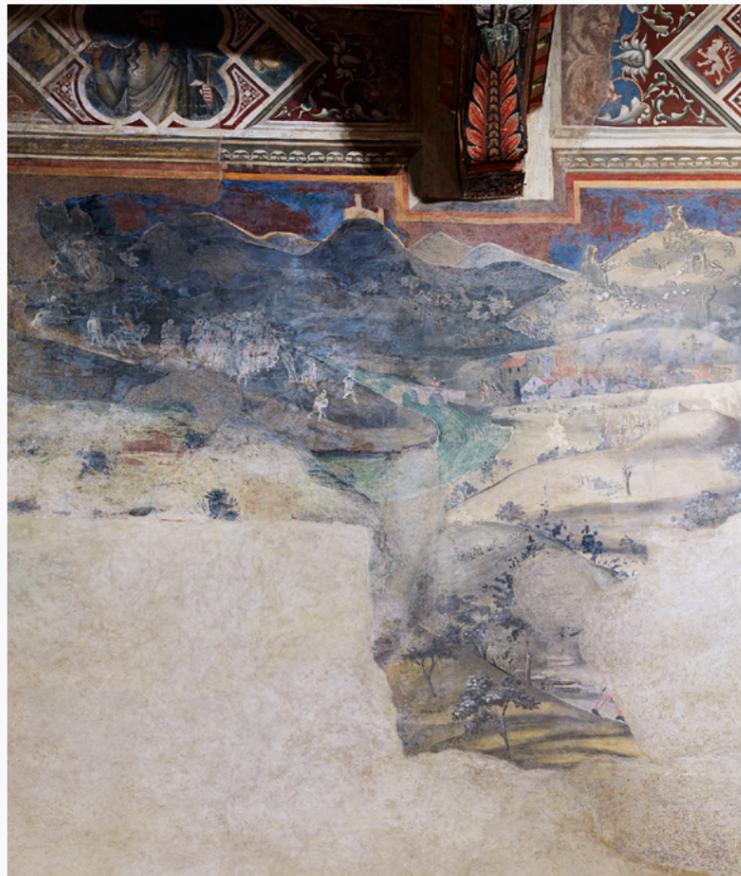


# ARCHITECTURE OF TERRITORY

Beyond the Limits of the City:  
Research and Design  
of Urbanising Territories

Milica Topalović



*The City-State Under Tyranny,*  
view of the countryside.  
Palazzo Pubblico, Siena,  
1338–9.



The modern city-state of  
Singapore under pressure for  
land. Land reclamation at  
Singapore Strait, 2015.

**ARCHITECTURE OF TERRITORY**  
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and Design of Urbanising Territories

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Hinterland territories.  
Industrial island of Batam,  
Indonesia, around 50 km  
south of Singapore, 2013.



Hinterland territories.  
Palm oil plantations in Johor,  
Malaysia, around 50 km north  
of Singapore, 2013.

Dear Rector, dear Dean, dear professors, students, colleagues, thank you for being here.

At the end of 2010 I was invited to start the Assistant Professorship of Architecture and Territorial Planning at the ETH Future Cities Laboratory in Singapore, and I began the Architecture of Territory as an academic project in 2011.

Undoubtedly, this task was unprecedented: It was the first time that territorial planning was introduced at the ETH Department of Architecture. The project is special because it involves the idea of a changing scale—of enlarging the traditional boundaries of the discipline of architecture. To clarify for non-architects in this audience: Architecture traditionally comprises building construction, urban design, and urban planning. The new task here involves articulating a new relationship between architecture and territorial planning—a relationship for architecture with larger scales of urban territories. This immediately raises a question that is central to Architecture of Territory: Why should the architect's field of practice be extended now, in the beginning of the twenty-first century? What are the reasons, the goals, and the methods for bringing territorial scale into the sphere of an architect's work?

In this lecture, I will first give an introduction to the idea of *scale*. I will then show an example, a territorial investigation of a city's relationship with its productive territories—or the city's hinterland—in the case of Singapore. Lastly, I will condense the history of architectural engagement with territory during the twentieth century and sketch out the possible and interesting routes to be explored in this trajectory.

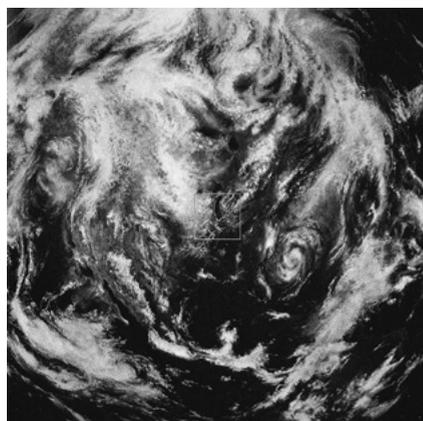
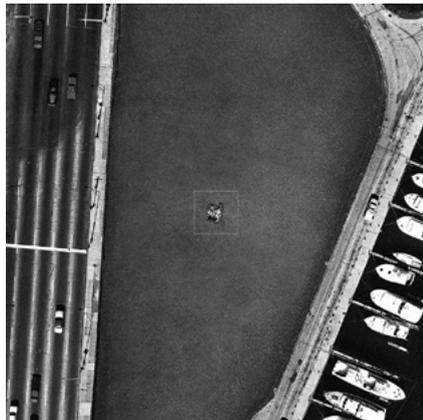
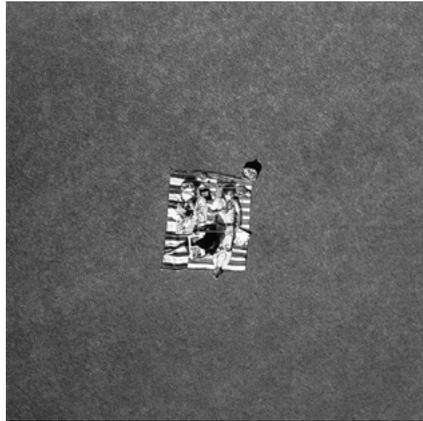
### *Scale and Urbanisation*

Let us begin with a question: What is scale?

In terms of its relationship to the problematic of (spatial and social) scales, architecture has traditionally corresponded to smaller scales: the scale of the body; the scale of a house, or of a family; and the local scale, or the scale of a neighbourhood. (That relevant locality might be a leftover space next to the roaring highway, or the city's waterfront, in this case, on the slide, Chicago's Lake Shore Drive.)

Throughout its history, architecture also engaged with the urban scale, we might say The City. In the second part of the twentieth century, architects began to interact with the modern metropolis and the metropolitan dimension, which emerged in the 1950s as a





S, M, L, XL: Scales of urbanisation. Film stills from Charles and Ray Eames, *Powers of Ten*, 1968–77.

fundamentally new kind of space, extending beyond the older city cores. Somewhat more sporadically, they also tackled regional scale. The metropolis and the region are precisely the new scales in question here, that correspond with the notions of territory and territorial planning.

These images are part of an introductory sequence to a 1968 short film *Powers of Ten*, by the Charles and Ray Eames Studio. The film was commissioned by IBM and completed in 1977, when it enjoyed popular success. Today, the film may seem naïve: What caused such excitement for the relatively dry concept of scale?

The film captures the zeitgeist of the 1960s and the 1970s—the fascination with the new spatial experiences and the new imagery that entered everyday life, enabled by the mass media, digital technologies, new modes of transportation, space travel, and the space race in the Cold War geopolitical context. The extraordinary increase in individual mobility through the democratization of travel radically enlarged what we could call, borrowing from Jean Gottmann, the “orbit” of individual movement—entirely unlike the smaller “orbits” of people at any point in history.<sup>1</sup> The effect of these changes on the perception of space and scale is extraordinary. On the one hand, the world seemed to “implode”—the global village had become a cultural icon of our time. On the other hand, the space of individual experience “exploded.”<sup>2</sup> In this sense, *Powers of Ten* still serves as precedent for much of our contemporary visual experience, from the nose-cam videos of the Gulf War to Google Earth. New social, economic, and political formations emerged at large scales too: Think, for example, of the European Economic Community founded in 1957, the beginning of the Greenpeace movement in 1971, or of U.N. Habitat in 1978.

Michel Foucault wrote: “The present epoch will be perhaps above all the epoch of space,” adding that “space itself has a history in Western experience” from Christian cosmology, to Galileo and to Gaston Bachelard and the phenomenologists.<sup>3</sup>

Geography in particular theorised the phenomena of space and scale: They are not natural, geographical, or geometrical givens. Instead, both scale and space are historical phenomena that possess their particular historical geographies; they are socially produced. The new socially produced space of the latter part of the twentieth century has planetary dimensions. In the 1960s and 1970s, the planetary scale is being formed and discovered, and most important, it becomes a referent scale to which all other socio-spatial scales and formations are anchored. A variety of terms were applied to describe these processes, including colonisation, mondialisation, and globalisation. This does not mean that in addition to *small*, *medium*, and *large*—S and M and L—we now also have the *extra-large*, the XL. It is not that the global scale has simply been added to the other previously established scales of social and spatial production, including the city, the region, and the nation. To the contrary, this is a new simultaneity in which the new social, economic, and political formations at the global level are also reflected, and this results in transforming a locality.



*Left*  
 Postwar state-led urbanisation.  
 (top) Yugoslav President Tito  
 with collaborators, and  
 planners reviewing the model  
 of New Belgrade, mid 1960s.  
 (bottom) A realised panorama  
 of New Belgrade, mid 1970s.

*Right*  
 Crisis of modern urbanisation.  
 May 1968 student protests  
 in New Belgrade.

The same transformations illustrated by Charles and Ray Eames were tackled precisely at the same time, from the perspective of Marxist philosophy and sociology, by Henri Lefebvre, who in 1970 published *Urban Revolution*, a thesis of the complete urbanisation of society.

Christian Schmid condensed his definition of urbanisation thus: “For Lefebvre, the process of urbanisation is closely linked to industrialisation. The industrial revolution initiated a long, sustained migration from the country into the cities that caused urban areas to spread. Industrialisation and urbanisation form a highly complex and conflict-laden unity: Industrialisation provides the conditions and means for urbanisation, and urbanisation is the consequence of industrialisation and industrial production that is spreading across the globe. ... Lefebvre sees urbanisation as an urban fabric that is reshaping and colonising rural areas and at the same time fundamentally transforming and partly destroying historical cities.”<sup>4</sup>

Lefebvre wrote *Urban Revolution* at the time of the 1968 uprising in Paris. In this context, he predicted that “urbanisation was central to the survival of capitalism, and therefore bound to become crucial focus of political and class struggle.”<sup>5</sup>

The rapid pace of the urbanisation process and its consequences were at the crux of the 1968 events in Belgrade, the capital of the former Yugoslavia, where I come from and whose urban transformation we investigated with ETH Studio Basel. In June 1968 in Belgrade, student protests brought to light for the first time the unseen problems of socialist modernization and urbanisation: unthinkable social inequalities, corruption, and the rise of the red bourgeoisie. Students protested, demanding a return to what was perceived as the original communist values, which now seemed to be collapsing into decadence. (see fig. opposite)

This episode illustrates that Lefebvre’s *Urban Revolution* pointed to the crisis of modern urbanisation, surfacing in the events of 1968: The Modern City seen as a failed project, unable to deliver the social-democratic ideals set out in the postwar period. But Lefebvre makes one more point with *Urban Revolution*: Urbanisation was becoming a planetary phenomenon, no longer restricted to The City. Step by step it is “obliterating distinctions between town and country through the production of integrated spaces across national territory, if not beyond.”<sup>6</sup>

In sum, over the course of the twentieth century, through the processes of urbanisation, both categories in question here, architecture and territory, have acquired very different meanings. New territorial scales and forms of urbanisation processes emerge in the second half of the twentieth century—the metropolis, the megalopolis, the region—while the distinctions between the city and the countryside are diminishing. The traditional scope of discipline of architecture should be broadened to include urban territories, because the scale of urbanization demands that larger view.

How to begin investigating the problematic of planetary urbanisation from the viewpoint of architecture and urbanism?

An almost inescapable didactic illustration in this context comes from the Palazzo Pubblico of the city-republic of Siena, where, nearly seven hundred years ago, Ambrogio Lorenzetti painted a fresco ensemble representing the *Allegories of Good and Bad Government* of the city and the surrounding territory in its possession.

On the east wall of the so-called Room of Peace (Sala della Pace) where the councillors of Siena would meet, the allegorical composition portrays *The Good City Republic*. Peasants are shown on the road to the city bringing goods to the market: This is a panorama of plenitude and prosperity in both city and countryside. Standing opposite to *The Good City Republic* and in contrast to it, the fresco on the west wall is an allegorical warning, presenting *The City-State Under Tyranny* and its ethical ingredients, including Treason, Fraud, Avarice, and so forth. On the north wall, in between the two opposites, prosperity and tyranny, the allegory displays a diagram of political virtues meant to guide the City Council in their decisions, foregrounding the role of Justice and the Common Good, or the Commune, surrounded by other virtues.<sup>7</sup>

In the history of art, this fresco ensemble is significant as it is thought to be the first example of a complex landscape painted from life. In urban history the panorama also holds supreme significance, as the first known portrayal of a city in unity with its countryside. It is interesting to observe that the success of the city—or, in present jargon, the city's *sustainability*—was described here clearly in terms of two conditions: first, the balance of the city and its agricultural countryside; and second, the question of governance, or of the predominant social and cultural values and political choices.

I see the *Allegory* as a conceptual map of the Architecture of Territory project. It has critical significance in restating what is now a largely forgotten concept: city and territory seen and represented in unity, as the two inseparable faces of the same phenomenon of the urban—the two sides of the same coin, the positive and the negative, the figure and the ground.

Today our research culture, and culture in general, is undeniably focused on cities and tends to neglect the importance of wider productive territories. The cliché that cities are now home to over half of the world's population is well-established,<sup>8</sup> provoking both foreboding visions of the dawn of the "urban age"<sup>9</sup> and celebrations of the "triumph of the city" over the countryside.<sup>10</sup> But what if we reverse this perspective: What if we adopt a territorial approach instead of the city-centric view? If cities cover only 2 percent of the world's surface, what if we focus attention also on the remaining 98 percent?<sup>11</sup> If cities are growing and transforming, territories are undeniably pulled into the same vortex of urbanization. In this perspective, it is clear that the problematic of the relationship of

Allegorical vision of the city and the countryside in unity.

Interior of Sala della Pace (Room of Peace) at the Palazzo Pubblico, Siena, showing proto-Renaissance fresco ensemble by Ambrogio Lorenzetti, *The Allegories of Good and Bad Government*.



cities with wider urbanising territories needs to be revisited. It is clear that the dynamic of territories—of productive landscapes, nature areas, countrysides, or hinterlands—is central to understanding cities and urban sustainability.

Between 2011 and 2015 in Singapore at the ETH Future Cities Laboratory, I studied Singapore's hinterland, and more generally the contemporary city's relationship with its hinterlands. The notion of *hinterland* is not synonymous with territory, but it does signify a particular territoriality of economical incorporation of land and resources to a given centre. Throughout history, cities like Siena have functioned as centres of political and economic power from which the agricultural and resource-rich hinterlands have been controlled. But from the nineteenth century onward, new technologies, transportation modes, and the opening of new trade routes have widened distances and introduced remarkable complexities between cities and their hinterlands.

Singapore is precisely an anti-Siena—not a pre-urban city, but a modern-day urban model, which reveals relations between city and territory under modern, industrial order. And here there is a conflict: Singapore, a small island city-state with nearly six million residents inhabiting a dense urban form, has hardly any productive territory or countryside to speak of. At first glance it is a paradox, and a highly successful one: a completely globalised and engineered city, which succeeded in throwing off the shackles of the land! Singapore is a self-declared “city without a hinterland,” whose production grounds and vital resources lie beyond national borders—and yet, its urban and economic growth do not seem to be threatened. The incorporation of hinterland territories both near and far, in the cross-border and transnational setting, is perceived both as necessity and as an opportunity for Singapore. They are vital, but they are not under its direct jurisdiction and governance. In this, I believe, the case of Singapore has illustrative value for any contemporary city.

For the study of the hinterland, Singapore is a uniquely suitable, if not ideal case. Being a city-state, it presents a special situation where city and hinterland can be separated in terms of their physical, political, and economic geographies; even the flows of resources moving from one to the other can be monitored as they cross the national border.

The maritime space of the sea can also be described as one of Singapore's vital hinterlands, devoted to shipping. Ninety percent of the world's traded goods pass through the Singapore Strait each year, making it one of the most densely occupied sea surfaces. I would call Singapore the city with a view to these otherwise largely invisible territories of the global circulation of goods.

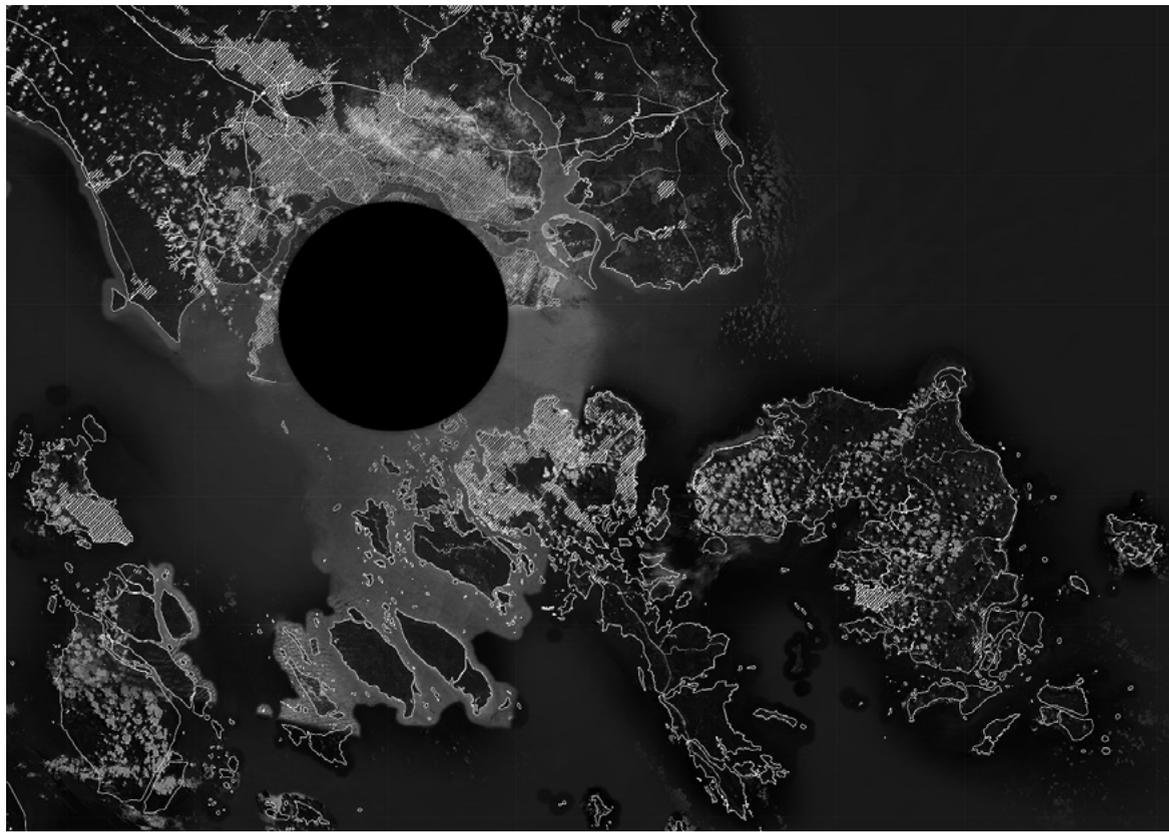
Since its independence in 1965, Singapore has been the destination par excellence of population influx and capital investment, as well as a veritable laboratory of socioeconomic experimentation and territorial engineering, under the political umbrella of the so-called hard state or developmental state. It has been hailed as the

Singapore and the Singapore Strait: city and its maritime hinterland devoted to shipping, 2011.



foremost example of imaginative planning and foresight, a realizable ideal and an “urban model” for other Asian cities; it has also been repeatedly dismissed on account of its authoritarian political regime.<sup>12</sup> No doubt, its urban history and urban characteristics are highly specific. In comparison to Switzerland, for example, Singapore's population density is presently estimated at nearly eight thousand people per square kilometre;<sup>13</sup> almost ten times the density of the canton of Zurich. At the same time, economic disparity along the border is much higher than in Switzerland, and the permeability of borders is much lower. In terms of number of border crossings for passenger flows, Singapore is readily comparable to West Berlin; it appears even more enclosed. In our investigations of the hinterland geographies, we in part concentrated on the phenomenon of the maritime borders and their echo-effect on the land. Singapore's territorial waters represent a hyper-complex urban space, regulated three-dimensionally above and below the water surface by the demands of national security, shipping logistics, and petrochemical industry. The effect of maritime borders and other regulatory measures extends from the sea to the land, incorporating large stretches of the island's coastline. As a result, in our estimation, only 7.5 percent of Singapore's shoreline is publicly accessible.<sup>14</sup>

In the same period since its separation from Malaysia, Singapore's geographic reorientation toward the “global market”<sup>15</sup> is illustrative of the mainstream political and economic ideologies shaping urban governance anywhere in world. In this view, the significance of city-hinterland linkages is often downplayed as it is assumed that contemporary cities rely less and less on their immediate surroundings for supplies and subsistence. Instead, cities are frequently seen as being progressively emancipated from the constraints of geography, operating in a global web of dependencies, flows, and exchanges. Singapore is among the most acute examples of cities where political



The Eclipse Method: Only when the city is temporarily obscured can the hinterland territories be adequately perceived and analysed. Illustrated for the case of Singapore.

imaginings and narratives continued to ignore any geographic restrictions. Generations of urban policy-makers have strongly identified with the paradigm of a “global city” whose “hinterland is”—as it is often put—“the world.”<sup>16</sup> Reinforcing this orientation is the political history in the region of unstable relationships with Indonesia and Malaysia pre- and post-independence, which continues to fuel a specific denial in Singapore of the immediate regional context and of its importance for the city.

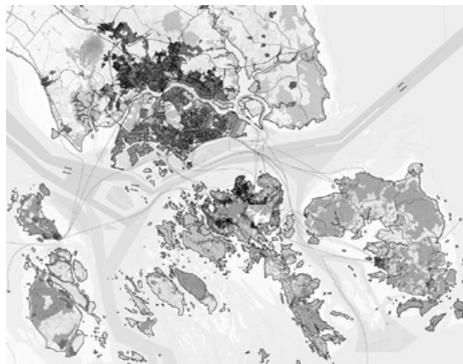
This perception is patently wrong: Even a quick examination of urbanisation processes reveals that Singapore is not a contained urban island, but rather a part of an urbanising region that extends to the Malaysian Johor State in the north and to the Indonesian Riau Archipelago in the south, where today one finds booming cities and settlements, including Johor Bahru and Batam of over one and a half million each. They have developed at Singapore’s doorstep—or in its shadow, as it were.

This immediate regional space, also known as Sijori (for Singapore-Johor-Riau Archipelago), now counts more than eight million legal residents and a significant migrant population. It emerged as a relevant scale of urbanisation in the late 1980s, following the political-economic partnership agreement among the three governments, the Sijori Growth Triangle, that accommodated expansion of Singapore’s economy over its borders. The main impetus for urban growth in Indonesia and Malaysia was industrial production, especially the multinational electronics industry, which was facilitated by Singapore, and attracted work migration from other parts of the countries.

The region’s population is projected to double between now and 2030 to fifteen million people.<sup>17</sup> It is fascinating that, as the region’s population grows, its centre-periphery diagram (or the city-hinterland diagram), presently hinged on Singapore, is likely to be radically transformed. While Singapore’s working population will shrink, the adjoining cities in Malaysia and Indonesia will grow vigorously so that by 2030, Singapore will hand over a share of its central functions to the neighbours and move from the role of the dominant centrality in the region to being part of a constellation of more equal cities.

How to study a hinterland? Here are some notes on the modus operandi we’ve developed and called *the method of the eclipse*: The perception of all remote territories, from nature’s wilderness to rural countrysides, has always been initiated from an urban perspective; the periphery has always been imagined from the viewpoint of the centre. The observation of a city’s hinterland can begin only when the city itself is eclipsed: Only when the centre of gravity and its blinding sources of light become temporarily obscured can the phenomena unfolding in its shadow be adequately perceived and analysed. (see fig. opposite)

In practice this meant that we spent relatively little time studying Singapore itself and a significant amount of time traveling in the region beyond Singapore’s border. The research was organized in the form of a collaborative process involving students and experts,



Geographical hinterland



Socio-metabolist hinterland

*Left*  
Two approaches to city-hinterland relationship: geographical and socio-metabolist. Illustrated for the case of Singapore.

Resource supplies for Singapore in 2012: Proportion of foreign imports and scales of transnational hinterlands for the flows of sand, water, food, labor, and oil into the city.

SAND	WATER	FOOD	LABOUR	OIL	
		North America South America Europe Africa Australia	North America South America Europe Africa Australia	UAE Saudi Arabia Russia Qatar Venezuela USA Kuwait	World
		China India	China India Bangladesh	South Korea India China Japan	Asia
Philippines Vietnam Cambodia Myanmar		Philippines Vietnam Cambodia Myanmar Thailand Indonesia Malaysia	Philippines Vietnam Cambodia Myanmar Thailand Indonesia Malaysia	Malaysia Indonesia Thailand	ASEAN
	Johor State (MY)	Riau Province (ID) Johor State (MY)	Riau Province (ID) Johor State (MY)	Natuna Islands (ID) Johor State (MY)	Region
100%	40%	95%	36%	100%	

IMPORTS TO SINGAPORE IN 2012

with ethnographic expeditions by land and sea, research studios, and workshops and with no hard separation between teaching and research.

We looked at the hinterland problematic in two ways, in two different approaches to scale. First, we examined Singapore's discontinuous hinterlands, from local to planetary, by following the flows of five key resources: sand, food, water, labour, and oil. We called this analysis *socio-metabolist hinterland* analysis, to emphasize the qualitative instead of the quantitative urban transformations and relationships. Second, we studied the *geographical hinterland*, at the scale of the tri-national region. In this view, the hinterland is understood as contiguous territories in Indonesia and Malaysia, directly exposed to the gravity of the city-state. (see fig. top)

In these two ways of looking at a city and its hinterlands there lies also a deeper philosophical dilemma on the nature of cities, and here I will borrow words from Jean Gottmann:

To understand the evolution of contemporary ways of the world, networks of cities are fundamental. Too often however,

a city is considered only in the framework of the surrounding region. The question has arisen, worrying geographers, historians, sociologists, and politicians, whether a city lives, works, lasts, and falls mainly as the centre of a region, determined by local circumstances, or chiefly as a partner in a constellation of far-flung cities. This is not in fact a new problem born in our time. It is an ancient problem which has been with mankind since the dawn of history.”

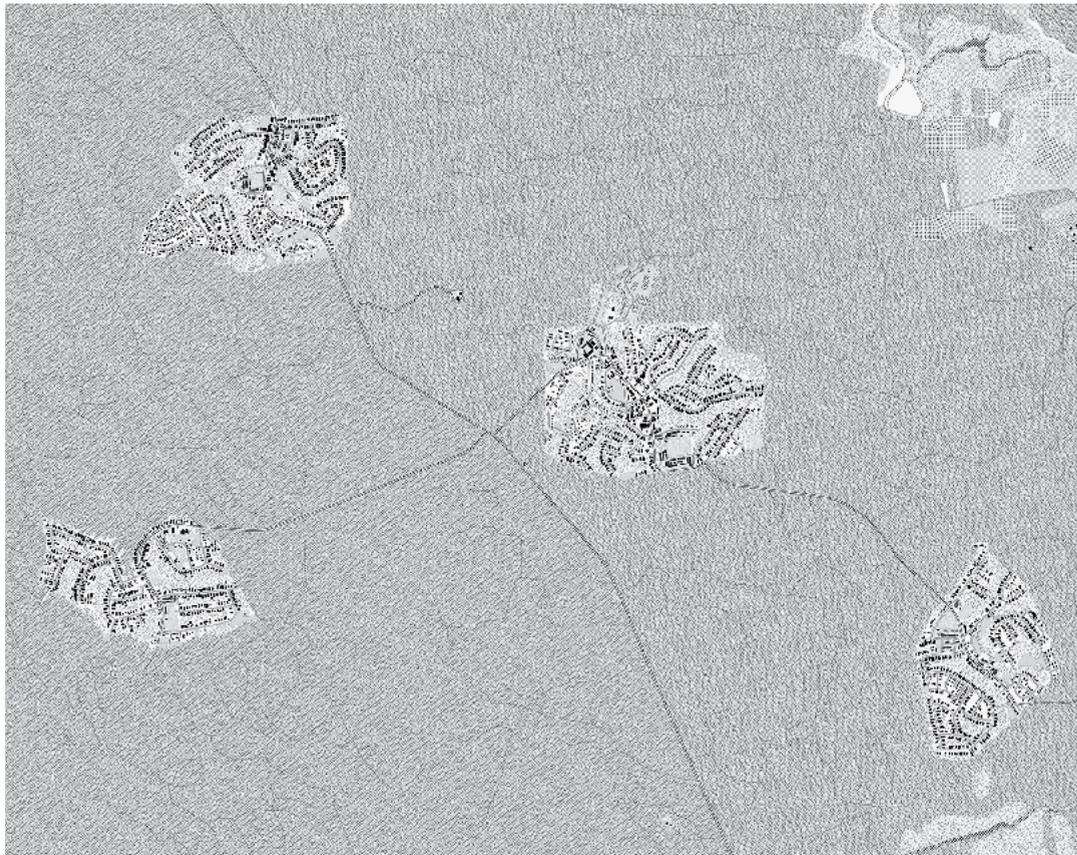
He goes on to describe debates between Plato and Aristotle as to what might be the best geographical framework to obtain happier political life: “Small scale, austerity, isolation, restricted maritime and trading activities, such is Plato’s recipe for a righteous and stable society. This doctrine of political geography has often been offered as great wisdom to this day. ... The Platonic model of the small, equal, self-sufficient and self-absorbed territorial units may be opposed to the Alexandrine model”—after Alexander the Great, Aristotle’s disciple—“of a vast, expanding, pluralistic political and cultural system, bound together and lubricated by the active exchanges and linkages of a network of large trading cities.”<sup>18</sup>

Between these two poles, Singapore seems to be decidedly of the Alexandrine model—highly networked, highly global, and entirely not self-sufficient. In the corresponding analysis of Singapore’s discontinuous hinterlands at various territorial scales—the socio-metabolist hinterlands—we have shown that most of the resource flows that we studied except water are supplied nearly entirely from foreign sources, and they arrive from large distances. (see fig. p.19) I will show you a few illustrations.

Singapore doesn’t produce its food anymore; instead it has become the world’s leader in the production of agro-technologies, such as vertical farming. Food is supplied to Singapore from all over the world, where the immediate region plays a relatively modest role in supplying fresh produce. The emphasis in the region is on agro-commodities, especially palm oil, whose vast plantations cover the landscapes of Johor. (see fig. p.20)

Singapore doesn’t have natural water sources: Around 40 percent of its supply arrives from Malaysia; the rest comes from the local technology-based sources including desalination and water recycling, but also by meticulous engineering of the island’s surface to increase the rainwater catchment and the water storage capacity.

Singapore has always been dependant on foreign labour migration. Though it imports thirty thousand foreign workers each year from all over the world, the critical part of its labour pool is not at home but spread throughout the cross-border region and the countries of the ASEAN. Among many examples for cross-border value chains anchored in Singapore are industrial parks located across the border in Batam, Indonesia: Only Batamindo Industrial Park hosts seventy multinational corporations, giving employment to seventy thousand people. (see fig. p.20)



Hinterland Typologies.  
 (top) Industrial Park:  
 Batamindo, Indonesia.  
 (bottom) Palm Oil Plantation:  
 FELDA Taib Andak, Malaysia.

The main pillar of Singapore's economy is the oil trade, with a large part of crude oil and petroleum products arriving in Singapore en route from the Middle East to the Southeast Asian countries and China. The state boosts the oil industry by provision of infrastructures for storing and processing that are so massive and uncompromising that they bring to mind nearly dystopian connotations. (see fig. p.19) Less than 1 percent of imported petroleum is meant for domestic consumption; therefore we see the case of a vast hinterland and elaborate infrastructures that are dedicated almost exclusively to production and trade, not to consumption.

Finally, Singapore is one of the world's largest importers of sand for construction and land reclamation; its topography is profoundly artificial. Around one-quarter of its land area, more than one hundred and fifty square kilometres, has been reclaimed from the sea. With local and regional sand sources depleted since the 1990s, Singapore's sand hinterland continues to expand together with its territory—it now stretches as far as China and Myanmar.

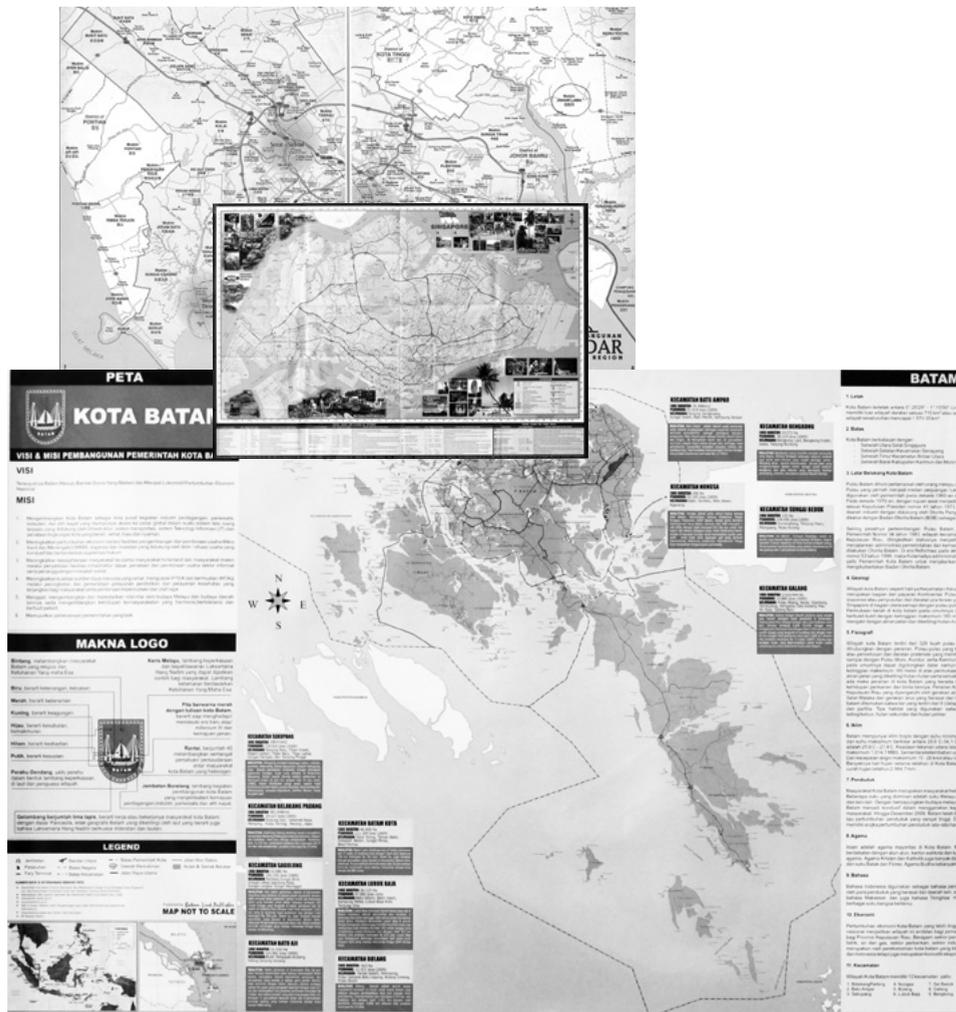
To investigate and make comparable the five selected resource hinterlands, we developed an analytical vocabulary capturing the key characteristics of urbanisation in the hinterland territories. These analytical concepts are:

*Hinterland Scale and Territorial Development.* In all cases we studied without exception, hinterland territory expands and “disintegrates” over time as the city grows. Enabled by modern infrastructures and transportation means, the more contiguous hinterlands characteristic of the nineteenth and the early twentieth century city, have expanded, globalised and “disintegrated” in the latter part of the twentieth century.<sup>19</sup>

*Resource Metabolism.* Though metabolism as a concept in urban sociology goes back to Karl Marx and Friedrich Engels, the urban metabolism as a model of analysis of material and energy flows in cities has been in wide use since the mid 1960s.<sup>20</sup> In our analysis also, each resource is examined and presented as a particular balance of import, export, consumption, and waste.<sup>21</sup>

*Territories of Extraction.* Each resource hinterland involves more or less identifiable territories of extraction. For example, in 2014 the top sand suppliers to Singapore were Cambodia, Vietnam, Myanmar, Malaysia, and the Philippines.<sup>22</sup> We investigated the resource origins and tried to represent, where possible, the geographies and urbanisms of extraction in the form of maps and plan drawings.

*Infrastructures of Resource Flows.* In the hinterland, we also observed the extreme importance of infrastructures in the broad sense: They involve physical infrastructures as well as various regulatory regimes that cut across national borders and that may be formal and well as informal, as in the case of sand trade to Singapore. The absence of clear regulation applying to resource extraction and trade in the transnational space, and the ensuing geopolitical dynamics surrounding the resource flows, represents one of the most staggering insights on the hinterland territories that we had.



Constructing the map of cross-border region Singapore, Johor, Riau Archipelago, 2012.

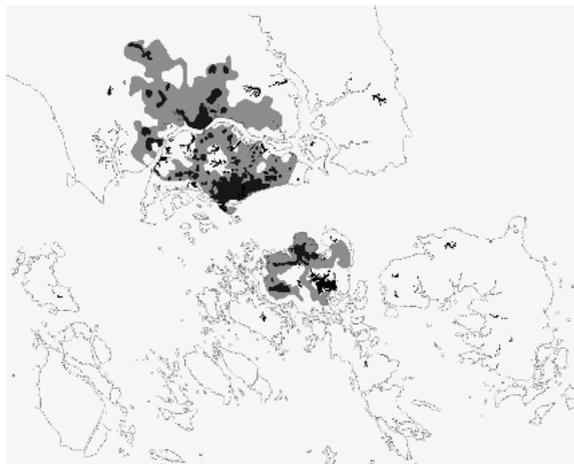
*Organization.* We discussed the organization of the protagonists of resource extraction, trade, and accumulation, where the focus was placed on identifying in the transnational hinterland space the presence and the mechanisms of exerting influence, both local and cross-border, of state institutions and agencies, private protagonists, and multinational corporations.

*Urbanisms of Accumulation.* With the last of the analytical concepts used to study a hinterland, accumulation, we understand a resource as physical matter and a material flow that fuels the production of urban space. We studied the distinctive practices of accumulation, including the creation in the city of urban land and urban space with its sociocultural and monetary values, by means of a particular resource. For example, to illustrate the idea of urban accumulation, we made the three-dimensional reconstruction of Singapore's topography in 1924 and 2012, based on existing topographical maps. In the form of drawings and physical models, the reconstruction shows the long-term transformation of Singapore's land and landscape as a result of sand extraction and trade. With only a few patches of "old land" preserved, the entire national territory of Singapore below and above water surface has become a constructed artefact.<sup>23</sup>

In the second strand of the hinterland analysis, the frame of the geographical hinterland, the investigation was concerned with urbanisation of territory in the cross-border metropolitan region of Singapore, Johor, and Riau Archipelago. We started by understanding that, at the moment, a cross-border region as a political reality does not exist—the urban and territorial politics in the region are still confined to the local-municipal and the national scales, clearly lagging behind the reality of urbanisation processes, which emphasize the cross-border urban constellation.

A map has always been a tool of representation of politics and territory. If we look at the contemporary maps of Singapore, Johor, and Riau Archipelago as "images" of regional politics, the lack of common identity and territorial continuity is apparent. The territory is fragmented, lacking any relevant political agency and a common constituency at the regional scale. (see fig. p. X) By assembling together a vast amount of map information from different sources in the three countries, we constructed "the missing map" of the region, meant to provoke discussions of regional integrations and give a basis for cross-border thinking and planning.<sup>24</sup>

In the frame of the geographical hinterland, we proceeded with urban analysis of the entire territory, from the centres to the peripheries. The result is the thesis on the cross-border metropolitan region, described as an urban figure, in terms of characteristic *territories of urbanization*. The mapping methodology of urbanisation patterns in the region involved a relatively complex procedure, in which we collected and assembled together around one hundred and fifty layers of map-information, each layer serving to indicate a specific urban performance, such as centrality, productive function, residential fabric, and so on. Importantly, this mapping method



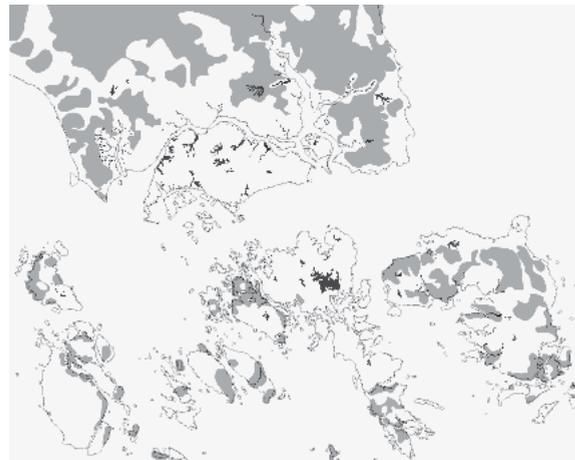
Transnational Metropolis



Cross-Border Territories



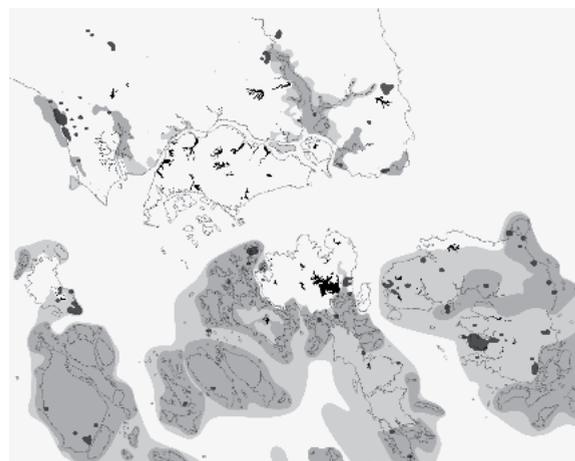
Strategic Reserved Lands



Industrial Primary Production



Urbanised Sea and Air



Quiet Archipelago

is also qualitative, as it is grounded in both the phenomenological approach to the territory and in in-depth knowledge of urban spaces and places based on direct experience. Our thesis proposes six distinct territories of urbanization in the region: (see fig. left)

*Trinational Metropolis* comprises the area of urban centres and residential fabric served by social and technical infrastructures;

*Cross-Border Territories* are understood as the specific character of urbanisation, produced through global capital investment and real-estate speculation. They encompass a broad spectrum of urban programs, from housing and tourism to education and healthcare, with investment flows often originating in China and the Middle East;

*Strategic Reserved Lands* are unbuilt areas, yet their forms and functions are irreducible for the urban system. They include military zones and water storage areas, as well as land banks set aside for future urban expansion;

*Industrial Primary Production* covers the fringes of the metropolitan region, comprising mainly landscapes of palm oil industry in Johor and mining in Riau Archipelago;

*Urbanised Sea and Air* is a territory of urbanisation described through the functions of shipping, petrochemical industries, and air transportation. It extends from the sea to the land and consumes large sections of the coast on all three sides;

*Quiet Archipelago* covers mainly remote “rural” areas and small islands in the Riau Archipelago, still based on traditional economies, especially fishery. While some parts of the archipelago are under pressure to industrialise, most areas are shrinking and losing population to cities.

The thesis map of the cross-border metropolitan region does not only represent existing reality; it actively constructs reality. In this sense the map is also a plan, and a design—it can be understood as both analysis and as project. It is a tool to generate knowledge, to shift terms of debate, and to create awareness of urban potentials that could be pursued at the metropolitan scale and in the tri-national context.

In the autumn of 2014, in a design studio project with ten ETH students, we worked collectively on developing such metropolitan strategies. The Sea Region project is a metropolitan plan, which recasts the sea and the coastal areas of the Singapore Strait—the present-day industrial periphery and border zone—as the future cores of the metropolis. The plan proposes a metropolitan network of the sea-based public transport linking the three disconnected cities. It also calls attention to areas exceptional in terms of preservation of nature and cultural heritage—a “memory archipelago” of traditional Malay settlements and ways of living still found in both Johor and Riau.<sup>25</sup> Instead of the existing border zone, the Sea Region envisions a return to the public and cosmopolitan character of the urban waterfronts, the ports, and the sea.

In the end, what is the city’s relationship to its hinterland? Is this relationship sustainable? How is urbanisation of cities reflected



in the hinterland? Should the productive hinterlands be imagined as parts of cities, like in Siena? Should hinterlands be planned and designed?

Based on the case of Singapore, the hinterland project offers a couple of points:

Through the investigation of its geographical hinterland, the project arrives at an understanding of Singapore as a city tightly linked to its neighbouring region. It questions the persisting political imagination of Singapore as an island developed according to the paradigm of a global city-state, which shaped its urban development and form since its independence. Instead, it articulates a counter-paradigm that posits Singapore as an open and connected cross-border metropolis. Similar metropolitan potentials are likely to be discovered in other cities and regions.

The experience of Singapore's hinterlands also leads us to argue for the "new ethics of visibility"<sup>26</sup> that should permeate hinterland territories, through photography, art, maps, and other forms of representation. Architecture and the visual arts have an important role to play in researching, describing, and making visible to the urban dweller the ongoing industrial reorganisation of territories in the gravity of large cities, regardless of distance. The hinterlands can no longer be seen as remote, residual, or anachronistic: They are crucial territories of global capitalism and of urbanization processes. A new ethics of visibility that extends from cities to the hinterlands is required.<sup>27</sup>

Furthermore, the investigation of resource extraction and flows leads us to question the appropriate scales of urban governance. Without doubt, new forms of large-scale acting and of governance that apply to transnational dimensions of urbanisation processes are necessary. Thinking of sustainability of cities only as a function of the centre seems to be an almost trivial problem. Large-scale metabolic flows are mobilised, and remote areas of the planet are industrialised and urbanised in order to support cities. They need to be brought into the discussion of governance beyond the limits of the city.

Finally, what is the right scale of a city's hinterland? Should it be regional or global? Should the city's "orbits" follow the Platonic model of small, self-sufficient territorial units, or the Alexandrine model of vast, expanding urban networks? According to Gottmann himself, there is no single answer: "It is generally true of cities that each of them works as a hinge between the region of which it is the centre and the outside world, between the local and the external orbits."<sup>28</sup> I believe that a city's relation with its hinterland has to be both Platonic and Alexandrine, both regional and global. A research project like this can help strike a balance.

Of course, it should be stated clearly that for architects territory is nothing new. During the nineteenth and twentieth centuries, there is a relatively continuous history of architects' engagement with territory and urbanisation processes: Major modern architects have taken as a base of their projects extra-urban developments arising from industrialisation and rural exodus.

This history has not yet been fully written, but many fragments and sketches exist. André Corboz, among others, in his text *La Suisse comme hyperville (Switzerland as Hypercity)*, proposed that, during the twentieth century theories of urban design approached the pressing problematic of *urbanisation* in four distinct periods.<sup>29</sup>

The first period, according to Corboz, aims to project "the city outside the existing city." In 1859, Ildefons Cerdà suggested a farsighted project for reform and extension of the city of Barcelona, projecting a fabric of urbanisation from the walls of the historical city outward to incorporate the neighbouring villages. His far broader proposal and seminal work was the 1867 Theory of Urbanisation; in fact, the term urbanisation is credited to Cerdà.

Related projects dealing with urbanisation in this period are Arturo Soria y Mata's Linear City from 1882, which organises urban fabric along public transport lines, and Ebenezer Howard's Garden City from 1902, which aimed to create a network of small towns that would combine the advantages of both rural and urban living—a concept that has been realised over and over in various forms to this day.

The second period in this development is marked by CIAM and the Athens Charter, drafted in 1933. This is, confirms Corboz, an urban design theory "against the city" whose ideal is to replace the "unplanned" development of settlements throughout history with socially, technically, and hygienically "controlled" urban structures. The chief protagonist of CIAM's function-based planning is Le Corbusier, while Ludwig Hilberseimer develops alternative metropolitan concepts with regard to functional integration. In the same year, 1933, Walter Christaller proposed another highly influential theory of the period, the Theory of Central Places. A Swiss example from this period is Armin Meili's Landesplanung from 1941.

What these theories have in common is a hierarchical vision of socio-spatial organisation, starting from the scale of national territory and corresponding to the Fordist organisation of economy. However, the theories will also be remembered by their distance from practice: While the theories argued for the complete control of urbanisation processes in form of planning and production of urban fabric under the patronage of state, in practice, a major part of that responsibility was handed down to individuals, who become responsible for building their own private dwellings. In this manner, an individual housing cell entered the fabric of the modern metropolis.

The third period of a backlash against excessive simplifications of the visions of the Modern, especially the reduction of the city to four



Top

Bas Princen, photographs from series based on Cedric Price's *Potteries Thinkbelt Project*, Madeley Transfer Area site in Staffordshire, England, 2015.

Bottom

Cedric Price, *Potteries Thinkbelt Project*, Staffordshire, England (*Perspective of Madeley Transfer Area*), 1964–66.

basic functions, was formulated as postmodernism. The period, Corboz suggests, can be termed “urban design within the city,” based on the key text, Aldo Rossi’s 1966 *Architecture of the City*, which calls for the return to the idea of a city as a historical continuity. But architects in this period continue see the territory as a theme of architecture, embracing the facts of urbanisation beyond the canon. Next to Rossi, proponents include Oswald Mathias Ungers, Rem Koolhaas, Robert Venturi and Denise Scott Brown, Colin Rowe, and so on.

An exceptional project of the period dealing with territory and urbanisation is Cedric Price’s Potteries Thinkbelt from 1964-6, which was concerned with reclaiming the derelict infrastructure of coal mining in the region of Manchester, England, for the creation of a university. The project proposes a new “knowledge economy” alternative to the declining post-industrial landscapes of Western Europe. The project was not realised, and the former mining sites were returned to nature—today the location is the site of a beautiful piece of wilderness. Cedric Price, who was an architectural romantic, would have probably liked the result. (see fig. p.29)

The fourth period in this trajectory is ongoing, and its paradigm is still being negotiated. The defining condition is the merging of urban and territorial scale—in Corboz’s words, “co-existence of city and territory.” Many conceptual terms have been coined to describe this condition, including *cittá diffusa*, *zwischenstadt*, and *decentralised concentration*. Notable in this context is Andrea Branzi’s *Agronica*—both a project and description of what he calls weak urbanization, horizontally spread across territory. Crucially for the territorial approach to urbanism, in this project Branzi expands the regular urban program to include agriculture and energy production.

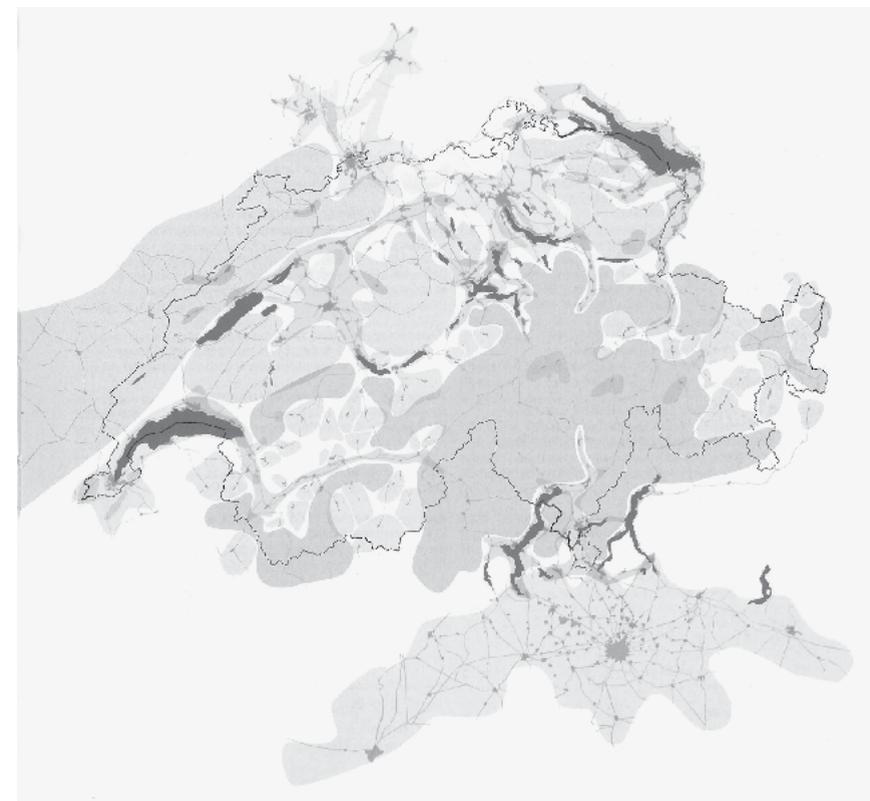
In what I believe is a ground-breaking analysis of contemporary urbanisation, *Switzerland: An Urban Portrait*, ETH Studio Basel in 2005 put forward a thesis of Switzerland as a completely urbanised country. They show urbanisation putting pressure on the cellular structure of the commune and forcing the fabric of territory into new differences, new typologies of urbanisation. The thesis also showed these differences as being no longer local, but increasingly integrated into the cross-border European context.

Along this trajectory of planning and designing urban territories and urbanisation processes, in shifting from the period of Fordist economy (which emphasized the national scale) to the period of neoliberal globalisation, the national territory has been abandoned as a relevant scale of planning, with some variations from country to country.

The national planning concept was replaced by a more flexible or provisional idea of strategic planning and by a focus on select new strategic territories. Broadly speaking, urban areas or agglomerations today receive different amounts of attention in terms of investment and disinvestment. There is no specific relevant or fixed territorial scale; the scale or the frame is always contextual.

Linked to the same transformations is the changing position of architects among other relevant protagonists in urbanism and

Switzerland’s Urban Potential: Metropolitan regions, Networks of cities, Quiet zones, Alpine resorts, and Alpine fallow lands. ETH Studio Basel, 2005.



territorial or spatial planning. The new constellation foregrounds the role of engineers and engineering approaches as relevant to territorial planning, rather than the roles of architects and urbanists, in planning through design focused on the form of urban society and space.

At the same time, as a consequence of these transformations, there is a shifting of the typical task of the architect into smaller spatial scales, from territory and city back to the building.

Looking at the examples I have just shown, it is apparent that throughout the nineteenth and twentieth centuries, in different historical and political circumstances, the challenge of territorial urbanisation has been a constant: Territory was not a minor problem that has only recently gotten out of hand.

The assumption that the late-twentieth-century city is ungovernable and unplannable, driven by laissez-faire politics, has given many architects an alibi for retreating into their strict professional mandate; but as we have seen, this is not any truer today than it was before. In fact, architects have continuously reinvented urban territories and the playing field of their practice. It follows that, as in all previous periods, architectural engagement with territory is still relevant and necessary.

What can architects bring to territory and territorial scale? And what do we intend to do at the Architecture of Territory? What is our program?

*Research beyond the boundaries of our discipline.* I believe that in our discipline we do not have enough experience to tackle the problematic of planetary urbanisation alone and that a new interdisciplinary constellation should be built up. I believe that the

crucial link should develop between architecture and urban geography, which itself extends to economics and politics, whereas our position is rooted in urban history.

Furthermore, an important means of engagement with landscape and territory comes through visual arts—through photography—which can give us a way of looking at urban landscape. I also emphasize the importance of ethnographic research and the direct experience of urban landscape in keeping with Lucius Burckhardt's practice of walking.

In this new constellation there is an important intention of broadening the understanding of territory from the purely technical or administrative domain. Territory is a social and cultural fabric that architects are familiar with.

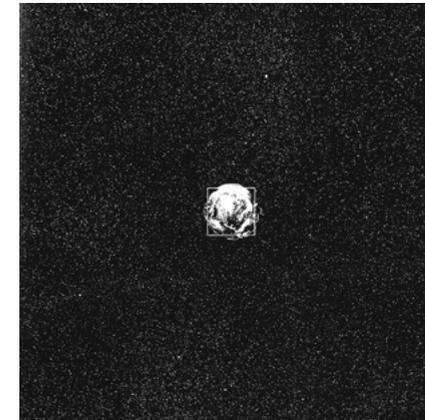
*Design.* Among other disciplines dealing with territory, architects' strength is design. Design is powerful because it is a synthetic mode of thinking. Architects and urbanists have the ability to synthesize the complexity of territory beyond narrow specialization. Such synthesis is possible only through a qualitative, phenomenological approach to the territory and through specific contextual thinking.

*Architecture and urbanism beyond the limits of the city.* The third element of our approach involves broadening the scope of architecture and urbanism from their focus on the city, or the urban in the narrow sense, responding to the growing scales of urbanization. This idea is not new or isolated: Throughout the twentieth century the urban and the city have been elusive, unstable categories. The recent concept of "planetary urbanization," for example, was helpful in reframing the urban problematic.<sup>30</sup> Once again, architecture and urbanism should extend their geographical field beyond the limits of the city to the research and design of urbanising territories.

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I would like to announce the start of the new research project: that of the European countryside. If Lefebvre was right, the urban transformation of countrysides in Europe is nearly completed; the European countryside is almost fully urban and fully industrialised. While we are fully capable of analysing and describing urbanisation processes in cities, we are not nearly as eloquent in the countryside. The former rural realm is a conceptual black box—presently, we lack the vocabulary to understand urban transformation of countryside areas caused by population change or by shifts from one mode of economy to another. How should this new condition be understood? What is the contemporary European countryside as a social space, as urban space, as productive space? How does countryside relate to cities? How should it be governed?

The project will unfold in the form of ETH research and design studios at different sites in Europe, beginning with Arcadia, Greece.



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- 1 Room of Peace (The City-State Under Tyranny), 2014. The photograph is part of series *Room of Peace (Siena)*, 2014, based on fresco ensemble: Ambrogio Lorenzetti, *Peace and War (The Allegories of Good and Bad Government)*, 1338-9.
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- Illustrations in the main text (pages 5-32)*
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With Studio Basel she authored and edited *Belgrade. Formal / Informal: A Research on Urban Transformation*, and *The Inevitable Specificity of Cities*. She is working on the forthcoming book *Hinterland: Singapore Beyond the Border*. She contributes essays on urbanism, architecture and art to various magazines and publications.

## Colophon

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Hinterland territories.  
Sand mining for construction  
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2013.



Hinterland territories.  
Underground storage  
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Singapore, 2013.



Singapore island republic  
and the urbanised sea of the  
Singapore Strait, 2015.



*The Good City Republic*, view  
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