Chinese Megablock Urbanism: a Tool of limitless Urbanization in an Unprecedented Speed and Scale

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Work
This paper works on the phenomenon of Chinese megablock urbanism, with urban morphological perspective, by studying two cases: the Clifford Estate and the Zhujiang New Town in Guangzhou, China.

Focus
◼ Focusing on its radicalness of **speed and scale**, this paper specifically aims to investigate Chinese mega-development at the urban block scale.
◼ Two cases are highlighted of what is defined as **Chinese megablock urbanism (CMU)**, as a model of Pearl River Delta (PRD) urban agglomeration.
◼ CMU has become instrumental, as a tool of **limitless urbanization**.

Research Question
◼ In what way can the study of megablock typologies in the PRD deliver better insight in terms of processes and scales of Chinese urbanization?
◼ By studying cases in the PRD region of south China, would it be possible to deliver other insight that are able to explain how megablock urbanism shapes Chinese cities with the current urbanization practices’ unprecedented speed and scale?
Guangzhou Higher Education Mega Center (17.9km²)
2013.01-2014.08 (19 months)

Hong Kong Island
(78.59km²)
1. Definition of “Megablock”

A TOOL OF LIMITLESS URBANIZATION IN AN UNPRECEDENTED SPEED AND SCALE

The research presented herein draws from the discipline of urban morphology to demonstrate the spatial characteristics of the CMU model. By evaluating selected factors and variables, the focus is to understand what CMU actually stands for in urbanization practices.

The CMU empirical methodology takes into account the configurative properties of the urban plot in regard to various factors. Megablock properties are expressed using plot dimensions in relation to land use, functional configurations and mobility, each with their distinct variables and measure sets.

Data collected through multiple sources which included: local government regulatory plans, OpenStreetMaps, open access maps and the statistical data website Map World (https://www.tianditu.gov.cn/), Google Earth, big data extracted from Baidu Map (map.baidu.com) and real-estate websites including Fang Tianxia (fang.com), Lianjia (lianjia.com), and Centaline Property (centanet.com), field work and proofreading of data conducted during the data collection phase.

Case analysis was conducted using the following steps:

1. Visualization of the site including building type and 3D model;
2. Preparing base maps from aerial photos and online maps;
3. Mapping the main features and facilities of the case;
4. Calculation of centrality with sDNA in ArcGIS;
5. Reflection of data analysis leading to the findings of the study.
CASE STUDY 1: CLIFFORD ESTATE

- Location: Panyu, Guangzhou
- Population: 200,000
- Surface: 5km²
- Building year: 1991-2017
- Type: residential compound
- Developer: Clifford Group.
- Accessibility: open and gated community
- Facility: clubs, stadiums, banks, police stations, fire stations, hospital, shopping mall, international schools, and shuttle bus terminals.

<table>
<thead>
<tr>
<th>Land use</th>
<th>Mobility</th>
<th>Configuration</th>
</tr>
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<tbody>
<tr>
<td>Intensity</td>
<td>Diversity</td>
<td>Intensity</td>
</tr>
<tr>
<td>Human density</td>
<td>Building density (FAR)</td>
<td>Housing density</td>
</tr>
<tr>
<td>20,000/km²²</td>
<td>0.8-5.3</td>
<td>Figure 4-A/B</td>
</tr>
</tbody>
</table>
CENTRALITY: CLIFFORD ESTATE
General
- CE is regarded as a mega residential development with only parts alongside the arterial road open to the public, and with the majority area enclosed and further sub-divided into 26 gated communities.
- From the analysis of building changes, early phase development (around 1991-2002) has been driven at the most rapid speed and scale on over 60% of its total area, with mainly low-density four storage buildings of 0.8 FAR. Project number and intensity drop from 2003, occupying less land but elevated FAR, as high as 5.3 for the Clifford Wonderland built in 2017.
- The land use map shows that there is a limited mix of functions.
- Through the mapping of its facilities, the results demonstrate an inequitable spatial distribution of its communal resources, alongside insufficient diversity of jobs and business.

Centrality test
- The closeness within the area of CE is relatively high, indicating relative access internally.
- The closeness at the larger scale indicate that CE is isolated from the larger network.
- Similar results shown for betweenness, confirms CE isolation from the urban road network.
### CASE STUDY 2: ZHUJJIANG NEW TOWN

- **Location:** Tianhe, Guangzhou
- **Population:** 170,000-180,000 (housing); 350,000-400,000 (job)
- **Surface:** 6.6km²
- **Building year:** 1999-
- **Type:** CBD
- **Developer:** multiple
- **Accessibility:** open and enclosed
- **Facility:** MTR, bus, office, commerce, hospital, education, leisure, restaurant

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<td>Building density (FAR)</td>
<td>Housing density</td>
</tr>
<tr>
<td>56,000/km²²</td>
<td>3.4-14.9</td>
<td>Figure 6-A/B</td>
</tr>
</tbody>
</table>

**Figure 6**
- A/B
- A/C
- A/C/D
- A/C/D
- C
- A/C/D
- 7-left
- 7-right

**Figure 7**
- Left
- Right
CENTRALITY: ZHUJIANG NEW TOWN
FINDINGS: ZHUJIANG NEW TOWN

General

◼ This case shows a higher intensity of development in regard to both speed and scale compared to case study 1.

◼ Mixed with gated and open communities, buildings, in this case, are high-rise with FAR from 3.4 to 14.9, declining from the central axis on both sides. The mix of land use, diversity and intensity equity distribution of facilities all show higher degrees compared to the CE.

Centrality test

◼ The centrality test of ZJNT results demonstrate how the megablock differs from the smaller urban block.

◼ The closeness test at the ten kilometres radii indicated a lower level of proximity between spaces in ZJNT compared to old districts (Yuexiu and Tianhe).

◼ The ten-kilometre betweenness test showed that ZJNT is surrounded by a clear super-grid structure, showing a high dependency on arterial roads.
Work
- Through the study of its **background** and cases, CMU reveals intriguing spatial characteristics and qualities that worth to be further investigated.
- The study has investigated into urbanism **theories** and **cases** of planning and scale, as well as reviewed Chinese **conditions** of various aspects.

Findings
- The results from present study show that Chinese rapid urbanization took place at an **unprecedented speed and scale**.
- The coinitial findings reveals that this research cannot be only related to FAR or morphology, it might be a **scale-density-morphology** hybrid description that it has to be further formulated, as a part of the CMU model.
- Adaptations and interventions of **analysis tools** for CMU are essential for the future study.
DISCUSSION

A. This study is an attempt to open up a discussion of CMU, lessons that we could learn from the Chinese rapid urbanization has not raised enough attention from neither the western nor Chinese scholars, especially under the nation’s mega strategies such as “The Belt and Road”, “Asian Infrastructure Investment Bank” and “GBA”, that might result in CMU model to have larger impacts both at home and abroad.

B. What are the meanings of scale-density-morphology in CMU and how they act as limitless urbanization tools, would gradually construct this study into an instruction guideline of the CMU.

C. The research is attempting to consider the concept of compact city as one of the envisaging conclusions. To foresee how the conditions of compactness could work, and how the conditions of morphology can be represented. Future research will put efforts to further explore the phenomenon of CMU, under the perspective of urban morphology, towards a more systematic and compact city direction.