TRAVEL TO JUSTICE
The Research on social-spatial effect of Transit Oriented Development in China
INTRODUCTION
RESEARCH OVERVIEW
THEORY RESEARCH
PLAYER ANALYSIS
REFERENCE STUDY
DESIGN PRINCIPLE
SITE SUNGANG
CONCLUSION
INTRODUCTION
STUDY BACKGROUND

INFRASTRUCTURE FEVER

Length of MRT
400km
350km
300km
250km
200km
150km
100km
50km

Planned
1965-1970
1970-1975
1975-1980
1980-1985
1985-1990
1990-1995
1995-2000
2000-2005
2005-2010

1965
Metro construction started and were for air defence facilities, partly accounting for public transportation service

1988
Guangshen railway electrified, speed raised to 200km/h

1994
Fever of metro construction around China but most are lack of preparation and highly cost. Central government started to regulate the situation

1999
Central government release policy for boosting metro construction for public transportation need. Importing technology and localised construction made the cost less

2004
First “Mid-long term railway network plan” released, boosting the highspeed line construction nationwide

2011
Wenzhou train collision reflects the quality problems in highspeed railway construction. All undergoing highspeed line projects halted, but is gradually rebounding then

2011
Hispeed line between Guangzhou-Shenzhen started operation

2010-2011
Finish of Shekou line and Longgang line, adding 77.4km to original two lines. In 2011, the fifth line: Huanzhong line finished, the network has 178km.
Special Economy Zone

Guangzhou-Shenzhen expressway
Coastal expressway

Special Economy Zone
WEALTHY METROPOLITAN DISTRICT

POPULATION: 12 MILLION
75%+
FLOATING PEOPLE WORKING FOR FACTORY & SERVICE
RESEARCH OVERVIEW
Lack of coherence between the urban physical and social structure featured by new urban plan and current condition of floating population in Shenzhen, which in turn leads to unbalanced opportunity to jobs, vocations, social relation and public service.
How to improve the Transit Oriented Development strategies in China to make them benefit floating group and contribute to a social-economic sustainable urban development?
THEORY RESEARCH
Transit Oriented Development
Transport Poverty

PLAYER ANALYSIS
Floating population
Government
Metro company
Investor

REFERENCE STUDY
Hong Kong
Tokyo
“Density, Diversity and Design”

Central TOD model

- Secondary area
- Transit line
- Housing
- Transit stop
- Work
- CBD

Suburban TOD model

- Secondary area
- Bus stops
- Commercial
- Local bus
- Housing
Transit Proximate Development

- Lack of accessible link
- Lack of mixed use lands
“The process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunity, service and social networks, due in whole or in part of insufficient mobility in a society and environment built around the assumption of high mobility.”
THEORY RESEARCH
Transit Oriented Development
Transport Poverty

PLAYER ANALYSIS
Floating population
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REFERENCE STUDY
Hong Kong
Tokyo
Map of urban villages
Map of daily cycle

FLOATING POPULATION

HOW THEY TRAVEL

Factory worker
Commuter
Informal business

2KM
Contributes to the development of Shenzhen. Commuting between workplace (mainly in factories and service field) and homes (mainly in urban villages), they also visit leisure places like parks, cinemas, etc, and continued education facilities.

Trying to become a formal Shenzhen citizen, or earning enough money and back to hometown.

**CHEAP HOUSES, SKILL EDUCATION, PROFESSIONAL EDUCATION AND HEALTH CARE**

Almost no rights except for the law protection for workers.
Map of social housing
ROLE

ACTIVITY

MAKING PLAN FOR WHOLE CITY

Urban manager, urban developer, infrastructure network planner, coordinators on social issues, including the changes on urban villages and plan for metro lines. Reorganise land function, hold land auction, attracting investors, earn money by selling land. Invest major public facilities, coordinate the conflicts between villagers and developers.

AIM

SELLING MORE LAND

Transforming Shenzhen into a global service city from a so called “World factory” harmonious society, and a healthy city.

NEED

RIGHTS

Almost all rights reserved, but be responsible for the daily life of the citizens.
Public transport operators and metro business runner, in current years they also playing role on metro related real estate development

**OPERATING METRO LINES** in Shenzhen on five lines, cooperate with government on the plan for the future lines

Making profit from metro fares and related business. Expand the metro network and improve the train service for citizens

**MORE FUND** for new projects and available lands for new lines

Having the rights to develop real estate on owned land but need to cooperate the project with municipal plan
Map of municipal focused development area

- Guangming Eco-town
- Longgang Universiade city
- Qianhai New centre
- Longhua Living community
- Futian City centre
- Houhai Nanshan centre
<table>
<thead>
<tr>
<th>ROLE</th>
<th>New urban project builder, controller of capital circulation</th>
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<tbody>
<tr>
<td>ACTIVITY</td>
<td>Buying lands from government and invest goods and capital on new projects, sometimes including negotiation with local villagers</td>
</tr>
<tr>
<td>AIM</td>
<td>MAKING PROFIT at aim, they also want a good social reputation</td>
</tr>
<tr>
<td>NEED</td>
<td>Cheap land and convenient transport network for their project</td>
</tr>
<tr>
<td>RIGHTS</td>
<td>CONTROLLING MONEY on the plots under the planning regulation</td>
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</table>
Most urgent area
Floating population
Government
Metro company
Investor

REFERENCE STUDY
Hong Kong
Tokyo
DEVELOPMENT MODE

Metro company
Ridership
Developer
Ticket
Government
Metro line
Development

Increase
Invest
Revenue
Invest
Attract
Revenue
Increase
Revenue

Cheap land
Operate

Other property
Transit company controlled property
How to improve the Transit Oriented Development strategies in China to make them benefit the floating group and contribute to a social-economic sustainable urban development?

Keep the floating population on site

For two reasons
1. Keep an active and lively community
2. Keep a high efficient metro network
SITE: SUNGANG
Road structure and future metro lines
Land use map
Formal commercial

Informal commercial

- Cosmetic
- Appliance
- Formal suit
- Home Accessories
- Car sale
- Speciality catering
- Daily market
- Daily service

Sungang Strength

Clothing
Home accessories
Arts and crafting
Car service
Retail
Hotel
Office
Medicine

Informal commercial
Land use map

Phase 2 to 3

Parking lots

School relocate

Railway land
Housing
Mixed housing & commercial
Commercial
Commercial + Warehouses
Cultural facilities
Green Space
Municipal facilities
Kept area
Open space
Parking Suggestions
STRENGTH
Lively local market
Mixed functional land
High density area

WEAKNESS
Poor building quality
Poor street space
Low accessibility

OPPORTUNITY
New metro lines
Government focus
Developers’ fund

THREAT
High end investment

Use railway land
Adjust parking lots
Encourage local market
Adjust community service

Improve visual system
Improve low speed network
Encourage bike use
Improve metro exit

Improve transport transfer
Improve metro design
Improve housing quality
TRAVEL BEHAVIOUR

- Student
- Young
- Mid-age
- Old

Age:
15-64
0-14
65+

15-19/36-64
44.5%

44.3%
20-35

Leisure
Market
Work
Home
School
Bus link map
Station as a community centre
Daily market map
SUNGANG VISION

Improve walking environment
Improve living condition
Reduce car parking
SUNGANG VISION

- Improve metro exit
- Improve accessibility
- Improve community service

7
Municipal possible plan
## COMPARISON

**Time consuming**

<table>
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<tr>
<th></th>
<th>Current</th>
<th>Future</th>
<th>Municipal</th>
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<tr>
<td>Use of public transport</td>
<td>56%</td>
<td>60-65%</td>
<td>50%</td>
</tr>
<tr>
<td>Use of bike</td>
<td>4%</td>
<td>10%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Use of car</td>
<td>40%</td>
<td>35%</td>
<td>50%</td>
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<tr>
<td>Avg. Time saved</td>
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<td>-20min</td>
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![Map showing current, future, and municipal data with various markers for different locations such as Hospital, Leisure (Cinema and Park), Education (Professional education), and Job (workplace and labour market).](image-url)
CONCLUSION
CONCLUSION

Relation between economy strength and public transport theory

Problem

Western
No service/No job

Eastern
Low living condition/ Poor education skill

Direct reason

No car/ No public transport

High-end development along transit line

Solution

Policy/ Management

Physical/ Management
CONCLUSION

What does this research contribute to Chinese planning practice?

TOD factors: Economy, Physical, Environment, Social

Connection: Landuse plan + Transit plan + Facilities plan

Plan level: Regional plan → Local need

FOLLOW
CONCLUSION
Future improvement

1. Precise data collection for accurate result
2. Specify the responsibility of different stakeholder
3. Specify more factors that could affect the regional design
4. Specify difference of local factors.