampung land of Tanjung Kupang was cut through by a new flyover expressway, but the bridge’s terminus was placed far enough inland that the developer could increase rents on its newly alienated land claims (Figure 2.3).
Figure 2.3 Tanjung Kupang land use after Second Link, circa 2002. See also Appendix 2.
Second Link was completed in 1998 (Fig. 2.4). Ultimately, the land alienated to UEM was moved to a region more distant from Second Link but less likely to engage the risk-adjusted costs of smallholder resistance.

Figure 2.4 Second Link nears completion. Source: New Straits Times 1997

The new compulsory acquisition statute remained a permanent threat to the smallhold regime of Tanjung Kupang. In 1995, murmurings began about a new deepwater port to be set in the mouth of the Sungai Pulai, the nature reserve just to the west of the district. Although the scheme was far more modest than UEM’s proposed takings, it promised to remove three of the region’s twelve villages. With “economic development” for “any class of the public” now a sufficient cause for resettlement, new houses were built in another part of the district at the developer’s cost, a clear compromise between abject dispossession. The port’s more limited smallholder clearance and resettlement scheme had promised “land-for-homes.” The first stages of the port were completed in 2000. In 2016, it was still mired in controversy about the resettlement conditions and obligations to resettled villagers (Kili 2016).

Conflicts between Agrarian and Urban Land Development

Johor’s strategy of compensating UEM with its own land-value increment revealed a much deeper shift in the tectonics of state planning. On face, the land-for-infrastructure scheme merely continued its history of alienating largeholdings to
commercial pioneers. UEM was indisputably the development agent of Western Johor; the Second Link bridge would at least triple land values, suiting state interests in land taxation. But the expedience of land grants had also depended on the “wasteland” conditions of the state’s interior. Under the kangchu system, the process of land alienation was a struggle to relieve the land from the encumbrance of tropical ecology. Tropical forests were ecologically abundant but fiscally sterile.

In its plan to consolidate all Tanjung Kupang landholding, the state was upending the “double movement” pattern that had been the basis of inland settlement since 1840. The pact between smallhold protection and largehold profit was no longer locally valid. The new rent gradient created by Second Link would require the re-alienation and homogenization of all forms of property: clearing it of claims, creating a tabula rasa surface equipped for a different topography of investment.

Chapter Conclusion

Like a prism refracting white light into spectra, the succession of land regimes in Tanjung Kupang reveals the basic motives behind territorial development in Malaysia. In agrarian and industrial societies, land has been the primary instrument through which states direct commercial and fiscal expansion. In the absence of centrally managed infrastructure, the alienation of largeholdings to private interests have usually been the most efficient means to do so. To bring land into market circulation means clearing it of prior ecological and production regimes, making it divisible and exclusive, and protecting the circulation of titles. Concessionary contracts like Johor’s kangchu system assured the means of alienation; titling under the Torrens system provided surety to the claim. By brokering only with the state, a land pioneer could successfully exploit the full rental value of forests converted to plantation estates.

Under a broad regime of land exploitation, smallhold land is a most obvious system of welfare provision because it can thrive on the periphery of largehold clearance. In Malaysia, smallhold and Malay Reserve land have provided an administratively legible
way to provision capital assets. Within a system of registered title, it could provide basic social protections to Malays.

The dilemma of developing a private property regime is that a great swath of small, irregular monopolies become an encumbrance to new forms of production. In aggregate, property titles become as unwieldy a thicket as the forests felled to create them. This makes it difficult to install new regimes of rent with the simple elegance of alienation. Even with the aid of squatter clearance regulations, compulsory acquisition laws, and a heap of government patronage, it is challenging to reap the full rental profits given to the first pioneers. Transactional complexity and social resistance are enough to founder even the best laid plans. Second Link provides one such story. Even with the full expropriative powers of the state behind the endeavor, the smallholder regime largely stood fast. Unable to capture the rent gap created by the new link to Singapore, the state government and UEM were forced to work around the smallhold system. The Port could succeed in a more limited sense, but only by restricting its smallhold acquisitions and taking state-managed land.

With the need to constantly manufacture higher rents to sustain growth, governments and developers have two options in the face of inalienable, encumbered property. They can accept negotiated purchases and rent-sharing as their best recourse to seller resistance, recognizing their protections and reducing their take. Or they can seek strategies of circumvention, finding ways to breach the property system and exploit hidden rent gaps beyond the boundaries of the property system. How Johor discovered these strategies and acted upon them is the interest of our next chapter.
3. GEOHACKING IN MALAYSIA: THE CASE OF FOREST CITY

Shall we say that land ought to be property at all? The vast bodies of water on the earth are free goods and not property, and the world will never consent to their becoming property.

— Land economist Richard T. Ely, 1917

The material of everything in the world was once "natural." When did it become "artificial?" At what moment did the bit of iron ore, the piece of coal, the piece of wood, the piece of "land," miraculously become capital? Was it at the first touch of man's hand? Then is every cultivated bit of land artificial, and by that token is capital? ...But at this point the answer is given that the iron ore becomes capital when it is removed from the land while the land surface remains. Here the reason assigned for distinguishing capital from land is changed from artificiality to transportability.

— Frank A. Fetter, commentary on Ely’s essay

A kilometer offshore from Tanjung Kupang, Nur and Saira studied a 20-foot-wide wall map of Forest City, festooned with plastic greenery. Inside the egg-domed sales gallery for the megaproject, the region was easy to sketch out: the Straits of Johor where their neighbors fished, the coastal mangroves that came to the edge of Saira’s house, the flyover highways that soared over village roads, and the newly-raised island on which Nur and Saira stood. But missing were all the bearings of home. Nowhere were the fruit orchards that grew behind neighbors’ homes, the jetties used by fishermen, or the villages they lived in before going to college. Equally absent were the plantations that had cleared the district for settlement, the industrial estates that had colonized the district’s central town, the container port that had relocated Nur’s old village. The coastal region looked pristine and unpopulated. “It makes me worried,” Nur said, staring at the map. “Where are we? Where are we? Where do we go?”
Figure 3.1 Saira and Nur inspect the Forest City islands in the project's sales gallery

Though it had been open to the public for a year, Nur and Saira had not visited the Forest City sales floor before this day in late June 2016, near the end of Ramadan. They discovered the rest of the gallery presented as little of Tanjung Kupang, their home district, as the map. A booth invited visitors to dress in a "traditional Malay costume" and pose for photos in a ramshackle house on stilts, made to look far more precarious than even the poorest village houses. A vendor distributed free ice cream bars branded for Raya, the festival celebrating the end of Ramadan's month-long daily fast. Still a week out from the breaking their fast, Malay visitors avoided the stall. The showroom’s main feature, an enormous floor model of what the island might become, showed the highways and rail system that would lead to Singapore, but not any roads to the villages behind. Sales agents trailed laser pointers across the model, the women wearing floral batik suits reminiscent of Singapore Airlines’ cosmopolitan sarong kebaya.
The grounds surrounding the sales floor told the same story. Although only a small corner of the gallery’s maps had been filled, landscaped oases foretold a resort city. A cove of finished buildings shrouded from view the ships carrying sand from Eastern Johor, the trucks spreading the fill as it arrived, and the cranes erecting towers on top of it. Thin strips of sod covered mounded hills of sand. Near the buildings, islands of plastic-wrapped planting soil were studded with American cacti and African landscaping trees.

Prospective buyers and their families walked along a stretch of newly formed beach ornamented with sculptures of marine life. Saira laughed at a three-foot plastic statue of baby sea turtles, hatching from their eggs and unnaturally scurrying away from the water. Nur ran a hand over the oversized polyurethane sea stars, explaining the depicted species was not indigenous to the region. Short conversations with Nepali security guards, Burmese gardeners, Chinese sales representatives, and Bangladeshi construction workers revealed they weren’t, either. Local employment on the site was limited to short-term work on sand barges, ad hoc ferry rides, and professional contracting needed for state approvals. Even the buyers appeared disoriented, most having arrived on chartered flights from mainland China.

Though Nur and Saira hadn’t visited the two-year-old development before that summer, they were acquainted with the project from its onset. Local fishermen discovered the project before any officials. Sand barges arrived on the first morning of 2014 to empty their contents into the district’s fishing grounds. As the sand spread, it blocked local rivers that had given fishing villages access to the sea, stranding fishing boats moored upriver and killing coastal mangroves. Foreign workers, flown in by the hundreds, settled in camps near Saira’s family home. Dump trucks and excavators trundled daily over village roads, pockmarking them with potholes. And just the week before, earth-moving activities had temporarily blocked drainage canals. This caused the region’s worst flooding in recent memory, ankle-deep at Saira’s family home.

Taken together, the effects of the development and its relationship to its neighbors told an old story. Foreign labor and capital have alienated, divided, and cultivated the
Malaysian peninsula for centuries. Commercial expansion established not just Johor’s commercial nucleus of inland plantations, but the smallhold margins which became Nur and Shida’s home. It formed the basis of the foreign labor regime we see in Forest City, and prepared the alienation mechanisms that allowed a foreign developer to capture offshore property.

In this chapter I bring the foregoing theoretical analysis and historical geography to bear on these contemporary development trends. I first explore why Johor has become an attractive site for foreign real estate investment, in view of its long history of development through land alienation. I then turn to Forest City, a project which proposes to nearly triple the amount of residential real estate built in the region. It has been able to do so by exploiting the advantages of land building, which harken back to the advantages of largeholding. It also avoids the dangers of directly assaulting the protective measures of the smallhold system.

I argue the developer of Forest City, Country Garden, has been able to exploit advantages of land building as a hack around smallholder claims, circumventing what would otherwise be a costly or expropriative process of land assembly. Yet by snaking around the typical sites of development negotiations, the hack renders itself fragile. I conclude by exploring the vulnerabilities of the geohack.

Political and Fiscal Drivers of Land Development in Johor

Since its legal separation from Malaysia in 1965, Singapore’s surplus capital and land needs have braced against the state’s tiny territorial borders and tight land regulations (Sparke et al. 2004). Johor, physically separated from Singapore by the straits, has long been a promising site for surplus absorption. But whereas most high-rent urban land markets spill into their hinterlands, investment remained impounded in Singaporean territory by hostile relations between the national governments.

Singapore’s ejection from Malaysia was the first of several actions meant to address racial conflict between the Malay majority and other racial groups. With the introduction of Malaysia’s New Economic Policy in 1969, Malaysian politicians declared
an agenda of redistributing ownership to Malay capitalists after a century of Chinese and British investment domination. This effected a policy of “velvet nationalization” under which the federal government bought out foreign-held natural resources and reduced the foreign share of investment across Malaysia (Rock 2015). Foreign investment remained a substantial source of development equity, but was usually yoked to joint ventures and limited partnerships.

The separation agreement and the New Economic Policy created longstanding hostility and non-cooperation between both countries. Cutting off Singapore’s access to water and land resources in Malaysia was sometimes proffered as an overt threat in bilateral talks (Tortajada et al. 2013; Huxley 2000). Perhaps the least metaphorical of these impasses was the Johor-Singapore causeway, which stood as the only land connection between Malaysia and Singapore from 1923 to 1998 (Tsao 1991). The completion of the Second Link bridge was the functional extension of a much broader détente between the two countries.

When Second Link was proposed in 1988, it coincided with a relaxed attitude towards Singaporean investment into Malaysia. In 1986, the federal government relaxed joint-equity standards for Singaporean enterprise. This allowed the state government of Johor to announce a “twinning” policy with Singapore, encouraging value-added industry to relocate across the straits (Parsonage 1992). For its part, Singapore was happy to push lower-value land uses beyond its borders, especially to Johor and the Riau Islands of Indonesia. Singaporean investments in Johor and Riau were characteristically land-consumptive and self-enclosed: they included refineries, industrial parks, golf courses, foreign worker housing, and low-density residential estates (Grundy-Warr, Peachey, and Perry 1999). This “Growth Triangle” policy (Fig. 3.2) ensured that managerial expertise and investment capital could be held in Singapore while these adjacent hinterlands contributed land, labor, and infrastructure.
Although Johor has ample land to absorb foreign capital, the state government’s development strategy is bridled by federal fiscal policy. Malaysia’s federal system devolves many administrative responsibilities to states, including property regulation and planning, but the central government still captures more than 90% of Malaysia’s national revenue because it reserves income from state-owned enterprise, capital investments, consumption taxes, and income taxes (Hutchinson 2015). Since the 1970s, the federal government has decreed that Malaysian states are constitutionally prohibited from bonding and developing new tax instruments without federal support. So with direct state income sources limited to land sales, quit rents, sales taxes, and
mineral and forestry resources, fiscal expansion is limited to land development (Hutchinson 2015, 22). The state government of Johor is thus compelled to exploit land and water resources as its primary mechanism of economic development, expanding land under cultivation or installing value-added industries wherever possible.

Johor’s land base thus faces pressure from two sides. The first are Singapore-linked industries seeking an investment periphery with reduced land prices. The second are the fiscal strictures that compel the State of Johor to maximally exploit land, its primary fiscal base. The combined effect is enormous pressure upon any under-capitalized or non-remunerative uses of state property: land uses like natural reserves, smallhold farms, and marine areas. As it was in the era of kangchu concessions, the state’s wealth is inexorably bound to the alienation and revalorization of land.

Local Mediation of Foreign Real Estate Investment in Johor

As we have seen, foreign investment in land has been central to Johor’s territorial development since Chinese gambier plantations arrived in the 1840s. Early foreign investment focused on exportable agricultural commodities, and the peninsula’s orientation towards primary production persisted until well after Malaysian independence in 1965. Under agrarian production, techniques for increasing state revenue were static and straightforward. Deeper inland frontiers could be alienated and exploited for largehold estates. However, the universal cultivation of a single commodity crop would only create a perfect flat grid of land-rent values. Under market equilibrium, planters’ only strategy to increase rents was to swap their staple crop for another fetching a better base price. Looking to increase these returns, peninsular governments avidly sponsored the succession of gambier by rubber in the 1890s, and rubber by oil palm in the 1970s. But in general, there was little reason to upset the smallholder-largeholder equilibrium that the temenggong and colonial office had established. The only priorities were to expand its reach and tinker with the cropping strategies.
In Johor, real land-rent gradients remained highly localized. Until the 1970s, most real estate investment in southern Johor was restricted to Johor Bahru, the city clustered around the causeway to Singapore. Proximity to the causeway was the primary attractor for high-value, fixed capital investments. A 1976 survey maps shows no urban built-up areas more than five kilometers beyond the causeway. Real estate developments could concentrate in the border city of Johor Bahru, but location values decayed rapidly and monotonically as distance from the causeway increased. Although other coastal locations were less than one kilometer from Singapore’s attractive property market, the Straits ensured that the state’s southern coast remained a quiescent region of forest reserves, palm oil production, smallholding, and kampung villages. In regions like Tanjung Kupang, this landscape remained fairly stable for at least eighty years.

In 1998, Second Link became a financial spillway for land development. Although the bridge flew over the village roads, it brought the entire district of Tanjung Kupang into functional integration with Singapore. The land market around the bridge channeled ten-figure capital investment into the western region of Johor. (Rizzo and Glasson 2012). Recognizing the operational region of urban rents had spread well beyond Johor Bahru, the state formulated a development region called Iskandar Malaysia. This established a Special Economic Zone encompassing a territory more than four times the land area of Singapore. In 2006, the Iskandar Regional Development Authority, or IRDA, was created to develop a planning and investment coordination strategy for the Iskandar region.

In Iskandar Malaysia, the State of Johor has begun to lure foreign capital not just for resource exploitation and manufacturing, but also for real estate and infrastructural megaprojects. Urban land consumption in Iskandar Malaysia has ballooned over the past two decades. Recognizing this, IRDA has sought to manage this overwhelming appetite for land by creating several “flagship zones” for capital investment—hubs of refinement, export processing, tertiary sector institutions, and real estate the Second Link and Port of Tanjung Pelepas as key assets, and the nature reserves and shorelines
as key constraints, Tanjung Kupang and surrounding districts were designated as a future “logistics gateway.”

Relaxed relations with Singapore have been married to a new federal strategy of spreading foreign investment outside the Kuala Lumpur region. Since 2006, the geography of foreign investment has been reshaped by Malaysia’s “economic corridors” policy, which attempts to decentralize investment to second-tier cities outside the Kuala Lumpur region (Rizzo and Glasson 2012). Federal approvals for such investments are no longer obligatory, and states now can now embrace entrepreneurial strategies to recruit foreign investors.

From 2006 to 2014, nearly 40% of Iskandar Malaysia’s total capital investment since 2006 has been in real estate (Leng and Mavroeidi 2014). Real estate developers have seized on the increased regional integration as “frontier market,” one in which unexploited land values can yield high returns. But much of what has underwritten Johor as a frontier market is that it has long been a territory structured around commercial exploitation. From ports to residential estates, Johor’s rapid urban development has been facilitated by the availability of largehold estate land. Neighborhood morphology and land-use patterns reflect this; residential subdivisions are frequently co-extensive with the old plantation estates, sometimes taking their name. Consolidated largeholdings have also been the anchors of industrial development: 2,850 hectares of rubber plantations were cheaply acquired for the Port of Pasir Gudang, and 2,000 hectares of forest reserve for the Port of Tanjung Pelepas (Guiness 1992; Kanniah et al. 2015).

Internationalization of Chinese Real Estate Investment

Chinese planters and merchants were Johor’s original investor class, and Malaysian Chinese have remained the country’s dominant capitalist class long after these early forays. But the clout of mainland Chinese investors in Malaysia fell significantly through the mid-20th century during the era of Maoist protectionism. The government’s “New Silk Road” policy heralds a new turn from communist and developmental policy,
one that seeks to establish Chinese investment footholds and infrastructure networks across Southeast Asia and beyond.

But as they have been since the 1969 Emergency, new Chinese investments in Malaysia are frequently contested. Malay politicians raise concerns that Chinese investment will translate to social dominance by ethnic Chinese (e.g. Jaipragas 2017). As of 2014, China was only the sixth-largest investor in the Iskandar Malaysia region, despite its dominance in other mainland Southeast Asian countries (Leng and Mavroeidi 2014).

In China, residential real estate has long been the largest sink of domestic investor capital, particularly among retail investors. As it is elsewhere, residential property is prized as a “real asset”: a tangible holding whose value is secured by constant demand growth for urban living space. Chinese developers have been well situated to deliver a constant supply of such housing in China. But between the Chinese state’s heavy hand in land requisition and the high vacancy rates in Chinese residential markets, there is growing fear that domestic property investment is land-mined with uncontrollable risks.

Since the 2008 recession, investment capital from China has increasingly found beachheads in foreign property markets. Though offshore real estate investment has proliferated around the world during the same period, Chinese investors are likely the largest contributors to the global real estate investment pool. In the United States, Chinese buyers account for nearly half of all growth in foreign residential property transactions since 2011 (NAR 2016). In Vancouver, elite Chinese investors have been accused of driving a housing affordability crisis (Stiem 2016). As early as 2013, analysts began to note a trend away from primate cities and towards second-tier and frontier real estate markets, where yield spreads were much more promising (Gu 2013; Searcey and Bradsher 2015). Global cities like New York and London could only attract a limited pool of potential investors: while millionaires could find expensive, low-yield properties in premium markets, there was little room for retail investors. Popularizing
access to foreign real estate would require novel development strategies and much lower price points.

Country Garden was one of several Chinese development firms that began courting these overseas-curious property investors. Since the 1990s, Country Garden has been one the major developers in the Pearl River Delta, the world's fastest-growing property market. After the 1979 economic reforms that “opened up” the Pearl River Delta, financial capital from Hong Kong met cheap land and labor in China. Financial capital in Hong Kong suddenly had a site for surplus absorption. Factories and housing developments engulfed marshlands and villages, driving the most rapid urban growth process in history (Seto and Kaufmann 2003). Country Garden prospered by creating large-scale residential developments for a growing middle class.

As the domestic property market cooled after 2008, Country Garden looked for parallel strategies that would capture interest in overseas property investment. The parallels they saw in the Growth Triangle were striking: a land-constrained, financially-fecund island state suddenly integrated into a cross-border periphery. With investment analysts heralding the obvious parallels between the Pearl River Delta and Iskandar Malaysia (PwC and Urban Land Institute 2014; Cushman & Wakefield 2014), a beachhead in Iskandar Malaysia seemed like it would play to Country Garden’s strengths.

**Origins of Real Estate Land Building in Johor**

In November 2013, Country Garden put down stakes in the Johor Bahru by purchasing land for a formidable residential development, Danga Bay. Only kilometers from the causeway to Singapore, the project was a “platform” high-rise cluster, conventional except for its density and that it was partially located on new land berm in the Sungai Danga (Sidhu 2012). Although the site was acquired by private sale, the land had no encumbrances to clear because it had not yet been built. A Malaysian oil-palm tycoon, Lim Kang Hoo, had acquired it in a 4,000-hectare land alienation from the state in 1997. The largeholding was granted to him for bailing out the state’s sovereign
wealth fund in the Asian Financial Crisis. In what appears to be the first transaction of its kind in Malaysia, Lim was not granted an inland largeholding, but rather submerged parcels on the foreshore of two river mouths near central Johor Bahru. Lim used the land to form “Iskandar Waterfront Holdings,” a land bank and master development firm.

While the state government had never used offshore land alienation before, the pattern continued the state’s long history of resolving fiscal dilemmas with state land concessions. In the wake of the compulsory acquisition strategies that had caused such unrest in Tanjung Kupang, offshore alienation was an appealing alternative. Concessionaires could capture rental spillovers from urban development without upending the existing property regime.

Building out the shoreline into the Straits of Johor allowed Country Garden to build the densest residential enclave in the region, a cluster of high-rise waterfront towers holding over 9,000 residential units (Fig. 3.2). Investor response was exuberant, even by large-scale development standards. A week after its announcement, 60% of units were sold, with the remainder closed nearly a year before the project’s completion (Williams 2016, 18). With over 25% of investors from China, Country Garden anticipated an immense appetite from the mainland for residential projects in Iskandar Malaysia.

Along with Country Garden came a flotilla of other Chinese real estate interests attracted to Iskandar Malaysia. A month after the Danga Bay deal, a developer from the Pearl River Delta, Guangzhou R&F, found a clever new way to capture centrally located rents. For a land price of RM 200 million, Guangzhou R&F acquired the submerged mudflats that straddled the causeway to Singapore. (Ng 2013). The site, initially named Tanjung Puteri R&F and later Princess Cove, was the largest real estate project by gross value in the state’s history. The primary partner in this deal was the Sultan of Johor, Ibrahim Ismail. Like the temenggong to whose crown he was heir, the Sultan holds sovereign power over state property, both unalienated land and territorial waters in the straits of Johor. This includes a right to alienate “any foreshore or sea-bed” in perpetuity (Government of Malaysia 1965). In exchange for acquiring perhaps the most premium
location in Johor, the Sultan joined Princess Cove as a 30% equity partner. He received RM4.5 billion up front; a RM200 million premium was paid to the state government.

Figure 3.3 Country Garden Danga Bay from across the Sungai Danga. Fishing kelongs (aquaculture houseboats) in foreground. Credit: Author.

Origins of Forest City

Mainland demand for the Danga Bay project would entice Country Garden towards more ambitious projects in Iskandar Malaysia, but the Sultan was the linchpin in securing a sufficiently large site at sufficiently low cost. With proximity to Singapore a major attraction to Chinese buyers, a site near the two cross-border connections would be essential. But a parcel of sufficient size—one which could play host to the infrastructural economies that underpin large-scale real estate projects—would require a consolidated site, cleared of encumbrance. With the waterfront around Johor Bahru already slated for development, the most attractive sites around the first causeway were out of the question. Around Second Link, a peripheral site with equally attractive access to Singapore, inland areas were largely under smallhold tenure. UEM’s experience in Tanjung Kupang two decades before suggested that invoking Malaysia’s permissive compulsory acquisition laws might still meet stiff political resistance. Given that the Malay Reserve system had originated to protect Malays against foreign commercial interests, expropriating smallholder Malays for Chinese commercial profit would likely be met with hostility. A circuit around these conflicts would be needed, and the Princess Cove development pointed to a feasible strategy. In exchange for a 21% stake
for the Sultan and a 9% take for his associates, Country Garden was able to find the geo-
hack they needed in the Sultan’s land-alienation power.

The Sultan claims to have originated the idea for a land-building project in Tanjung
Kupang (Williams 2016, 77). Noting that the district had been “left out” of investment
patterns in Iskandar Malaysia, his associates touted that developing islands would
bring tremendous spillovers to the region and serve as “a platform for [rural
smallholders] to involve themselves in the services sector” (Ho and Fong 2014). The
comments paralleled those of the state government during the construction of Second
Link; that a major project would be a wage-labor generator and land-value coup for the
smallholders of Tanjung Kupang.

Irrespective of its inland effects, the project has certainly been a coup for Country
Garden and the Sultan of Johor. In November 2013, large parcels between Second Link
and the Port of Tanjung Pelepas were acquired for a total of RM87 million (Fig. 3.4).1
Initially, Country Garden declared the gross development value of the 1,400-ha site to
be RM600 billion, a 1:6,880 ratio between purchase price and anticipated revenue. Forest
City’s infill and construction costs would be daunting—estimated at RM310 billion by
one business newspaper—this still suggested nearly RM290 billion in pure rental profit
(The Edge Malaysia 2014). By comparison, Country Garden had paid ten times as much
to a private seller for its Danga Bay project, a site with 3% of the gross development
value. A review of land building projects show that Forest City to have been bought at
one-hundredth the per-hectare price of any other offshore parcel (Appendix 1).

Sand filling began on the first day of the new year in 2014 (Rahman 2017). Local
residents, Singaporean officials, and many state agents were alerted to the project when
it was discovered by local fishermen (Rahman 2017; Williams 2016). A week after
infilling began, records of the alienated parcels were amended to subdivide a 49-ha area
coterminous with the fill site. Marcel Williams (2016, 67-71) establishes that this was

1 Derived from state land records. Elsewhere, it was reported that Forest City paid RM225 million to
acquire the land (Ho and Fong 2014). Forest City may have paid an additional “land premium” to convert
the property to commercial use.
done with the intention of skirting the need for an Environmental Impact Assessment, a procedure required of any land reclamation project larger than 50 hectares. Four days after the records were amended, the Johor Department of Environment confirmed its exemption from environmental review.

Diplomatic complaints from Singapore in May 2014 did eventually trigger a Detailed Environmental Impact Assessment, mandated by the federal government and overriding the earlier approval to proceed. Work largely halted for nine months as the site’s environmental damages were carefully reviewed. A public meeting in late 2014 revealed a large degree of local dissent and environmental distress caused by the project. Of greatest concern were impacts on fishermen and marine life. The initial fill site was placed directly atop the coast’s major seagrass meadow, a habitat for keystone species and a hatchery for commercial fish stocks. The initial dump site had bisected the meadow and smothered its northern half. In response to the assessment’s findings, County Garden scaled back the project footprint by 30%, breaking the site into four islands (Fig. 3.5). Although this major change has been reflected in most site plans, other mitigation commitments—like silt screen deployment and flow improvement measures—have not been implemented as the project continues to grow (Rahman 2017).

Having reviewed the first two years of the Forest City project in brief, the details of the scheme need further review to understand what makes Forest City such an attractive site for a privately-financed, large-scale real estate development. In Chapter 1, we posited some of the advantages of land building in the context of large scale real estate development. We can locate all of these in the Forest City case by examining its local context, legal documentation, and public statements made about the scheme.
Dumping site, sand berm, and seagrass meadow damage. Sales gallery in foreground. Credit: Marcel Williams, Takeo Kuwabara

Forest City infill site from Kampung Pok. Highway and relocated jetty in foreground. Credit: Marcel Williams, Takeo Kuwabara
Figure 3.4 Tanjung Kupang Land Use Regime after Forest City, 2014.
Figure 3.5 Tanjung Kupang Land Use after Forest City EIA, 2016.
Land Building and the Vulnerabilities of Spatial Planning

A hallmark of real estate megaprojects is that they often outmuscle government attempts at systematic spatial planning. Most of the time, state planning regimes are willing to step aside when a project promises to wholly revalorize a land market and create new fiscal bounties (Swyngedouw et al. 2002). In Global South contexts, existing limitations on the state’s fiscal base also make it attractive to pass infrastructure outlays and land-use planning to private interests (Shatkin 2011). In some cases, large-scale projects emerge from clientelist dealings between the state and commercial interests that create “states of exception” from normal planning processes (Swyngedouw 2002; Roy 2009). In Malaysia, fiscal expansion has long relied on an ad hoc process of commercial concession, either via the alienation of new land frontiers or by legal innovation that permits resettlement and expropriation. The fiscal temptations of large-scale real estate projects may be a primary motive to permit them, but states in the habit of “disencumbering” land for private investment are especially useful places to anchor such projects.

Land building compounds these baseline vulnerabilities that planning has to large-scale development. Planning usually treats coastal boundaries as a “hard edge” (Lynch 1960, 1961), using land and water as a fixed boundary or interface. While planning agencies will often engage in publicly-financed land building, private land building often functions outside planning because land boundaries represent administrative boundaries for planning. Spatial planning operates by attempting to “fix” boundaries. Private land building works to untie them.

We can see this in the conflicts between Forest City’s planning regime and IRDA. Local planning authorities were not involved in planning and land disposition, and many were surprised to learn of it (Williams 2016). The alienated land violated not just IRDA’s master plan for Tanjung Kupang, but also specific plans for environmental

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2 Where this boundary is insufficiently defined, cities will often work to harden the distinction. The filling of the Charles River Basin in Boston—where riparian salt marshes were seen as both a health risk and a fiscal waste—is a classic case of such an effort (Rawson 2011).
protection and industrial development. Since 2008, six years before Forest City’s development, IRDA had planned to incorporate the district into a logistics gateway, leveraging the Port of Tanjung Pelepas and Second Link as terminal points in the Malaysian economy. For more than five years, the port’s owners had planned to expand its berths by building land offshore and had already acquired inshore parcels to do so (IRDA 2008). By intruding between these two major developments, Forest City maneuvered to seize the locational value of Second Link while boxing out the port’s proposed expansion.

Minimizing Acquisition Costs

The primary advantage of enlisting the Sultan for land alienation is that it allowed Country Garden to maximize the project’s rent gap. By acting as grantee and not buyer, Country Garden had no need to negotiate with a seller agent, allowing it to avoid any semblance of a market-rate transaction. It is not clear how the acquisition price, RM42,000 per hectare, was reached. Agricultural land sales in Tanjung Kupang would have fetched one hundred times the price, and no other land building projects have arrived at a price so low (see Appendix 1). However, the history of the kangchu and largehold systems in Malaysia suggest that state administrators have little interest in raising revenue from alienation procedures, because it offers a permanent expansion of the state’s fiscal base.

With land prices so low, land building becomes merely another construction cost of large-scale development, one that is controllable, scalable, and manageable through cash flow. Although material costs for Forest City’s infill are constant, proceeds accrue back to its equity partners: Forest City’s primary sand extraction site is also owned by the Sultan (Rahman 2017). Country Garden has no need for large capital outlays and debt service that would usually accompany land transactions. Instead, the costs are incremental.

Finally, building offshore minimizes legal recourse from other claimants. Outside Malaysia’s existing private property systems, the fishery around Forest City has no
assessed value or clear rights of claim. Compensation for takings from fishermen has been *ad hoc*. At first, the Sultan brought in leaders of the fishermen’s association to inform them he would offer one-time compensation of RM3 million for the permanent loss of fishing grounds. Although the DEIA would later raise this figure and require Country Garden to establish a long-term compensation fund, these compensation strategies do not reflect ecosystem damages or permanent livelihood losses. With respect to income losses, Country Garden’s stated position is that “The fishermen have to find alternative ways to benefit from and generate income from the proposed development” (Dr. Nik & Associates Sdn. Bhd, 2014).

**Refuge from Smallhold Encumbrance**

In Johor, land built by offshore alienation inherits all the advantages of the *kangchu* system, and it is not accidental that the Sultan controls both property types. In both cases, the concessionary structure allows the developer to avoid sharing rental values with a prior private owner through market-value mechanisms. Rentable property is conjured from nonrentable space, allowing the Sultan and his grantee to capture its full value. Offshore alienation also avoided the need for land assembly, allowing Country Garden to avoid transaction costs and make a full claim to ground rents. In an interview with the Malaysian *New Straits Times* newspaper, the Sultan was quick to point out the advantages of not having to broker with local property systems or the quirks of prior human settlement:

NST: Why do we need to reclaim land to develop Forest City when there is a lot of land in Johor?

Sultan: It’s easier. We reclaim land to develop. On shore, you have (to have) acquisitions. A brand new piece of land is easier to plan, even for better road distribution. Where can I find an existing piece of land here in Johor of that size surrounded by water? So that’s why I plan. When I saw the place, I decided, here is the best place. (*New Straits Times* 2015)

The developer and other project associates have also emphasized their competitive need for “first mover advantage” because of the project’s scale and investment strategy:

Forest City aims to be an international project; it will bring a variety of customer bases around the globe. We are targeting to attract more specific investors or
buyers to participate in this project rather than to provide direct competition with the existing projects. Just like all other existing developers in this region who have already enjoyed the first mover advantage, Forest City has to be prepared for any competition to make sure the project can archive its ultimate goals (Dr. Nik & Associates 2014, AppB.6-12)

Establishing *Tabula Rasa* Conditions

As Country Garden recognized the challenge of environmental review, the configurability of built land worked greatly in their favor. Upon realizing that the project’s scale could subject it to an environmental impact assessment, the flexible configuration of the parcels allowed them to subdivide the site to skirt review. This practice has also been used by land building projects in China, where a threshold size is also used to determine whether reclamation will have assessable impacts. (Ma et al. 2014). Once the impact assessment proved unavoidable, the site could simply be reduced and reconfigured to mitigate the most objectionable and direct environmental impacts. In its first year, the plastic qualities of an unbuilt site made it difficult to subjugate the site to planning controls or sustain objection. If cornered, the site could simply shift shape.

The four-island site reveals another development option that Forest City retains in the long term: that built land is modular. If the market conditions or other constraints slow the flow of capital or rate of profit, Forest City can simply cease to build further land. So long as the project exceeds its low acquisition costs, the remaining project is severable from completed development. Forest City has acquired a massive site without taking on massive capital commitments, thus allowing it build only so far as investor demand will carry.

Efforts to Avoid Land Dispossession

In the early 1990s, the Second Link scheme endeavored to alienate the protections on Malay Reserve land, but eventually decided the political costs to smallholder dispossession were too great and confined the scheme to largehold estates. Over the next two decades, plans would reflect the state’s vacillating opinion towards the intact Reserve land. A 1995 Master Plan by the port’s holding company promised to convert
the entire district into a “port city” of petrochemical complexes and residential developments, a scheme that has not come to fruition. More recent plans by IRDA variously show the villages intact, resettled, or completed omitted.

Both the Sultan and Country Garden have expressed a desire to avoid the perils of land assembly, expressing this in terms of smallholder protection. In the public meeting required for the DEIA, Country Garden was asked why offshore reclamation was necessary for project. They responded that “Reclamation is the best alternative when all aspects are considered, including to minimize the social impact due to land acquisition” (Dr. Nik & Associates 2014. Vol. 5 Sec. B6, 25).

Although the project minimizes its expropriation of landholdings, the proponents have had little interest in minimizing more peripheral forms of dispossession. Fishermen have indicated that ongoing catch reductions will likely make traditional commercial fishing and crabbing unsustainable. While financial compensation can mitigate short-term impacts, it does not alter the simple profit calculus of fuel costs to catch value. Without a base of support, the nearshore fishing industry is unlikely to remain. Although they have established a compensation fund, Country Garden has been firm in declaring that the 250 licensed fishermen in Tanjung Kupang will need to seek “modern employment” (Forest City DEIA Vol. 5 Sec. B6).

Forest City has had some inshore impacts that affect property claims. A flyover road required a thin band of land acquisitions, mostly through the region’s remaining estate land. A small number of village homes were reconstructed on nearby property. River damming and drain blockage has had more diffuse impacts. Forest City has repeatedly arranged to compensate owners of flooded homes and worked to improve drainage. Blocked access to a river jetty has been managed by drawing compensation contracts with the affected fishermen and developing a new jetty down coast. Petty payments are considered part of Country Garden’s “corporate social responsibility” objectives and can be negotiated as the developer is made aware of such impacts.

By avoiding the land dispossession common to large-scale real estate development, Forest City avoids the political perils of the Second Link scheme. The effect is that
public disputes resolve through public consultation and payments in kind, while evading litigation risks. However, offshore building upends the production regime that makes coastal settlement valuable in the first place. The developer’s assurances that they want to both protect Tanjung Kupang smallholders while working to eliminate their production base belies some confusion about the value to smallholders. Thus the project is well suited to the spatially fixed nature of land rights. Land rights are synonymous with livelihood for smallhold farmers, but do not protect livelihood under more distal production regimes.

Public and Private Incentives for Land Building

The islands built for Forest City arise from the most elemental insight of commerce: that the shrewdest path through a crowded marketplace is a circuit around the perimeter. Looking at a set of limited locations and complex property relations, the developer found a more perfect means of capturing profit. A partnership with the Sultan allowed them a circuit to avoid land acquisition, elude planning oversight, and sidestep local resistance. The technology of land building also created an asset more configured to large-scale development in the first place: one that was perfectly plastic to the investment market, and unburdened by entanglements in ecosystems, infrastructure networks, or property claims. Through land building, Forest City asserts flexible control over the entire production process, down to the shape of the site.

Land building looks equally good from the state government’s vantage. Opening land markets usually requires the state to outlay capital and take on permanent administrative costs. By granting a huge land claim to a developer, the state can capture fiscal returns without outlaying capital. We can see this reflected in the earliest schemes of land alienation, and the latest one. The kangchu system provided the state with revenue without constructing massive irrigation systems. An exclusive claim to rivershed nutrients was enough to give planters a foothold. In the same manner, giving an unencumbered parcel, fertile with potential rent, allows the state to let rent gaps feed the expansion of real estate. The scale-economies of large-scale development also remove the public obligations of infrastructure provision and site planning.
States without the fiscal power to increase land rents through “hard” infrastructure building have long ago turned to “soft” mechanisms of land governance. Special Economic Zones, Tax Increment Finance districts, and other deregulatory forms of capital recruitment may look like giveaways, but they also arise in conditions where the state has few good alternatives. Governments, too, have reason to dislike such strategies, because they weaken the power of the state by thieving from its purse.

By comparison, land building looks like a no-cost option to the state. A project like Forest City may not yield much in its original alienation, but a permanent expansion of the tax roll is difficult to resist. That Forest City can do so with very limited expropriation makes it a political gain as much as a fiscal one.

**Land Building from Ground Level**

The “geo-hack” may look to be a cunning way to loose the fetters of property, but one needs little skill to race away when one’s competitors are still shackled. Property titles may be of crystalline value in Malaysia, but the land registry fixes their entitlements in place. Production regimes that are not coterminous with land claims are still easy to exploit.

Having choked the seagrass hatchery and made transit to fishing grounds more expensive, the creation of Forest City may be the demise of an entire fishing community. We can again liken this condition to the early rise of inland plantations. Swidden agriculture and other peripatetic strategies were enough to sustain livelihood on the peninsula. But as a mobile and unbounded system of production, they did not suit the sedentary logic of property rights. The claims were extinguished, and their users ushered in to a new system of cultivation that was suited to commercial exploitation.

Fishermen are not the only people with claims the project threatens. The Port of Tanjung Pelepas had long thought itself the only site likely to reclaim coastal property. Even as a powerful state interest, the port was unable to exercise any legal rights to halt Forest City building. The logic of alienation ensures that only the first pioneer prospers.
Thus, Forest City’s “first mover” advantage outmaneuvered the port and scuttled its plans.

“Geo-hacking” around Property Regimes

A state whose fiscal base is tethered to land alienation will find clear advantages to land building and consider the tradeoffs minimal. In a confined development space, land building appears to offer a circuit around the dilemmas of creating high-value property and expropriating smallholders.

The Sultan of Johor’s involvement in Forest City should not be seen as merely congruent with the *kangchu* land alienation system of the 19th century. Forest City is the progeny of past commercial exploitation. The Sultan’s powers to alienate untitled state property are inherited directly from the temenggong’s sovereign prerogatives then. Furthermore, the state’s fundamental interest in land development also arises from this historical constraint: that the managerial powers devolved to states are those over land and water.

We can also see the immediate ecological similarities. The project is not realized by maneuvering around the regime of property. By installing a foreign topography, foreign biota, and foreign labor regimes, Country Garden succeeds in erasing any conditional claims other users might have to the shores of the state. Before any land development, the project wipes the slate clean of production regimes, ecological value, and other human users.
4. CONCLUSION

Hacking Strategies beyond Forest City

Like other great capitalist visions, Forest City has found “submerged” value by thinking beyond the boundaries of property and planning. While other parties struggle with a constrained land market, certain players are empowered to seize uncaptured value beyond the shore. The power to privately create rent gaps is also the power to seize them, so long as others cannot scramble to make claims in the same space.

Land building operates much like commercial projects of land alienation. The grant of land to a single pioneer ensures that no other party is able to capture its value increment. Installing a foreign ecology, labor regime, and production system fortifies the claim to alienation.

The difference between traditional land concessions in Malaysia and Forest City is that Forest City exploits the existing property system as a way of keeping other claimants at bay. It creates an exclusive, state-recognized, and state-supported claim to property by overriding other systems of common property. It avoids the challenge of environmental review and land-use planning by creating land outside the regime. In its fluidity and flexibility, it eludes the procedures that attempt to subjugate it. It hacks the routines of planning control and property distribution with a geographic innovation they are not equipped to handle. But it also operates as a kind of private property, fixed and exclusive enough to capture ground rents.

Geo-hacking is not a new strategy; land building is just the latest loophole. The formula of satisfying state interests with original forms of exploitation stretch all the way back to kangchu grants in Malaysia. So long as a small group of pioneers is positioned to find uncaptured value, they are likely to find state support. We can read Forest City as a case study in how states will often conspire to support geo-hacking so long as it does not override existing property claims.
Further Research

Capital is always seeking novel outlets of investment beyond the reach of present production. Here, I have argued that flatness of property regimes makes them especially vulnerable to “geo-hacking” in the form of building land. But the idea of “hacking” presented as here is only a way to describe how investors evade the basic organizing assumptions of markets while seizing the protections they confer. I have no doubt that other technological innovations in development might be viewed through a similar prism. Foreign investment, which always requires novel strategies of planning and risk managing, seems a particularly fruitful subject of inquiry.

I opened this thesis by suggesting ways in which land building created absolute advantages for large-scale development. I have attempted to locate these in a particular project, but it is likely that evaluating others will help explain why land building seems to be increasingly profitable for both government and private actors. Such endeavors should merely attempt to locate the public and private returns from land building, but would benefit from understanding the production systems they work to overcome. Analyzing motives will be of great use in grasping understanding contemporary forms of urban development; in explaining increasing human dominance over coastal systems; and in defending wetlands, foreshores, and other murky margins from extinction.

I want to conclude by suggesting that land building is a particularly “wicked problem” for state planning. So long as planning works on a bounded model of territory, it will remain vulnerable to strategies of land mobilization and territorial evasion.
APPENDIX 1: LAND BUILDING PROJECTS IN ISKANDAR MALAYSIA

Financial Characteristics of Land Building Projects in Iskandar Malaysia

<table>
<thead>
<tr>
<th>Project</th>
<th>Acq. Date</th>
<th>Development Agent (country of origination)</th>
<th>Procedure</th>
<th>Land Area hectares</th>
<th>Acq. Price million RM</th>
<th>RM/m²</th>
<th>Gross Dev. Value million RM, at acquisition</th>
<th>GDV/acq. price ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG @ Danga Bay</td>
<td>Dec-12</td>
<td>Country Garden (CN)</td>
<td>Private sale (IWH)</td>
<td>23.0</td>
<td>900.0</td>
<td>3,913.0</td>
<td>18,000</td>
<td>20.0</td>
</tr>
<tr>
<td>A2 Island</td>
<td>Feb-13</td>
<td>CapitalLand (MY) &amp; Temasek (SG)</td>
<td>Private Sale (IWH)</td>
<td>28.3</td>
<td>811.0</td>
<td>2,862.7</td>
<td>3,200</td>
<td>3.9</td>
</tr>
<tr>
<td>Senibong Cove</td>
<td>Apr-13</td>
<td>Lang Walker Corp (AU)</td>
<td>Private sale (IWH)</td>
<td>84.0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Puteri Harbour</td>
<td>May-13</td>
<td>Pacific Star Group (SG)</td>
<td>Private sale (UEM)</td>
<td>17.8</td>
<td>93.3</td>
<td>524.2</td>
<td>1,180</td>
<td>12.6</td>
</tr>
<tr>
<td>Princess Cove</td>
<td>Nov-13</td>
<td>Guangzhou R&amp;F (CN)</td>
<td>Alienation (Sultan)</td>
<td>46.9</td>
<td>200.0</td>
<td>426.4</td>
<td>2,400</td>
<td>12.0</td>
</tr>
<tr>
<td>Forest City</td>
<td>Dec-13</td>
<td>Country Garden (CN)</td>
<td>Alienation (Sultan)</td>
<td>1,978.0</td>
<td>87.1*</td>
<td>4.4</td>
<td>600,000†</td>
<td>6,888.6</td>
</tr>
<tr>
<td>Puteri Harbour</td>
<td>Dec-13</td>
<td>Southern Marina Development (SG)</td>
<td>Private sale (UEM)</td>
<td>5.1</td>
<td>182.0</td>
<td>3,568.6</td>
<td>1,000</td>
<td>5.5</td>
</tr>
<tr>
<td>Greenland Danga Bay</td>
<td>Apr-14</td>
<td>Greenland Group (CN)</td>
<td>Private sale (IWH)</td>
<td>5.7</td>
<td>600.0</td>
<td>10,526.0</td>
<td>2,400</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*A reported land premium of RM225 does not match reviewed land records. Above asset cost, further premiums may have been paid for use conversion.

†Forest City GDV was reported at RM600 billion when the 1,978-ha project was announced. The DEIA reduced the project to 1,386 ha (30%), which reportedly shrunk the GDV to RM450 billion (Chen 2015). 2017 estimates range from RM400-444 billion.

IWH: Iskandar Waterfront Holdings; UEM: United Engineers Malaysia

Most figures based on media reports at time of sale/disposition, which do not independently verify acquisition prices or assess GDV.
APPENDIX 2: LAND-USE CHANGE IN TANJUNG KUPANG

Illustrations and data collection by author. Freely available via OpenStreetMap.
APPENDIX 3: METHODS AND RESEARCH SITES

I used three primary methods to analyze changes in Malaysia’s property regimes and document the rise of land building: archival research, site documentation, and semi-structured interviews. The history of land development presented the first half of Chapter 2 engaged secondary sources, theses, and papers from the Singapore–Malaysia Collection at the National University of Singapore (NUS), the Institute for Southeast Asian Studies Library (ISEAS), and the Harvard Law School Library. The history of Second Link and land conflicts in Tanjung Kupang was completed by reviewing microfilm newspapers at the Lee Kong Chian Reference Library at the National Library of Singapore.

Site documentation was accomplished in visits to Tanjung Kupang and Forest City in January 2016, July 2016, and January 2017. Two months were spent documenting the Forest City projects and conducting a survey of existing land-use conditions in the Tanjung Kupang and surrounding mukims. The historical synthesis of land development in Johor and Tanjung Kupang emerged from British and Malaysian survey maps from 1890 through 1980. Survey maps for southern Johor before 1965 are available in the NUS Map Resource Unit, the National Library of Singapore, Singapore National Archives, and at the ISEAS Library. Several detailed accounts and narrative appendices for the British surveys can be found in NUS’ Singapore–Malaysia Collection. These were supplemented with time series of high-resolution imagery found in Google Earth (1995–2016), the mid-resolution NASA Landsat archive (1984–2016), and the declassified military imagery housed by the United States Geological Survey (1962–1975). Videography and drone footage was captured in collaboration with Marcel Williams and Takeo Kuwabara. Finally, the Pentadbiran Tanah (Land Records Office) in Nusajaya contains publicly accessible records of recent land transactions.

The author, accompanied by two translators and a videographer, conducted 28 semi-structured interviews: nine with fishermen, three with village officials, eight with other affected local residents, one with Country Garden’s management, and seven with regional faculty, planners, environmental advocates, and other knowledgeable parties.
My sampling strategy for these interviews used attendance records at public meetings, and snowball sampling from the contacts found therein. These were supplemented by 21 prior interview transcripts made by Marcel Williams and Libbie Cohn. Because of their sensitivity and the challenges of providing accurate translation, the transcripts do not feature in the text of this document. They do support a kind of “ground truth” about the history presented here, and have been used extensively in other sources. Earlier interviews have been reported in Marcel William’s 2016 master’s thesis. Portions of our interviews also feature in a case study and online course on megaproject impacts produced by MIT’s Samuel Tak Lee Real Estate Entrepreneurship Lab.

This research was originally conceived as a quasi-ethnographic analysis of land politics in Tanjung Kupang after Forest City’s development, conducted by me and my spouse, Mira Vale. Our foreign university affiliations assisted us speaking with certain informants. We made local contacts by working with local colleagues, many affiliated with Kelab Alami (Mukim Tanjung Kupang). Compared to our Malay compatriots, our preferential treatment was often unconcealed, especially on the Forest City site.

During our month in Tanjung Kupang we learned a great deal about how local fishing, gleaning, household activities, and contract work had been altered by land building, to the benefit of some and the detriment of many. The fishermen of the Pendas Laut jetty were gracious in taking us along for daily work and giving us unique project site access. Even within the month, we witnessed complex and shifting inland impacts of offshore land building—local flooding, airborne sand pollution, road damage, deaths on site—and the developer’s response strategies thereafter. Also evident was the “hidden hand” of powerful state actors and the constraints it imposed on my informants. My sense was that certain information and opinion would not surface in an interview with foreign researchers, and that an uncertain quantity of information disclosed should not be shared at all. During the time on site, it became clear to me that a short visit to a field site could not cut through the indeterminacies of translation and veiled power relations of primary field evidence. Thus, the greater part of my historical research is meant to compensate, however inadequately, for this lack of historical and local knowledge.
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